Nova Scotia POWER
An Emera Company

Contractor Environmental Requirements

Updated 2017

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To Report an
ENVIRONMENTAL EMERGENCY
(Federal or Provincial)
Phone (24 hr.)
1-800-565-1633
or
902-426-6030 (Halifax Exchange)
oil, pesticide and chemical spills, fish kills
or other environmental emergencies

CONTRACTOR ENVIRONMENTAL REQUIREMENTS
REVISION *2017*

The objectives of this handbook are to provide a resource of environmental requirement and to supplement contractor orientation at start up meetings.

Table of Recent Revisions
2011-1 was prepared in 2011 02. Changes to sections 1 to 6. Minor changes in sections 7- 15.
2012-1 was prepared in 2012 02. Minor change to section 1. Updated Section 5 (Wetlands). Added Section 4.3 (Other water resources). Minor change to Section 7.1.
2013-1 was prepared 2013 03 to add the updated Environmental Policy and new temporary bridge permit.
2014-1 was prepared 2014 01. New Environmental Policy, updates to sections 3 (Access Roads), 6.1 (Migratory Birds), 8.1 (Fuel Storage), 8.4 (Oil Releases). Removed former Appendix A (*Environmental Codes of Practice for Steam Electric Power Generation - Construction Phase (Environment Canada, 1989))*
2015-1 was prepared 2014 01. Minor formatting. Updates to culverts in section 2. Additional note in section 4
2016-1 was prepared 2016 01. Minor formatting. Updates to Water Crossings in section 4.1 and Culvert Installation was moved to 4.1.2. Also added Fording practices under section 4.1.3, and made updates to Temporary Bridges in section 4.1.4 and Wetlands in section 5.
2017-1 was prepared 2017-01. Minor formatting. The environmental policy was removed as it will be updated in 2017. Section 7.4 added information on lead-containing surface coatings. ***Note text in bold italics represents a change from previous document.***

An Environmental Message from
Nova Scotia Power to Contractors and Suppliers

Nova Scotia Power is committed to conducting business in a manner which is respectful and protective of the Environment.

Our environmental vision is summarized in three words:

Constantly Better Performance

That is why our environmental management systems are designed to meet requirements of the ISO 14001 international standard.

Our employees incorporate environmental considerations in all aspects of operation and decision making and take care and pride that their activities are consistent with our environmental policy. We have the same high expectations of Contractors or Suppliers when they are on NSPI property, or otherwise doing business with the Company. We also expect that visitors or other members of the public who enjoy our resources will equally share our commitment to the environment.

It is important to Nova Scotia Power that Contractors and Suppliers understand our commitment to the environment and that they help us to identify opportunities to enhance our environmental initiatives through use of appropriate products or services.

We all have a responsibility to work together to improve environmental performance.

If you want to learn more about our environmental policy and programs, please **visit our website at www.nspower.ca.**

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1 ENVIRONMENTAL PROTECTION

This document is not intended to contain detailed procedures to deal with all environmental issues in all situations. The Contractor may be required to supply and comply with detailed site specific or job specific environmental protection plans which may be provided in tender documents and required for contract pre-award (e.g. erosion and sedimentation control plans) as well as stipulations contained in regulatory approvals for various projects. In general, a copy of the regulatory approval must be on site during the course of the work.

The Contractor may also be required to comply with additional requirements for environmental protection as indicated in the contract.

Note that Contractors conducting vegetation management activities on behalf of Transmission and Distribution will primarily adhere to provided Vegetation Management procedures.

Environmental protection requirements will be reviewed with contractors at a pre-construction meeting.

NSPI designs, constructs and operates its facilities in a manner which is protective of the environment. As such the Contractor shall comply with all relevant *Federal, Provincial and Municipal laws, bylaws, ordinances and regulations* with regard to preservation of the environment. The Contractor shall abide by any conditions or stipulations contained in approvals issued to cover the Works and shall conduct operations in accordance with the environmental protection procedures contained herein.

Any operational incidents shall be reported to the NSPI site contact.

Applicable legislation (and associated regulations) may include but are not limited to the following:

FEDERAL	PROVINCIAL
Canada Shipping Act	Beaches Act
Canada Wildlife Act	Dangerous Goods Transportation Act
Canadian Environmental Assessment Act	Endangered Species Act
Canadian Environmental Protection Act	Environment Act
Environmental Violations and Administrative Monetary Penalties Act	Special Places Protection Act
Fisheries Act	Wilderness Area Protection Act
Migratory Birds Convention Act	Wildlife Act
Navigation Protection Act	
Pest Control Products Act	
Species at Risk Act	
Transportation of Dangerous Goods Act	

COMMUNICATIONS

Selected activities undertaken by Contractors may require interfacing with public or regulatory officials. Additional guidance for these particular undertakings will be provided during the pre-construction meeting. Effective communication should also be established with regional offices of NSPI and Head Office as appropriate.

2 MONITORING AND REPORTING OF ENVIRONMENTAL DATA

The Contractor shall monitor, document and report relevant environmental data and information as agreed with NSPI and appropriate regulatory agencies.

Monitoring and reporting of environmental data will facilitate evaluation of existing practices and development of approved mitigative measures. It will also enable the validation of predictions made during an environmental assessment process concerning the impacts of construction activities.

Data to be included in a program of environmental monitoring and reporting will depend on the scale of the construction project and potential areas of impact. Potential candidates for inclusion are:

- suspended sediment loadings in adjacent waterbodies;
- effluent quality and discharge rates from sedimentation basins;
- water quality in the vicinity of solid waste disposal sites or blast areas;
- groundwater levels and quality in adjacent domestic wells;
- chemical or oil spill incidents or discovery of unknown historic contamination;
- types and approximate quantities of solid waste disposed on or off site;
- fugitive dust deposition rates on site and in nearby areas; and
- noise levels in adjacent communities.

The scope and frequency of reporting will be determined by NSPI personnel.

3 EROSION AND SEDIMENTATION CONTROL

Applicable Policies, Regulations and/or Guidelines: ENV-014 – Environmental Protection and ROW Management

3.1 General Principles

The Contractor will use the principles of erosion and sedimentation control listed below at all sites where soil or subsoil has been exposed and there is potential for erosion.

i) Select sites that are suitable for the specific activity rather than attempting to modify the site to conform to the proposed activity. Steep slopes, erodible soils, watercourses, wet areas, and other areas of high erosion potential are to be avoided, if possible.

ii) Limit the amount of exposed soil, and minimize the length of time that soil is exposed. This is achieved by minimizing grubbing, timing construction to avoid wet periods, stabilizing soils and staging construction schedules to minimize exposed soils. Some examples are:

- Both temporary and permanent control measures for erosion and sedimentation should be implemented by the Contractor in an appropriate time frame.

- Grades should be minimized during construction. Unprotected slopes should be stabilized by gravel or geotextile fabric.

- Hydroseeding or gravelling of unprotected cut and fill slopes, spoil areas and topsoil stockpiles should take place as soon as possible.

iii) Use responsible travel practices, thereby reducing habitat damage and soil loss. If possible, travel around wetlands and watercourses. Travel through a wetland can only occur when appropriate mitigation measures have been taken (i.e., practices that will not rut or damage wetlands). Stabilize and install erosion and sedimentation control at access roads and approaches to water crossings. Schedule wetland and water crossings carefully, and use appropriate mitigation methods.

iv) Control run-off and prevent sediment from leaving the site as follows:

- Stabilize and protect loose or eroding materials with mechanical techniques (such as grading exposed faces, brush matting, rip-rapping, applying filter fabrics); or by rehabilitating via seeding, mulching or sodding immediately after a disturbance activity.

- Intercept silty water from access roads, excavation dewatering, or at the base of lower slopes. Use slash or straw or construct sediment traps, or take-off/drainage diversion ditches to channel drainage into vegetated areas. Maintain an appropriate buffer zone at all watercourses and minimize the width of the travel route that will be cut. For instream or nearstream work, silt curtains or booms may be required.

v) Maintain and monitor erosion control measures regularly* until a stable condition is achieved.

- Ensure sediment control structures are in working order at all times.

- Make certain that the site is in a stable condition at the end of each day, particularly if rainfall is forecasted.

- Inspect sediment control structures for integrity both during and after any significant rainfall occurs. Correct any damaged devices immediately.

*Note: Under normal conditions, the control measures should be checked on a predetermined basis (e.g., once daily) to verify the integrity of control measures and that no debris is caught that may affect the efficiency of the control measures.

