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Government of Newfoundland and Labrador

Asphalt Plants

Good Management Guidelines

May 2019

1.0 INTRODUCTION

Purpose

- The purpose of the *Good Management Guidelines* is for distribution to asphalt plant owner/operators for guidance on how to operate and manage their plants in a environmentally responsible manner.

The set-up and operation of asphalt plants in this province are regulated under the following acts and regulations:

- Environmental Protection Act
    - *Air Pollution Control Regulations, 2004*
    - *Environmental Assessment Regulations, 2003*
    - *Storage and Handling of Gasoline and Associated Products Regulations, 2003*

- ***Water Resources Act***
    - *Environmental Control Water and Sewage Regulations, 2003*

- These are available at http://www.gov.nl.ca.

Environmental Assessment (EA)

- Under the *Environmental Assessment Regulations*, asphalt plants shall be registered, however, portable asphalt plants are exempt. In other words, prior to construction (i.e. set-up) and operation, a permanent asphalt plant must be registered, whereas temporary (i.e. portable) asphalt plants do not require registration. The EA registration process may take 120 days.

Certificate-of-Approval (C-of-A)

- All asphalt plants require a C-of-A.

- Each year, prior to asphalt plant start-up, the owner/operator must apply for a new C-of-A regardless if it is a new or existing location.

- To obtain a C-of-A, an operator must submit an *Application for Asphalt Plant Construction (Set-Up) and Operation* and submit this form to any regional GSC office 30 days prior to the proposed start-up date to allow time for processing.

Stop Work Orders

- Under Part XIII of the *Environmental Protection Act*, the Minister may issue an order *"to stop or shut down an activity or an undertaking immediately, permanently or for a specified time where, with respect to that activity or undertaking, there has been a contravention of the Act, regulations or a term or condition applicable to that activity or undertaking".*

2.0 ENVIRONMENTAL CONCERNS

- In this province, both *batch mix* and *drum mix (continuous)* asphalt plants are used. The main environmental concerns are:

    1) location
    2) air emissions (dust, smoke)
    3) air pollution control equipment (wet-scrubber or bag-house)
    4) settling ponds (where wet-scrubbers are used)
    5) site drainage
    6) fuel storage and use
    7) truck box oiling release agent
    8) disposal of off-spec asphalt and general refuse
    9) site closure

3.0 SELECTING A SITE

- Refer to Figure 1.