If mitigation measures must remain in place after a job is completed and equipment is removed from site, then the area is to be periodically inspected until the mitigation measures are no longer required (i.e., area is stabilized). All silt fencing and geotextile fabric are to be removed from site.

3.2 Detailed Plans

Detailed Erosion and Sedimentation Control Plans will be required from the Contractor on a project-specific basis. These plans may require engineered drawings. The following are examples of typical items which the Contractor may be required to address in an erosion and sedimentation control plan:

i) The Contractor will ensure that erosion and sedimentation control measures are installed correctly prior to site preparation and work activities.

ii) All erosion control measures are to be adjusted to meet field conditions at the time of construction and installed prior to any grading or further disturbance of existing surfaces.

iii) The contractor will be responsible for ensuring, at all times, that surface drainage from all disturbed areas (construction site drainage) will be routed through sedimentation ponds or sediment control structures. If a construction site drainage system is to be built during initial site preparation activities, then drawings and installations are to be approved by NSPI.

iv) The sizing and design of sedimentation facilities (including chemical addition if necessary) should be such that:

- the facility will contain the accumulated precipitation of a 20 year return period, 24 hour precipitation event for each year that the drainage area remains exposed to erosion (e.g. if the area is to remain exposed for two years, the sedimentation facility

would be sized for a one in 40 year event). The maximum size of a facility would be based on a 1 in 100 year return period, 24 hour precipitation event; and

- the quality of the effluent from the sedimentation basins does not exceed 25 mg/L suspended solids (based on average weekly composite samples or as otherwise specified by regulatory approvals).

4 ACCESS ROADS

Applicable Policies, Regulations and/or Guidelines: Nova Scotia Watercourse Alternation Standard (2015)

NSPI will inform the Contractor of applicable permits that have been obtained. A site access plan may be required to ensure that access ways will not impact watercourses, wetlands or other sensitive habitat. Additional permits or approvals may be required. It may be beneficial to keep a photographic record of access roads (including water crossings) both before and after use to verify that there was no damage.

The Contractor will obtain all other necessary permits and will use the protection procedures listed below in the construction and maintenance of roads to access NSPI facilities:

i) The number and size of access roads will be minimized. Where possible, existing roads will be used (logging roads, farm roads, etc.). Landowner permission is required. Damage to existing roads will be repaired. Access through provincially owned lands may require notification to the Nova Scotia Department of Natural Resources. NSPI must be contacted if access through Crown Land is required.

ii) Natural land drainage will not be blocked by the construction or use of roads. Culverts or temporary bridges will be required at all points where drainage crosses the road. Culvert installation will be in accordance with the *Nova Scotia Watercourse Alteration Standard (2015)*. Do not use existing crossings if there has been significant damage. Where necessary additional erosion and sedimentation control measures may be

needed. Improvements to access ways may be required prior to using them either for environmental or safety reasons.

iii) Road ditches are important to keep roadbeds dry and stable. Ditches are not to run directly into a watercourse. Take-off ditches are to be constructed to direct the run-off through natural vegetation before it reaches any watercourse.

iv) Grubbing of access roads along NSPI transmission or distribution corridors (i.e. Right of Way-ROW) will be avoided. Exceptions include grubbing at structure locations and grubbing required for vehicle safety. Stumping is permitted to facilitate access.

v) Steep slopes and other areas of high erosion potential will be avoided, if possible.

vi) Road conditions will be inspected frequently. It may be necessary to fill in wheel ruts or perform other maintenance to promote drainage and mitigate damage.

In cases where work near sensitive areas is necessary, the Contractor shall obtain approval from NSPI for procedures and mitigation measures and plans prior to starting work in those areas.

5 WATER RESOURCES

Applicable Policies, Regulations, and/or Guidelines: ENV-014 – Environmental Protection and ROW Management; Nova Scotia Activities Designation Regulations; Nova Scotia Approval and Notification Procedures Regulations; Nova Scotia Watercourse Alteration Standard (2015); Nova Scotia Guide to Altering Watercourses

A watercourse is defined as the bed and shore of every natural river, stream, lake, creek, pond, spring and lagoon, and the water therein whether it contains water or not, and all groundwater. All watercourses in Nova Scotia, except groundwater, are considered to support fish and are treated as significant resources.

All work, in or near watercourses, that have the potential to deteriorate water quality or alter water flow (i.e., dam and bridge maintenance and instream work), require notification to and possible authorization by Nova Scotia Environment. The Contractor shall abide by all conditions of applicable approvals and shall follow the guiding principles listed below to protect water resources.

i) Water crossings and instream work will be avoided where possible by using alternatives such as existing access roads. Water crossings or instream work will be acceptable only when absolutely necessary.

ii) Activities near water resources will be designed and performed to avoid sedimentation both during and after activities.

iii) Water crossing will not result in restriction or blockade of natural drainage.

iv) Materials used to repair or stabilize slopes and any backfill or roadbed fill material will be clean, non-erodible, non-toxic, non-watercourse derived and shall not be treated with preservatives, such as creosote, or pentachlorophenol

v) Refueling of equipment is not permitted within 30 meters of a watercourse or wetland

vi) Vehicle activity within the wetted perimeter of the watercourse will be kept to a minimum and parking vehicles within the wetted perimeter is strictly prohibited.

vii) Vehicles used shall be mechanically sounds, with no leaking fuel, oil, or hydraulic connections.

5.1 Water Crossings

Line-specific environmental mapping is developed for transmission corridors throughout the province. Watercourses identified along the corridor are listed in association with the environmental mapping. In addition, the project-specific protection plans identify watercourses and site-specific protection measures. Water crossings will not result in restriction or blockage of natural drainage. Generally, equipment is not allowed to enter a watercourse and temporary bridges will be used to facilitate water crossings.

Temporary bridges are portable structures that are placed across watercourses for a period of time and are removed when the work in the area is complete. Temporary bridges should be engineered for the weight of the machinery that will cross the span.

If conducting watercrossings on transmission or distribution facilities procedures outlined in *ENV-014* and conditions of project-specific approvals shall be followed.

5.1.1 Mitigation Measures

The Contractor shall use the following general mitigation at all water crossings:

i) Crossings will be restricted to a single location and will occur at right angles to and at a narrow point on the watercourse. The crossing site should also exhibit stable soil type, and gentle approach slopes. Do not use existing crossings if there is significant pre-existing damage.

ii) The width of vegetation buffer zones is generally commensurate with the width of the watercourse. Specific buffer zone widths may be specified as part of project requirements.

iii) The approaches to water crossings will be stabilized with appropriate material and banks will be stabilized by placement of a vegetation mat, where necessary. Where bank and/or approach slope material is erodible, rip rap, filter fabric or other stabilization measures will be used. If mechanical stabilization is not considered to be sufficient to ensure stability or prevent siltation into the watercourse, further rehabilitation will be done and may include seeding, mulching, sodding or planting as soon as possible following clearing or construction.

iv) Trees will be felled away from watercourses during the work. Trees inadvertently felled within the high water mark will be removed immediately.

v) Monitor and maintain water crossing mitigation measures. This may include, but is not limited to, inspections to make certain the bridge deck is free of debris and that bridge supports are still acceptable.

5.1.2 Design, Installation, Maintenance and Removal of Temporary Bridges

Please note a Watercourse Alteration Approval from or notification to NSE is required for the installation of temporary bridges where the bed and/or banks of the watercourse will be altered.

Design Criteria

i) Avoid watercourse crossings where practical by using existing access roads and bridges which meet or exceed NSPI standards. Appropriate public consultation should be completed prior to utilizing privately owned roads and bridges;

ii) Avoid watercourse crossings, where practical, in areas with steep grades greater than 10%;

iii) Crossings should be located on a straight and relatively narrow section of the watercourse;

iv) Crossings should be located in a section of the stream with zero or near zero gradient and constant water velocity;

v) At a minimum, the bridge must completely span the watercourse with the sills or abutments placed such that no disturbance of the banks of the watercourse occurs. Sill logs or swamp maps used to support temporary bridges shall be placed on firm, stable ground outside the watercourse bed. Sill logs should be at least as wide as the bridge;

vi) The structure shall not touch the water surface during operation and must be capable of carrying the intended loads;

viii) The width of the structure shall not exceed that necessary for one vehicle to cross the bridge (i.e. one lane);

ix) For timber construction temporary bridges, construct runners from a minimum of three timbers bound together using cable, bolts or chains. Timber should have a minimum diameter of 25 cm. During muddy or unstable conditions, remove mud from the bridge surface frequently in order to prevent material from building-up on the bridge.