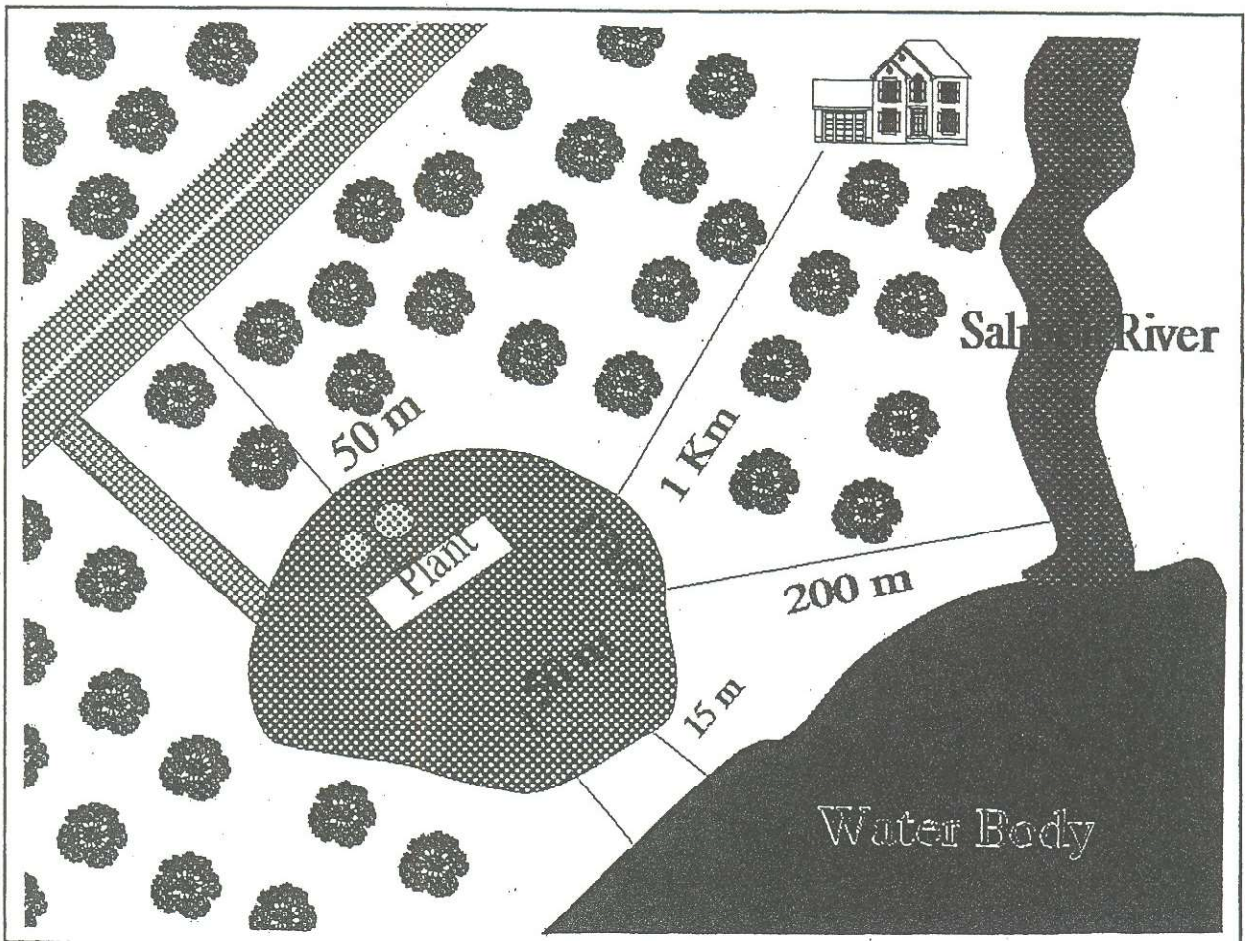

Figure 1 – Schematic of the minimum distance requirement for an asphalt plant site

- Ideally, the proposed site should have been a quarry and/or used previously for asphalt plant operations.

- The plant should not be visible from the TCH or major traffic arteries. A site which is fully or partially hidden by a vegetation screen or natural topography is desirable.

- The plant site should be at least 1 km from nearby housing, commercial establishments and/or recreational facilities.

- The site must be at least 200 m from any designated special areas, such as scheduled salmon rivers, watershed areas, wilderness areas, and parks.

- The plant should be at least 50 m from nearby roadways. In most cases, this can be accomplished by locating the plant as far as possible in the rear of the pit.

- Plant set-up; fuel storage; material stockpiles; and the application of truck box release agents must not take place within 50 m of a water body.

- Site related activities must not take place within 15 m of a water body, other than obtaining make-up water. This area is known as the disturbance free buffer.

- If the site is within a municipal boundary, then written permission from the municipal authority must be obtained.

- It should be noted that a C-of-A will not be issued for an operation located in a protected watershed area, wilderness area, or park.

When submitting an application to operate an asphalt plant, a sketch similar to Figure 2 must be attached that indicates:

- Directions to find the proposed location, which may include major landmarks, such as highway intersections.

- The actual shape of the quarry.

- The relative location and approximate distance of any nearby rivers or ponds.

- The proposed location of the asphalt plant in the quarry including any settling ponds, fuel tanks, and the source(s) of make-up water.

- The proposed location for truck box oiling.

4.0 AIR EMISSIONS

General

- The emissions of concern for an asphalt plant are smoke and dust.

- Any emission problems must be corrected as soon as possible. If emissions are deemed unacceptable (i.e. excessive smoke or dust) by an official of Service NL, then the asphalt

plant operator will be required to shut down the plant and take the necessary action to correct the situation. If the plant continues to operate with unacceptable emissions, then further action will be taken by Service NL.

Smoke

- Smoke normally results from poor combustion at the dryer burner and is usually evidenced by discoloured or darkening emissions from the plant's stack, or a black carbon layer on the settling pond(s).

- Usually, smoke problems can be corrected by performing adjustments to the burner. However, this problem should be avoided by a preventative maintenance program.

- At a distance of 30 to 50m, stack emission from an operating asphalt plant should not be visible if the pollution control equipment is in good working order.

Dust

- *Aggregate Dryer Dust*. This normally is termed "dryer dust" and is the primary emission concern from asphalt plants. Usually, a tan or beige coloured emission from the stack indicates that the pollution control equipment is malfunctioning.

- *Fugitive Dust*. This may be emitted from poor fitting duct work or head spaces above equipment where material is being conveyed, transferred, mixed, or otherwise handled. Generally, batch mix asphalt plants are more prone to fugitive dust emissions then drum mix.