Installation

i) Temporary bridges should be installed at right angles to the watercourse channel to prevent any redirection of flow in the watercourse;

ii) The structure must be lifted in place, rather than dragged, and must be removed in the same manner;

iii) Installation of temporary bridging will be carried out in a manner to prevent sedimentation both during and after activities;

iv) The bridge deck must be installed in a manner that will prevent debris from falling into the watercourse while machinery is crossing;

v) Approaches on both sides must be stabilized against erosion for a distance of approximately 30m on both sides of the crossing, depending on site conditions. If the approaches are not naturally stable, they can be stabilized by using brush matting, clean granular material or other suitable means;

vi) Where required, erosion protection and sedimentation controls shall be in place prior to the bridge installation and left in place until the bank of the watercourse is stabilized;

vii) No travelling or skidding shall be allowed over temporary structures unless approaches to the crossing are stable and the structure has a deck that will prevent debris

from falling into the watercourse. If dragging a pole over a temporary bridge, the pole and associated debris must not enter the watercourse;

viii) The use of wood treated with creosote is not permitted in any part of the structure;

ix) All machinery must be free of leaks and other deleterious substances which could enter the watercourse during the crossing.

Maintenance

i) Periodic inspections shall be performed to ensure that the structure, streambed and stream banks are not damaged and that sediment is not entering the stream or blocking fish passage or migration;

ii) If heavy **rainfalls** are predicted, temporary bridge installations will be inspected to ensure adequate clearance should water levels rise, and if deemed necessary the bridge will be removed prior to rain event;

iii) Maintain the structure to ensure material does not build up on the bridge and the stream banks remain stable;

iv) Maintenance shall be performed as needed and in a timely manner to ensure that structures are in compliance with this standard and specifications. This shall include removal and disposal of any trapped sediment or debris. Sediment shall be disposed of and stabilized outside the waterway floodplain.

Removal

i) Final cleanup shall consist of removal of the temporary structure from the waterway, removal of all construction materials and protection of the stream banks and watercourse from any ongoing erosion or sedimentation potential where required;

ii) When work is completed and the bridge is no longer needed, the bridge shall be removed as soon as possible;

iii) Clean off bridge surface. Dispose of material in an area where it will not migrate back to the watercourse;

iv) Completely remove the crossing structure and all construction materials from the crossing location and dispose of in a manner acceptable to NSE;

v) The structure must be removed by lifting rather than dragging;

vi) Stabilize the approaches and the stream banks immediately upon removal with rock, hydro-seeding or hay mulch as required and/or at the request of NSE;

vii) Use sediment and erosion control measures on the approaches as deemed appropriate.

5.1.3 Culverts

Installation

All culvert installation requires either a notification or approval from Nova Scotia Environment.

The *Activities Designation Regulations of the Environment Act* state that Notification to NSE is required for culverts installed under the following circumstances:

i) watercourse has a slope of less than 0.5% and structure is designed by certified Watercourse Alteration Sizer, or

ii) watercourse has a slope of greater than 0.5% and less than 8% and structure is designed by professional engineer, and

iii) watershed above crossing site is less than 20 km^2, and

iv) culvert is less than 25 metres long, and

v) work is completed between June 1 and September 30

Approval from NSE is required if notification conditions are exceeded or a wetland is altered.

The culvert shall be installed in accordance with the *Nova Scotia Watercourse Standard (2015)* by a certified individual. Installations should adhere to the requirements of the *Canada Fisheries Act, section 35 and 36* when working in or near fish habitat.

Maintenance

No submission is required if maintenance is above ordinary high water mark. Please note: Maintenance does not include modifications.

Notification is required to NSE if maintaining or restoring a structure and work is below ordinary high-water mark of the watercourse and work is completed between June 1 and September 30.

Approval from NSE is required if notification conditions are exceeded.

5.1.4 Fording Practices

If the watercourse does not contain water at the time of the crossing, or is Type 1 or Type 2, vehicles may ford the watercourse providing that no rutting or disturbance to the bed or shores occurs and is conducted as specified below. Exception: NSPI's approval from NSE (NSPI-02-2011) for work in Provincial Wilderness Areas states that fording in Wilderness Areas is not permitted

Fording requires an approval if there is a disturbance to the bed of the watercourse.

Type 1 watercourses have hard bottom streambeds consisting primarily of gravel, cobble and/or boulders. There are gradually inclined slopes on one or both sides of watercourse (no greater than 2:1 slope); and riparian vegetation ranges from tall shrub swamps to upland habitats dominated by forest cover.

Generally the approaches to Type 1 watercourses are stable and stream beds are solid, consisting of large material.

Type 2 watercourses have hard bottom streambeds consisting primarily of gravel, cobble and/or boulders. The slopes may be steep (greater than 2:1 grade) which may result in increased potential for erosion. Upland forest habitats generally extend to the watercourse bank.

ii) In the event of a rainfall of 25 mm or more, no fording shall be permitted for 10 hours after the rainfall subsides, unless the operators deem fording is safe and can be completed without altering the bed or banks of the watercourse;

iii) Dangerous and waste dangerous goods are prohibited from transport through the ford;

iv) Equipment or materials shall not be skidded or dragged across the ford;

v) The fords shall not be used if the water depth exceeds the axle height of the vehicle. This does not apply to ATVs, Argos, or other vehicles with a fully enclosed axle;

vi) All loose debris shall be removed from vehicles prior to fording the watercourse;

vii) Crossing locations shall be limited to locations where material at the bottom of the stream is appropriate to carry the load;

ix) Crossings shall be carried out at right angles to the watercourse channel. The watercourse channel shall not be used to travel parallel to the banks of the watercourse;

xiii) Erosion control materials shall be used, as required, to stabilize both sides of the crossing to prevent rutting;

xiv) In the event the vehicle becomes stuck in a watercourse or along the banks, the vehicle shall be winched clear of the watercourse, using brush matting to prevent rutting. Spinning or shoveling is not permitted. Areas which sustain damage shall be stabilized within 24 hours;

xv) During frozen conditions, vehicles may cross watercourses via ice bridges providing that the ice cover is sufficient to hold the weight of the vehicle and the bed and shores are not disturbed (i.e., the crossing does not result in ice grounding and shoreline erosion when the ice cover is broken up by heavy equipment). For watercourses wider then 5m, consultation with NSPI personnel may be required.

5.2 Instream Work

Generally, instream work will be scheduled to occur between June 1 and September 30. This work requires the approval of NSE and notification to DFO.

The Contractor will follow the mitigative measures outlined below to protect water quality and maintain water flow. The Contractor shall also comply with any approval conditions.

i) Schedule instream work so that it coincides with low water flows/levels and so that it does not interfere with fish spawning activities or peak fish migration runs.

ii) Carry out construction and maintenance programs "in the dry" when possible. Cofferdams, if used, will follow these guidelines:

- Construct cofferdams of materials approved by NSPI to prevent erosion and siltation (i.e., materials resistant to erosion such as clean rock, geotextile fabrics, steel beams, plastic sheeting, sand bags etc). The stream bed will not be used as a source of cofferdam material.

- Divert overland flow away from the construction site and pump or otherwise direct water from the construction site into vegetated areas or into sediment basins such that water does not directly re-enter the watercourse.

- Contain excavated material such that it does not re-enter the watercourse or cause silt loading to the watercourse; and remove cofferdams in a manner to minimize and prevent cofferdam material from being washed into the watercourse.

iii) Surplus excavated material will be disposed of in an approved area that will prevent re-entry of the material into the watercourse. If necessary, silt curtains and/or oil sorbent booms will be installed downstream of the work site.

iv) Maintain continuous flow requirements specified by regulatory agencies or a minimum of one-third of the watercourse channel will be kept open and unobstructed at all times. Temporary water diversions, if used, will be excavated in the dry, lined with plastic sheeting then opened to carry water.

5.3 Other Water Resources

In addition to freshwater watercourses, construction and maintenance activities in and around marine and intertidal waters require special considerations. These areas include beaches / coastline, estuaries, intertidal zones, salt marshes and navigable waters.

NSPI must be notified of work conducted in these areas or if there is risk of erosion and sedimentation or releases of other potentially harmful substances to sensitive environments.

NSPI will obtain, if required, the necessary permits, approvals and/or authorizations from applicable environmental regulatory agencies during the work planning process. NSPI will obtain any easements, licenses or authorizations from landowners.

Any applicable permits must be on site prior to work commencement.