- *Preventative maintenance*. Operators must develop a program to prevent pollution control equipment malfunction, and minimization of fugitive emissions from both types of plants.

4.0 AIR POLLUTION CONTROL EQUIPMENT

- Dryer dust is usually addressed through the use of suitable pollution control equipment such as a *bag-house* or a *wet-scrubber*. Both types of equipment require routine maintenance.

- *Bag-House*. Filter bags should be checked regularly and those with tears, rips or holes should be replaced immediately. It is good practice to maintain a supply of replacement bags on-site, to avoid delays.

- *Wet-Scrubber*. Spray nozzles in wet scrubbers should be checked regularly and should be cleaned if plugged or should be replaced if worn. Worn nozzles can cause the spray pattern to deteriorate, leaving gaps in the spray coverage through which stack gases pass untreated, thereby reducing the effectiveness of the scrubber unit.

- Usually, increased stack emissions indicates deterioration in the pollution control equipment's ability to capture dust and this should be immediately investigated and corrected.

- Any special circumstances, such as the unavailability of replacement parts, should be reported to GSC.

- In the past, several operators have had such problems late in the operating season and decided to leave the necessary maintenance work until the operation had ceased production for the year. This may result in prosecution or the operator's inability to obtain future environmental approvals to operate.

PROPER MAINTENANCE OF POLLUTION CONTROL EQUIPMENT IS CRITICALLY IMPORTANT

5.0 SETTLING PONDS

- Settling pond systems are used for the removal of the captured solids (i.e. aggregate dryer dust) from the water used in the wet scrubber system.

- In the past, operators allowed dust laden water to flow into an inadequate single settling pond and then discharge to the environment. In addition, scrubbing water was taken directly from a stream or pond and was used only once. These practices are **unacceptable.**

- The primary and secondary settling ponds; wet-scrubber; and water (i.e. re-cycled and evaporation make-up water) form a closed circuit system. This format is **acceptable.**

An acceptable settling pond system design consists of:

- Two adjacent settling ponds both approximately 1.2m deep by 3.6m wide by 12.2m long.

- A small overflow channel, or pipe, at the far end connects the primary settling pond to the secondary.

- In the primary settling pond, the wet-scrubber discharge pipe outlet should be opposite the inlet to the secondary pond to prevent the wet-scrubber effluent form short circuiting the primary settling pond.

- Scrubber feed water is pumped form the secondary settling pond by a pump installed at the near end.

- Make-up water, to compensate for the water lost as steam in the scrubbing of the hot, dust laden dryer gases, is not to be pumped directly into the scrubber unit, but may be added to the secondary pond.

- Refer to Figures 2 and 3.

Settling Pond Clean-Out

- The near end of the primary pond may be sloped to allow for access by heavy equipment to periodically clean out the fines which have settled. This should be done weekly or as often as necessary to ensure the efficient settling of the captured dust. This will ensure that recycled water is as clean as possible for re-use in the wet-scrubber.