The Contractor will follow the mitigative measures outlined below to minimize damage to marine and intertidal environments.

i) Poles treated with pentachlorophenol are not permitted for use within 5m of the high water mark of a tidal/

marine environment. Untreated cedar poles and CCA poles are permitted for use within the 5m range and within the intertidal zone.

ii) Activities will be coordinated to coincide with low tide conditions when working in the intertidal zone.

iii) Machinery will operate from roadside where possible.

iv) If travel/ equipment are required in the inter-tidal zone, it will be minimized and kept to a single lane where possible.

v) Re-fueling will occur on dry land at a distance of at least 30m from the high water mark, and spill kits must be available at the work site.

vi) The minimum necessary excavation will be performed to complete the job.

vii) If cribbing is required, the crib work will be backfilled with clean/ non-acid bearing rock of appropriate size.

viii) Areas of disturbed material on erosion slopes adjacent to tidal waters (roadside/ river bank/ beach) will be covered with clean rock/ rip-rap to deter erosion.

ix) All other areas of disturbed material/ soil will be smoothed/ tamped down to deter erosion.

6 BLASTING

Applicable Policies, Regulations and/or Guidelines: NSPI Safety Manual, 2016; NSPI SWP 47 – Explosives Handling

The Contractor will notify NSPI, NSE and relevant landowners of any blasting activities. All blasts are to be monitored by a qualified professional. Prior to blasting, a survey of all structures (homes, wells, etc.) will be completed within a radius of the blasting zone that is consistent with the regulatory requirements for quarries. The survey will include analysis of well water quality within the survey area. Blasting requirements may be part of project specific plans.

As regulatory authorization may be required, the Contractor will notify NSPI: NSPI will inform NSE of any blasting activities. There may be requirements to notify regulators if blasting is to occur within 200 m of watercourses that support fish. Potential impacts to other marine animals and aquatic organisms may also have to be considered. This notification should be conducted as early as possible, since processing of an authorization will take 4 to 6 weeks.

Stipulations on authorizations will be provided to minimize adverse effects on fish where blasting is required (i.e. no alternative strategies) near watercourses. For example:

i) Use minimum size charge required;

ii) Use 25 millisecond time delay between charges; and

iii) Do not use ammonium nitrate based explosives in or near water.

7 WETLANDS

Applicable Policies, Regulations and/or Guidelines: ENV-014 – Environmental Protection and ROW Management; NSE Approval 2002-030721-A02; Activities Designation Regulation; Nova Scotia Wetland Conservation Policy

Wetlands are valuable natural resources providing habitat for a variety of wildlife and plant species, both aquatic and terrestrial. Wetlands include bogs, fens, swamps, forested wetlands, marshes. NSPI attempts to locate facilities away from wetlands, to the extent possible; and to avoid wetland crossings, where possible, by using existing access roads.

Prior approval is required from NSE to alter a wetland. An alteration is defined as filling, draining, flooding or excavating the wetland habitat, unless otherwise exempt. Rutting of wetland habitat due to vehicular travel may also constitute an alteration under the provincial policy.

Contractors should consult with an NSPI environmental resource for information regarding the *Nova Scotia Wetland Conservation Policy* for detailed information on working in or around wetland in Nova Scotia. NSPI is responsible for conducting Wetland Assessments, attaining any required approvals, and for all correspondence with NSE. As such, NSPI should be contacted as early as possible in the project planning to avoid delays. Please note NSPI will inform contractors of conditions where an NSE approval for a wetland alteration is not required.

The following exemption is given in NSE Approval 2002-030721-A02:

Specific work of less than or equal to $25m^2$ in applicable wetlands is permitted. For the purposes of this approval the wetland alteration shall not exceed $25m^2$. Any alteration exceeding this size will require a separate wetland alteration approval.

Wetland mitigation is a step-wise approach that provides a foundation for the decision-making process. It achieves wetland conservation through the application of a hierarchical process of alternatives as follows:

- avoidance of impacts;
- minimization of unavoidable impacts; and
- compensation for residual impacts that cannot be minimized.

If the Contractor is unable to avoid wetlands during the work, the following best management practices will be used at wetlands so that natural drainage is not diverted, restricted, or blocked and protection is provided to wildlife and habitat:

i) Time activities to coincide with frozen or low water conditions, where possible.

ii) Restrict crossings to single locations, which occur at right angles to, and at narrow points on the wetland and limit rutting or other damage. Where practicable, matting shall be used when crossing.

iii) Retain vegetation where possible, including dead snags to provide wildlife habitat. Noisy activities on wetlands should be scheduled to avoid disturbance of waterfowl during breeding season (April 1 to July 31).

Additional site specific protection of wetland habitat may be required.

8 WILDLIFE, HABITAT, HERITAGE RESOURCES AND RARE SPECIES

Applicable Policies, Regulations and/or Guidelines: Migratory Birds Convention Act; Migratory Bird Regulations; Endangered Species Act (1998); Species at Risk List Regulations (2007); Nova Scotia Wildlife Act; Special Places Protection Act

Contractors will follow the general practices outlined below to protect flora/fauna and habitats.

i) Vegetation clearing will be minimized to the extent possible and where possible.

ii) Staging locations will be selected based on minimization of noise and environmental disturbance.

iii) Machinery will be in good working order and equipped to minimize noise if necessary.

iv) Work sites will be kept clean to minimize access to garbage that may attract wildlife.

v) Alignment of access roads with existing roads will be implemented where possible and required.

vi) Clearing/fragmentation of habitat shall be minimized to the extent possible.

Where important wildlife species or sensitive habitats are encountered near NSPI facilities, noisy, disruptive activities will be scheduled to avoid sensitive wildlife periods. The Contractor will not harass wildlife. Firearms are prohibited in work vehicles and on NSPI lands and easements. Habitat disruption will be minimized, if possible, through reduced clearing requirements and the preservation of habitat (such as nest trees). Site specific procedures will be described in the project specific protection plan or provided by an NSPI representative. Protection measures for rare species will be described in project specific environmental protection plans or provided by an NSPI representative.

Heritage resources include sites and artifacts of value for their paleontological, archaeological or historical importance or interest. The locations of known heritage resources will be identified and appropriate protection measures described in the site-specific protection plan or provided by an NSPI representative.

Should the Contractor discover additional sites or artifacts during any NSPI work program, all activities in the immediate area of the discovery will cease until the proper authorities are notified and permission granted to proceed with the work. The Contractor will report any findings to the NSPI site contact, who will then contact the appropriate person(s) within NSPI, and the Provincial Archaeologist (Nova Scotia Museum).

8.1 Migratory Birds

General prohibitions under the Migratory Bird Convention Act and its regulations protect migratory birds, their nests and eggs anywhere they are found in Canada. It is illegal to damage or disturb a nest or eggs to during the bird nesting season (April 1 – August 31).

Where possible, clearing of vegetation should take place outside of nesting season nesting (April 1 - August 31). If work is being conducted between April 1 and August 31, be aware that birds may be nesting in your work area – consider habitat and previous disturbance as well as the vegetation you are working in. Bird nests are often well disguised and are frequently on the ground as well as in shrubs and trees, so it is important to diligently assess the work area to determine if nesting birds are present.

Certain nests (including large stick nests in trees) are protected all year if they are active or not and require permission to be removed. These include osprey, other birds of prey and heron colonies. These tree based nests should be obvious by their size. Nests of species listed in the Federal Species at Risk Act as Endangered or Threatened are protected at all times of the year. The NSPI environmental representative will alert the contractor if any species at risk are likely to be on site.

During nesting season, before starting work for the day, carry out a visual check for nesting birds in the area (birds that seem unusually tame, or are calling constantly can be a sign of nesting). If a nest or nesting bird is seen or bird flushed from a nest during operations, that area should be avoided.

Buffers can be identified by flagging for the day of operations but must be removed at the end of the day. Buffers should be at least 10m (30 ft.) in all directions from the nest / nesting bird. Buffers will be cut at a later date once young have left the nest. Large stick nests in trees need permission to be removed at any time of year.

Keep records to show you have checked the area for nesting birds.

If a nest, its eggs or young is accidentally disturbed or destroyed, the NSPI environmental representative shall be contacted immediately. The event will be documented and an appropriate path forward regarding the incident will be determined.

9 SPECIAL SUBSTANCES

Applicable Polices, Regulations and/or Guidelines: Schedule A of the Environmental Emergency Regulations

A variety of regulated substances are used and/or handled during various maintenance activities or other types of programs, for example, the use of pest-control products, fuels, lubricants, hydraulic oils and the application and removal of metal-based protective coatings during bridge maintenance. The Contractor will take all necessary precautions to prevent and minimize the spillage or loss of fuels and other hazardous materials. In addition, all Acts and Regulations associated with the delivery, storage, use and disposal of these materials will be followed. Fuels, used oil, and other hazardous materials will be handled only by appropriately trained personnel in accordance with government laws and regulations.

It should be noted that the following subsections represent a summary of the most pertinent points in the regulations / guidelines. The summary may not address all aspects of environmental protection measures required for every type of activity conducted for NSPI.

Where guidelines for reporting spills or accidental releases are not contained in regulatory approvals, *Schedule A of the Environmental Emergency Regulations* lists reportable quantities of hazardous materials (see Appendix A). Report all releases to the site contact. Reportable releases are to be reported to *Environmental Emergencies (1-800-565-1633)* as soon as the person responsible knows of the release.

9.1 Asbestos Waste

Applicable Policies, Regulations and/or Guidelines: Asbestos Waste Management Regulations; Occupational Health and Safety Act; Transportation of Dangerous Goods Act; Interprovincial Movement of Hazardous Waste Regulations; Dangerous Goods Transportation Act; Canadian Environmental Protection Act

Older buildings may have asbestos in floor, ceiling and exterior shingles and tiles, in stucco or plaster, in insulation, and in roofing "felt". Working with these materials may cause dust which contains asbestos fibres. Pretesting of the materials is required. Removal of asbestos material from the interior or exterior of any building or part thereof shall be conducted in accordance to all Codes of Practice made pursuant to the *Occupational Health and Safety Act*. Training will be required for all personnel involved in the handling of asbestos waste. Occupational health and safety personnel should be contacted for guidance.

The *Asbestos Waste Management Regulations* primarily address the storage and disposal of friable asbestos waste. The certified Contractor will ensure that people handling, storing or disposing of asbestos waste were protective clothing and personal respiratory equipment at all times while so engaged.

9.1.1 Handling

No person who transports, handles, stores or disposes of asbestos waste shall permit asbestos fibres or asbestos dust to become airborne. Every person who handles, transports or stores asbestos waste shall ensure that it is completely wetted and;

i) sealed in a plastic bag having a thickness of not less than 6 mil and placed inside a non-reusable 205 L drum or;

ii) sealed in a plastic bag having a thickness of not less than 6 mil and sealed within another plastic bag having a thickness of not less than 6 mil.

Every person who handles, transports, or stores asbestos waste shall ensure that every package/container is free of any puncture, tear or leak and the surfaces of the package/container are free of asbestos waste. All packages/containers that become broken, punctured or damaged shall be immediately repaired or repackaged. The surfaces of packages and containers shall be completely free of asbestos waste.

9.1.2 Storage

The contractor will ensure that temporary storage of asbestos waste at the work site meets the following requirements:

i) Asbestos waste shall be stored in a secure location.

ii) Asbestos waste shall be packaged as described in Section 9.1.1.

9.1.3 Transportation

Transportation out of province is regulated by the federal *Transportation of Dangerous Goods Act* and associated regulations, and the *Interprovincial Movement of Hazardous Waste Regulations* under the *Canadian Environmental Protection Act*.

Transportation within the province of Nova Scotia is regulated by the *Dangerous Goods Transportation Act*. This Act mirrors the requirements of the federal TDG Act.

The requirements for transport are as follows:

i) Each bag of asbestos waste must be labelled with the shipping name and PIN.

Shipping Name	PIN	Class	Packing Group	Limited Quantity Index (kg)
Asbestos, Blue (Crocidolite)	UN2212	9	II	1
Asbestos, Brown (Amosite)	UN2212	9	II	1
Asbestos, White (Chrysotile)	UN2590	9	II	5

Note: Waste should not be part of the shipping name but can be in brackets after the shipping name.

ii) Every person who transports asbestos waste shall ensure that it is properly packaged and free of punctures or tear. The surfaces of the packages shall be completely free of asbestos waste.

iii) Asbestos waste shall be transported directly to an approved storage/disposal site. Asbestos waste is prohibited from being transported to a waste transfer station.

iv) In advance of the transportation, the person responsible for the transportation shall notify the person responsible for the approved storage/disposal site. Notification shall include the anticipated time of arrival of the asbestos waste. Confirmation shall be obtained from the operator of the storage/disposal site for acceptance of the asbestos waste.

v) The vehicle used for transportation of asbestos shall be completely enclosed and the asbestos waste shall be transported within the vehicle. If the vehicle is not completely enclosed, the asbestos waste shall be completely covered with a tarpaulin and otherwise so secured as to prevent its escape from the vehicle.

vi) The driver of the vehicle shall ensure that the vehicle contains a shovel, a broom, work gloves, coveralls, half-face respirator c/w HEPA filter, a supply of a wetting agent and plastic bags sufficient to enable any required repackaging.

vii) Compaction type waste haulage vehicles or vehicles in which any other cargo is being transported shall not be used for the transportation of asbestos waste.

viii) Asbestos waste shall not be transported in bulk.

9.1.4 Documentation Requirements for In-Province Transport

A shipping document must accompany all shipments of asbestos waste above the Limited Quantity Index. The shipping document must meet the format prescribed in section 3.5 of the *Transportation of Dangerous Goods Regulation*. The shipping document must be signed by a person trained in accordance with the federal TDG Act. The shipping document must be retained for a period of two years.

If the total weight of the shipment is less than the limited quantity (see 7.1.3(i)), then a shipping document does not need to be completed. The bag must be marked with the words "Limited Quantity" on a contrasting background.

Placards are required if the vehicle is carrying more than 500 kg of asbestos waste. Placards shall be affixed on all four sides of the vehicle.

9.1.5 Documentation Requirements for Out of Province Transport

All shipments of asbestos waste must be documented. If the shipment is over 500 kg in total quantity, the truck must be placarded on all four sides. The placard shall be of class 9 and will indicate the appropriate product identification number (PIN).

A shipping document must be completed (see section 7.1.4). A waste manifest must also be completed and signed by the generator of the waste. The individual will be trained in accordance with the federal *TDG Act*. The copies of the manifest shall be sent to the appropriate people.

9.1.6 Disposal

Asbestos waste can be disposed of:

i) by burial in province at an active municipal solid waste disposal site approved by the NSE or;

ii) in another site which has received the appropriate regulatory approval.

Asbestos waste shall be buried only at an approved waste disposal site in a designated area that is separate from other wastes.

Any person handling asbestos waste, supervising the disposal of asbestos waste or operating equipment in the burial of asbestos waste shall wear a half-face respirator c/w HEPA filter as a minimum when there is the possibility of an accidental plastic bag rupture due to handling, or if a plastic bag rupture has occurred.

9.2 Transportation of Other Dangerous Goods

If other types of dangerous goods are required to be transported, then discuss process with NSPI site contact. Appropriate NSPI procedures should be followed including procedures for reporting releases during transport. Note that NSPI has received an Equivalency Certificate (EqC) under TDG for the transport of PCB contaminated oil filled equipment (containing less than 500 L of oil), Chor N Oil oil test kits and batteries. Copies of these EqCs should be in the vehicle when transporting these items for NSPI.

9.3 Ozone Layer Protection

Applicable Policies, Regulations and Guidelines: Ozone Layer Protection Regulations

Restricted ozone-depleting substances are given in Schedules A and B of the *Ozone Layer Protection Regulations*.

9.3.1 Requirements

No person shall work with equipment containing ozone-depleting substances unless that person has completed an approved environmental awareness course or is working directly under the supervision of someone who has completed such a course.

Ozone-depleting substances must be captured and recycled during the servicing of all equipment.

Ozone-depleting substances must be removed from all equipment prior to its disposal. A label stating that the ozone-depleting substance has been removed must be affixed to the unit. The label is affixed by personnel who have received training approved by NSE.

If top up of coolant is required during servicing of equipment then the Contractor shall immediately verbally notify the NSPI site contact all releases or suspected amount of loss of coolant. The amount of coolant added shall be documented. The provincial *Ozone Layer Protection Regulations* prohibit the release of any ozone-depleting substance. The release of ozone depleting substances in an amount greater than 25 kg is required to be reported to Environmental Emergencies.

9.4 Application and Removal of Protective Coatings

Applicable Policies, Regulations and/or Guidelines: Nova Scotia Environment Act Part V and Activities Designation Regulations Division VI; Canadian Fisheries Act Sections 35(1) and 36(3); Canadian Environmental Protection Act Sections 54 and 182; Surface Coating Material Regulations under the Canada Consumer Product Safety Act; Guidelines for the Application and Removal of Structural Steel Protective Coatings under the Nova Scotia Environment Act

These guidelines are to be applied to all structural steel coating contracts where dust and debris from surface preparation operations and the overspray from coating applications may result. The level of protection required is based on the site classification, the nature of the activity (blast or spray) and presence/absence of lead.