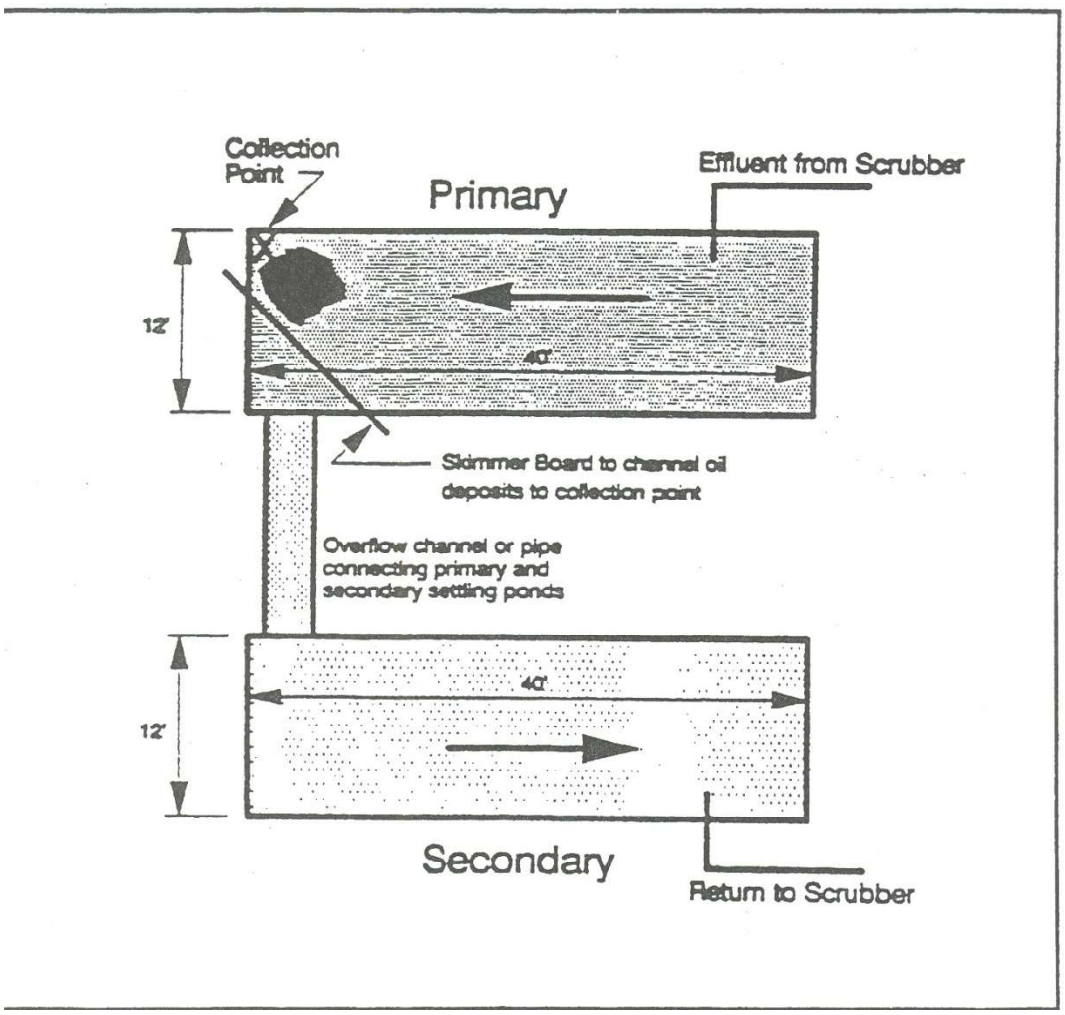

Figure 2 – Plan view of a typical settling pond

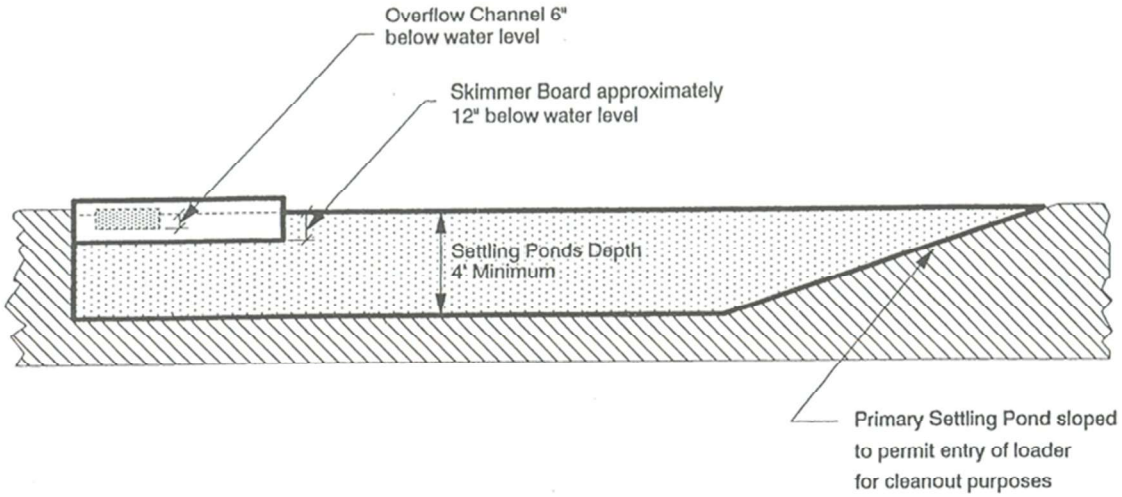

Figure 3 – Profile view of a typical primary settling pond

- Pumping heavily contaminated water through the scrubber system results in poor scrubbing action; plugs and erodes spray nozzles; thereby reducing the scrubber's effectiveness.

Oily Film and Asphalt on Surface and Banks of Settling Ponds

- A baffle board should be placed diagonally across the far end of the primary pond between the inlet and outlet. This will intercept any oil or asphalt and allow it to collect at one area where it can be readily removed for weekly disposal.