Please Note: A surface coating must not contain more than 90 ppm total lead when a dried sample is tested. Material above this concentration is considered to contain lead.

Site Classification

Class A No residence or permanent watercourse within 200 m.
Class B A residence or permanent watercourse located between 100 m and 200 m.
Class C A residence or permanent watercourse located within 100 m.
Class D Public institution, potable water supply, outdoor public recreational area, or sensitive processing/treatment facility within 300 m.

The guidelines have been developed for:

i) Environmental protection for surface preparation and coating operations during structural steel maintenance.
ii) Management of spent abrasive blasting medium generated on the project site.

9.4.1 Site Specific Requirements For Environmental Protection

Five protection schemes have been be specified for application and removal of protective coating operations:

Minimum Enclosure Requirements for Application and Removal of Protective Coatings

Table 1 - Lead Free Paints

Coating Operation	Site Classification			
	A	B	C	D
Manual Cleaning	1	2A	2B	2B
Manual Painting (brush, roller)	1	2A	2A	2A
Blast Cleaning and/or Spray Painting	1	3	3	3

Table 2 - Lead Paints

Coating Operation	Site Classification			
	A	B	C	D
Manual Cleaning	2A	2B	2B	2B
Manual Painting (brush, roller)	1	2A	2A	2A
Blast Cleaning and/or Spray Painting	2B	3	3	Site Assessment by DEL

Note: Department inspectors may require a higher level of enclosure than listed in the above tables for protection of sensitive areas.

Level 1 No enclosure

Level 2 Partial Enclosure

Level 2A Groundsheets or trays or tarpaulins hung beneath staging to collect debris for removal

Level 2B 2A plus vertical tarps or impermeable sheeting on exposed sides as needed to direct debris onto groundsheeting tarpaulins beneath the staging or onto platforms where it can be collected and removed. The vertical tarps must, as a minimum, extend upwards to the elevation being worked. The tarps must have interlocking seems or be laced together, at a minimum of one every 1.0 m.

Level 3 Full enclosure. Vertically hung tarps or impermeable sheeting on all sides, overhead cover and ground sheets or rigid platform. The tarps must have interlocking seems or be laced together, at a minimum of every 0.5 m to reduce emissions of dust to acceptable levels. Debris is directed onto ground sheets or rigid platforms for collection and removal.

Level 4 Full enclosure with negative pressure. Impermeable walls, overhead cover. Rigid platform. Entire enclosure to have fully sealed joints and sealed entry ways. Negative air pressure by forced air flow utilizing dust collectors. Uncontrolled dust and debris is prevented from leaving the enclosure and must be collected and removed.

9.4.2 Management of Spent Abrasive Blasting Debris Generated on the Project Site

Applicable Policies, Regulations and Guidelines: CGSB Provisional Standard No. 164-GP-IMP; Section 1V(2) of the NSE Guidelines for Structural Steel Coatings; Transportation of Dangerous Good Act and Regulations; Interprovincial Movement of Hazardous Waste Regulations

Spent structural steel abrasive blasting medium must be handled and disposed of according to its classification as defined by the leachate test criteria in the *CGSB provisional standard No. 164-GP-IMP*.

It is to be collected from groundsheets, trays or platforms daily, and deposited in weather tight containers in a storage area. It cannot be removed from the storage area until it is tested.

Sampling of the Debris is to be done so that representative composites are prepared. See section *1V(2) of the NSE Guidelines for Structural Steel Coatings*.

i) Solid Waste

Spent structural steel abrasive blasting medium is classified as a solid waste if it produces a leachate containing any of the contaminants listed in Schedule B at concentrations equal to or less than as specified in Schedule B, using the leachate extraction procedures as

defined in the *CGSB provisional standard No. 164-GP-IMP*. As solid waste, the spent blasting medium shall be transported from the project site to an approved waste disposal site.

ii) Waste Dangerous Goods

Spent structural steel blasting medium is classified as waste dangerous goods if it produces a leachate containing any of the contaminants listed in Schedule B at concentrations in excess of those specified in Schedule B, using the leachate extraction procedure as defined in the *CGSB provisional standard No. 164-GP-IMP*. The Contractor or agency shall obtain agreement and approval from the Nova Scotia Department of the Environment for disposal of the spent blasting medium.

Transportation of hazardous solid waste within Nova Scotia must be carried out in compliance with the *Transportation of Dangerous Goods Act and Regulations* of Nova Scotia.

Transportation of waste dangerous goods between provinces must be carried out in compliance with the federal *Interprovincial Movement of Hazardous Waste Regulations*.

Guidelines for the Application and Removal of Structural Steel Protective Coatings – Schedule B	
LEACHATE QUALITY CRITERIA*	
Contaminant	**Concentration (mg/L)**
Barium	100
Cadmium	0.5
Chromium	5
Lead	5

*A Waste Dangerous Good occurs when leachate concentration is produced which contains any of the above contaminants in excess of the levels shown on Schedule B. Testing for additional contaminants may be required by NSE.

9.5 Pest Control Products

Applicable Policies, Regulations and/or Guidelines: Activities Designation Regulations; NSE approval number – 2008-065111; Pesticide Regulations; Vegetation Management Procedures

All pesticide application programs that require approvals are under Division II of the *Activities Designation Regulations*. In general, NSPI will obtain the necessary approvals. For herbicide application on rights of way, a long-term approval (*NSE approval number – 2008-065111*) has been obtained. Terms and conditions of this Approval must be reviewed prior to any undertaking vegetation management projects which include the use of herbicides on rights of ways. All persons applying pesticide shall hold a valid Certificate of Qualification, as given in Section 7 of the provincial *Pesticide Regulations*.

See instruction outlined in the NSPI provided Vegetation Management procedures.

All pest control product releases are to be immediately reported to the NSPI site contact. Releases of pesticide in a concentrated form 5 L or 5kg or greater and releases of pesticide in a diluted form 70 L or greater are to be reported.

9.6 Treated Pole Placement / Disposal

Where poles are to be placed near fresh water resources:

i) Poles treated with pentachlorophenol shall be installed at least 15 m away from the high water mark of any fresh water resource or at least 5 m away from a high water mark of a tidal marine environment.

ii) If a pole must be set closer than 15 m from the high water mark of a fresh water resource, then it shall be an untreated Western Red Cedar pole. Untreated poles and CCA poles are permitted for use within 5 m of the intertidal zone.

iii) If Western Red Cedar poles are unavailable, poles treated with chromated copper arsenate (CCA) may be considered for installation. These must be installed at least 5 m away from a high water mark of any fresh water resource.

Where poles are to be placed in the vicinity of wells:

i) Treated poles shall not be installed closer than 15 m from a well.

ii) If a pole must be set closer than 15 m from a well, then it shall be an untreated Western Red Cedar pole, and installed in a manner that will not impact on the well.

Used treated poles that are no longer required by NSPI will be disposed in an environmentally acceptable manner either at a local landfill or reused by another party. Creosote treated poles should be disposed of as per NSE guidelines. If poles are provided to persons for other uses, the NSPI Release of

Indemnity form shall be completed which notes:

i) Any users of the poles should be advised that the wood has been treated with wood preservatives;

ii) Those persons are responsible for any poles they take possession of;

iii) Those persons should be aware that burning of treated poles may emit harmful fumes;

iv) Those persons should be aware that reuse of treated poles in special areas or for a particular purpose may not be appropriate. Examples might include: construction of playground equipment; where the wood may come in contact with food or drinking water; installation near water or wetland areas or used for a purpose where structural integrity is important.

9.7 Lighting Ballasts and Capacitors

Applicable Policies, Regulations and/or Guidelines: ENV-007-Ballast and Capacitor Management; PP-MOP-01 – Identification, Removal and Storage of Lighting Ballasts Containing "PCB" Oil; Identification of PCB Ballasts / Capacitors (ESP 2/CC/2)

Fluorescent lighting ballasts and ballasts/capacitors from external street lights manufactured before 1980 have the potential to contain PCB. Therefore, proper collection, sorting and storage procedures must be developed prior to the start of any lighting projects or during the routine change out of light fixtures.

Procedures have been developed in Transmission and Distribution and Power Generation. Refer to *ENV-007* for details on manufacture nameplate information. Contractors performing work in those areas should follow the applicable procedure.

Environment Canada's "*Identification of PCB Ballasts / Capacitors (EPS 2/CC/2)*" can also be referenced.

10 OIL, FUEL AND CHEMICALS

Applicable Policies, Regulations and/or Guidelines: Provincial Environment Act; Used Oil Regulations; Petroleum Management Regulations; Schedule A of the Environmental Emergency Regulations

In general, the management of fuels, lubricants and chemicals will be in accordance with the provincial *Environment Act* and applicable Regulations. The NSPI site contact will be given a listing of any petroleum products or chemicals that are to be brought to the site. Copies of MSDSs shall also be provided.

10.1 Storage

All fuels and lubricants used during construction will be stored in designated areas. Specific storage areas will be designed to contain accidental spills or leaks and chosen based on low soil permeability, distance from existing watercourses, and ability to provide protection from physical damage and vandalism.

Drums containing oil, fuel or chemicals will be stored in these areas, and records specifying the nature and quantity of materials being stored will be maintained by the Contractor. These drums shall be appropriately labelled.

The Contractor will follow the precautions listed below to prevent spillage or loss of fuels and other special substances:

i) Do not store petroleum products within designated water supply watershed boundaries. Do not store oils, greases, gasoline, diesel or other fuels within 100 m from any surface water or water supply.

ii) Use mechanically sound equipment with no leaks of oil, hydraulic oil, or fuel. Inspect equipment periodically**.**

iii) Clearly mark or barricade fuel storage areas and non-portable transfer lines to ensure that they are not damaged by construction vehicles. Smoking is prohibited within 10 m of a fuel storage area.

iv) Work done on petroleum storage tank systems must be done by a certified installer. Installers are required to complete and submit a storage tank system alteration report to the Nova Scotia Department of Environment within 30 days of job completion. NSPI will notify NSE prior to work commencing.

v) Retain used oils and lubricants in a tank or closed container, and dispose of them in an environmentally acceptable manner.

10.2 Refuelling

The refuelling of equipment will be carried out in a manner which minimizes the possibility of spills. Where possible, do not fuel or service construction or mobile equipment within 30 m of a watercourse. Where equipment is located near a watercourse and must be refuelled where it sits, special precautions (i.e., drip trays) will be used to prevent spilled fuel from entering any watercourse.

10.3 Used Oil

Used oil is defined by the regulations as "petroleum or synthetic lubrication oils, hydraulic fluids, metal working fluids and insulating fluids which have been used and are no longer suitable for their original purpose, but are suitable for other uses that are considered acceptable by the Minister."

Used oil is designated as a dangerous good under the *Used Oil Regulations*. Restrictions are placed on its use.

Storage of used oil in bulk shall be in accordance with requirements of the provincial *Petroleum Management Regulations*.

10.3.1 Transfer to a Used Oil Collector

Used oil can be transferred to an approved Used Oil Collector without conducting a chemical analysis of the oil. The person who generates the used oil must maintain records of the transfer of the oil to the used oil collector for a period of 2 years. The records shall include the volume of used oil transferred, the date of transfer and the collector's name. A list of approved used oil collectors is available from NSE.

10.3.2 Handling by Other Means

Used oil cannot be sold, offered for sale, transferred, or otherwise disposed of to any person other than an used oil collector unless the person who generates the used oil:

i) sends a sample of waste oil to a laboratory and have it analyzed for PCB, total organic halogens (as chlorine), cadmium, chromium, lead, and flash point;

ii) receives the results of the analysis from the laboratory; and

iii) determines from the analysis that the used oil is not contaminated used oil.

Contaminated used oil is defined as used oil that has a flashpoint less than 38°C or that contains any of the substances listed below in a concentration in excess of the following:

Contaminant	Concentration (mg/kg)
PCBs	5
total organic halogens as chlorine	1000
cadmium	2
chromium	10
lead	100

Contaminated used oil cannot be used, sold, offered for sale, transferred or disposed of unless written approval is obtained from NSE. NSE shall also be notified within 7 days of the receipt of the analysis if the oil is contaminated and the generator still has the oil in his/her possession. In addition, contaminated oil cannot be diluted if it contains PCBs or organic halogen compounds in concentration above the maximum allowable limits.

Records of used oil management must be kept for a period of 2 years. These records shall include copies of laboratory analyses of the oil, the volume of the oil sold or transferred, the date of

sale or transfer, and the person to whom the used oil is sold or transferred.

No one can handle, acquire, or receive used oil unless that person is a used oil collector or has a copy of the laboratory analysis of the oil.

No one can apply used oil or contaminated used oil to a public or private highway, road, trail, lane, bridge or parking area for any purpose, including dust suppression.

No one can add any substance to used oil or contaminated used oil for the purpose of disposal of that substance unless prior written approval has been given.

No one can burn used oil except as authorized by the provincial *Used Oil Regulations*.

10.3.3 Reporting Spills of Used Oil

All releases are to be reported to the NSPI site contact. Releases of used oil in excess of 100 L to land, or any quantity to fish habitat shall be immediately reported to *Environmental Emergencies (telephone 1-800-565-1633)*.

Releases greater than 5 L or 5 kg of contaminated used oil shall be reported to *Environmental Emergencies (telephone 1-800-565-1633)*.

All releases of used oil shall be cleaned up.

10.4 Oil Releases

10.4.1 Regulatory Reporting Requirements

All oil releases must be immediately reported by the NSPI site contact. Reportable releases are to be reported to *Environmental Emergencies (telephone 1-800-565-1633, Halifax – 902-426-6030)*, if they meet at least one of the following criteria:

- quantity of petroleum products (i.e. hydraulic fluid, fuel oil, etc.) over 100 L to land, or any quantity to fish habitat;
- quantity of contaminated used oil over 5 L or 5 kg;
- positive screen test for PCB (electrical oil only);
- unable to be screen tested for PCB within 4 hours of the time the release was discovered (electrical oil only);
- known to contain PCB in excess of 50 ppm (electrical oil only); or
- any release of oil containing 2 ppm PCB or greater from equipment older than 1985 in storage.

All oil releases, regardless of quantity, must be cleaned up.

Additional reporting and clean up requirements may be required under the Nova Scotia Contaminated Sites Regulations and associated protocols. Contact the NSPI site contact for more information in the event of a spill.

If the electrical oil was tested to be greater than 2 ppm PCB, then the stained soil must be tested for PCB. If the soil contains greater than 2 ppm PCB, then appropriate NSPI personnel should be contacted for guidance (through the NSPI site contact).

10.4.2 Emergency Response / Clean-Up

The Contractor shall have oil spill emergency response materials on site at all times. In the event of an oil spill, the Contractor will carry out the following actions, in a safe manner:

i) Stop further discharge and contain the spill (block any drains leading from the site).

ii) Collect/gather up oil and oily soil, vegetation, debris, etc.

iii) Transport of material to an approved site for storage or disposal. Follow applicable TDG requirements. Refer to site specific oil release response procedures for more details.

10.4.3 Discovery of Historic Contamination

During construction projects signs of contamination may be discovered that were not directly caused by the contractor. These need to be reported to appropriate NSPI personnel (through the NSPI site contact) for evaluation as soon as possible. Signs of contamination can include stained, discoloured, petroleum smelling soil, or soil with a sheen.

10.5 Chemical Releases

10.5.1 Regulatory Reporting Requirements

All chemical releases must be immediately reported to the NSPI site contact. Reportable releases are to be reported to *Environmental Emergencies (telephone 1-800-565-1633, Halifax – 902-426-6030)* if they meet the following criteria:

- Any quantity to fish habitat.
- Amounts in excess of quantities noted in *Schedule A of the Environmental Emergency Regulations* (see Appendix A).
- Class 9 substances in amounts 25 kg or 25 L if the release occurs during transportation.

All chemical releases, regardless of quantity, must be cleaned up.

10.5.2 Emergency Response / Clean-Up

The contractor shall have emergency response materials to appropriately respond to releases of the chemical(s) being used. In the event of a chemical release, the Contractor will carry out the following actions in a safe manner:

i) Stop further discharge and contain the spill (block any drains leading from the site).
ii) Collect / gather up spill material and impacted soil/vegetation.
iii) Transport the material to approved site for storage or disposal. Follow applicable *TDG* requirements

Refer to the site specific chemical release response procedures for more details.

11 WASTE CONTAINMENT AND DISPOSAL

Applicable Policies, Regulations and/or Guidelines: Environment Act; Solid Waste Resource Management Regulations; Activities Designation Regulations; federal Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Material regulations; and federal Export and Import of Hazardous Waste and Hazardous Recyclable Material regulations

The NSPI site contact is to be informed of any wastes that are to be disposed of out of province. Any waste that is to be disposed of outside of Canada must receive prior approval from NSPI.

Environmental concerns associated with containment and disposal of wastes produced on site include the impact of seepage and leachates on groundwater and surface waters and long term land use and reclamation implications.

The Contractor shall follow the requirements listed below as a minimum:

i) The Contractor shall at all times, keep the site free from the accumulation of waste material and debris, and on completion of the works, the contractor shall clear away and dispose of all surplus material, rubbish and temporary works of all kinds, and leave the site clean and tidy.

ii) Solid wastes, including waste construction material, where relevant, will be disposed of in accordance with the *Environment Act and the Solid Waste Resource Management Regulations*. (Also see the *Activities Designation Regulations, Sections 8 and 10*, for waste disposal activities that may require approval.) Designated

material listed in Schedule B of the *Solid Waste Resource Management Regulations* shall not be disposed as regular garbage. See Appendix B for listing of banned material.

iii) Solid wastes should not be placed in or come into contact with a water body.

iv) Non-sulphide rock, trees, brush, limbs, stumps, root bulbs, and organic soil may be disposed of at site provided that the Contractor seeks authorization from NSPI.

v) The temporary storage site should be located at least 100 m from a watercourse.

vi) Non-merchantable wood resulting from site clearing activities appropriately disposed. The NSPI site contact shall approve the method of disposal.

vii) Waste material shall be disposed of in a manner that will not cause damage to adjacent property, or mark the appearance of the completed site, or contribute to soil erosion, or change the planned site drainage.

12 FUGITIVE DUST

Dust shall be controlled by the contractor throughout the duration of the construction project by using water or a suitable, approved dust suppressant on all areas affected by the construction operations. Such areas shall include but not be limited to the following:

- construction along access roads;
- unpaved roads;
- haul roads;
- disposal sites;
- borrow pits; and
- production sites.

Dust control shall be considered ineffective where the amount of dust creates potential or actual unsafe conditions (e.g. poor visibility), public nuisance, or conditions endangering the value or appearance of any property.

Oil may not be used to control dust.

13 NOISE CONTROL

Noise is produced during construction by equipment, blasting, excavation, heavy equipment traffic and steam blowing of piping.

Noise may be a nuisance to communities adjacent to a construction site and may be a health hazard to site construction workers exposed to high intensity sound. Noise may also disturb the normal activities of wildlife in the vicinity of construction.
Unexpected noises from blasting, steam blows and other activities may be of concern to local residents. Where possible, local residents should be informed of abnormal noise causing construction activities and these activities should be scheduled to minimize disruption.

The Contractor shall follow the guidelines listed below as a minimum:

- Avoid performing noisy activities, such as blasting, during the night. Blasting related noise may be effectively reduced by limiting the number of holes per blasting event.

- Normal construction activity and heavy equipment traffic to and from the construction site should be restricted to normal daytime hours.

- Noise monitoring should be performed on a regular basis, as appropriate with the nature and extent of the work.

Noise levels resulting from construction activities *should* not exceed the following values at the property boundary.

Leq of 65 dBA between 0700 hrs and 1900 hrs

Leq of 60 dBA between 1900 hrs and 2300 hrs

Leq of 55 dBA between 2300 hrs and 0700 hrs and all day Sundays and Holidays

14 RIGHT-OF-WAY MAINTENANCE

Environmental issues associated with right-of-way maintenance may include more than watercourse crossings and use of pest control products approved by the Forestry Department. The disposal of materials during decommissioning of transmission or distribution lines will be outlined in specific clauses of the contract. Generally, all non-wood materials will be removed from rights-of-way. Poles will be removed. The overall objective is to maximize environmental protection (refer to sections 2-6 for more detailed information).

15 PIT AND QUARRY REQUIREMENTS

Applicable Policies, Regulations and/or Guidelines: Pit and Quarry Requirements

Where appropriate, the Contractor will be expected to follow with the NSE *Pit and Quarry Requirements*. Construction practices will require scoping to ensure conformance with these Requirements. Separation distances for and monitoring of blasting activities are two items of particular interest.

16 SULPHIDE BEARING MATERIALS

Applicable Policies, Regulations and/or Guidelines: Sulphide Bearing Material Disposal Regulations

Aggregate having a sulphide sulphur content equal to or greater than 0.4% (12.51 kg H_2SO_4/tonne) is considered a sulphide bearing material by provincial regulations, and excavation and disposal activities must meet regulatory requirements. Where a proposed excavation site is known or suspected to contain sulphide bearing material, and the excavation will involve an aggregate of volume exceeding 500 m^3 *in-situ* (in its original place) or 1300 tonnes, the Contractor will notify NSPI and NSE of the proposed excavation, as sampling analysis may be required. The *Sulphide Bearing Material Disposal Regulations* provide details on sampling and analysis. Disposal of sulphide bearing material where the total volume excavated is greater than 500 m^3 *in-situ*, or 1300 tonnes, must be done at a disposal site approved by NSE.

17 MONITORING WELLS

Where monitoring wells are required or impacted by a Contractor, the following requirements must be adhered to:

- As regulatory interface may be required, the Contractor will inform NSPI of the intention to install monitoring wells or if construction will impact an existing well.

- Wells must be constructed so that surface water cannot reach the aquifer.

- Records of well construction, yield, and well development flow rates will be supplied by the Contractor.

- When a well is declared to be abandoned, it shall be sealed, so as to prevent the vertical movement of water into the well. This shall be done following approval by NSE.

18 APPENDICES

A. Environmental Emergency Regulations

SCHEDULE A

Column 1	Column 2	Column 3	Column 4
Item No.	**TDGA Class**	**Description of Contaminant**	**Amount Spilled**
1.	1	Explosives	Any Amount
2.	2.1	Compressed gas (flammable)	100 L
3.	2.2	Compressed gas (non-corrosive, non-flammable)	100 L
4.	2.3	Compressed gas (toxic)	Any amount
5.	2.4	Compressed gas (corrosive)	Any amount
6.	3	Flammable liquids	100 L
7.	4.1	Flammable solids	25 kg
8.	4.2	Spontaneously combustible solids	25 kg
9.	4.3	Water reactant solids	25 kg
10.	5.1	Oxidizing substances	50 L or 50 kg
11.	5.2	Organic peroxides	1 L or 1 kg
12.	6.1	Poisonous substances	5 L or 5 kg
13.	6.2	Infectious substances	Any amount
14.	7	Radioactive substances	Any amount
15.	8	Corrosive substances	5 L or 5 kg
16.	***9****	Miscellaneous products or substances, excluding PCB mixtures	50 L or 50 kg
17.	***9***	PCB mixture of 50 or more parts per million	0.5 L or 0.5 kg
18.	***9***	Environmental hazardous substances	1 L or 1 kg
19.	***9***	Dangerous wastes	5 L or 5 kg
20.	None	Asbestos waste as defined in the *Asbestos Waste Management Regulations*	50 kg
21.	None	Used oil as defined in the *Used Oil Regulations*	100 L
22.	None	Contaminated used oil as defined in the *Used Oil Regulations*	5
23.	None	A pesticide in concentrated form	5 L or 5 kg
24.	None	A pesticide in diluted form	70 L
25.	None	Unauthorized sewage discharge into fresh water or sensitive marine water	100 L
26.	None	Ozone depleting substances as defined in the *Ozone Layer Protection Regulations*	25 kg

*Note - the ***Environmental Emergency*** regulations have not been changed to reflect the revised TDG classification. This table reflects the changed class in the Clear Language TDG regulations.

B. Materials Banned from Landfills and Incinerators

Schedule B Materials Banned from Landfills and Incinerators

Table

Column 1: Designated Material	Column 2: Implementation Date
Beverage containers	April 1, 1996
Corrugated cardboard	April 1, 1996
Newsprint	April 1, 1996
Used tires	April 1, 1996
Lead-acid (automotive) batteries	April 1, 1996
Leaf and yard waste	June 1, 1996
Post-consumer paint products, formerly known as waste paint	April 1, 1997
Ethylene glycol (automotive antifreeze)	April 1, 1997
Compostable organic material	June 1, 1997
Steel/tin food containers	April 1, 1998
Glass food containers	April 1, 1998
Low-density polyethylene bags and packaging	April 1, 1998
High-density polyethylene bags and packaging	April 1, 1998
Televisions	February 1, 2008
Desktop, laptop and notebook computers, including CPU's, keyboards, mice, cables and other components in the computer	February 1, 2008
Computer monitors	February 1, 2008
Computer printers, including printers that have scanning or fax capabilities or both	February 1, 2008
Computer scanners	February 1, 2009
Audio and video playback and recording systems	February 1, 2009
Telephones and fax machines	February 1, 2009
Cell phones and other wireless devices	February 1, 2009