- Any oil or asphalt that builds up on the surface and banks of a settling shall be removed at least weekly or at any time when more than 10% of a pond surface is covered with oil or asphalt.

- All oil or asphalt removed along with any contaminated soil from the banks of a settling pond shall be disposed of at an approved waste disposal site.

7.0 SITE DRAINAGE

- Heavily silted surface run-off can be generated at an asphalt plant site due to rainfall onto stockpiles and the site itself. Consequently, some sites may require the use of settling ponds

or filter fabrics for site drainage so that discharges to water courses can meet the specified parameters in the *Environmental Control Water and Sewage Regulations, 2003*.

8.0 FUEL STORAGE AND USE

Approvals

- On-site storage of fuel for the asphalt plant's burner and heavy equipment, trucks, and generators shall be registered in accordance with the *Storage and Handling of Gasoline and Associated Products Regulations, 2003* (or GAP Regs).

- A separate GAP registration is required for each tank. Each tank must have a GAP registration number.

- When relocating a tank, a *Mobile Fuel Storage Tank Relocation Request Form* must be completed and submitted.

Underground Fuel Storage

- Underground fuel storage tanks are acceptable; however such installations are only practical at permanent sites.

Unacceptable Dyking

- A single-walled fuel oil tank with a gravel dyke is unacceptable.

- The pit walls surrounding the asphalt plant and fuel storage are not considered a dyke.

Acceptable Dyking

- The following systems, listed in descending order or preference, are the type of aboveground installations which should be used and are acceptable:

    1. Self-dyked tanks

2. Tanks within earthen dykes with an **impermeable** liner
3. Tanks with a certified **impermeable** earthen dyke

- It should be noted, the term ***permeability*** is defined as a trans-barrier migration of liquid greater than 25 L/m2/day.

- *Self-dyked tanks*. Ideally suited to mobile operations which may work at several sites during a paving season. During refuelling of self-dyked tanks equipped with canopies, the canopies must be open to capture spillage. In the case of self-dyked tanks with the canopies welded to the sides of the tank, extra care should be taken when refuelling to ensure that no overflow occurs.

- *Tanks within earthen dykes with an **impermeable** liner*. This tank installation is well suited to long-term or permanent operations.

- *Tanks with a certified **impermeable** earthen dyke*. The last option is more difficult to construct since this province's soils are generally high in permeability. However, if an operator chooses this option, then he must supply information certifying the earthen dyke's impermeability.

Tank Location

- Certain tanks will have to be located adjacent to the equipment that is being supplied.

- Tanks used to store fuel for mobile equipment should be located away from high traffic areas to reduce the carry-over of spilled fuel to other areas of the pit which would make the eventual clean-up more difficult.

- All fuel storage tanks should be located at least 50 m from any nearby streams, ponds, rivers or other bodies of water to which spilled or leaking fuel might flow.

Spillage of Fuel and Clean-Up

- Contamination of soil resulting from the spillage of fuel, oil, hydraulic fluid, etc, during the fueling and maintenance of vehicles and other equipment, is one that often occurs at a site.

Care should be taken to minimize the amount of fuel spillage and this will reduce the amount of contaminated soil.

- Asphalt plant operator must maintain on-site:

    1) A volume of $0.5m^3$ of granular absorbent; and
    2) Absorbent pads or cat-tails (absorbent filled nylon mesh tubes) for the removal of spilled oil from water.

- Spills should be immediately contained and absorbent material applied. Once a spill has been contained and controlled, all oil contaminated soil and absorbent must be collected (4 hours or sooner after applying absorbent) and disposed of at an approved disposal site. If the spill was the result of a leak from a piece of equipment or fuel line, the leak is to be repaired or the fuel line replaced immediately.

- **If the spill is suspected to be in excess of 70 litres it must be reported through the Coast Guard spill line at (709) 772-2083.**

- **Under the federal *Fisheries Act*, any spill of a deleterious substance into fish habitat must be reported, however, as it is highly unlikely that a plant would be located at or near a watercourse with fish so this is an unlikely scenario. In these events, the local Government Services Centre should be contacted.**

9.0 SPILLAGE OF LIQUID ASPHALT AND CLEAN-UP

- There is always some spillage of liquid asphalt from the tar tank.
- Operators should create a small depression in the ground to collect spilled asphalt.
- Allowing liquid asphalt drainage into settling ponds is unacceptable.
- All contaminated material shall be collected periodically and be disposed of at a nearby authorized waste disposal site.

10.0 TRUCK BOX OILING AND RELEASE AGENT

- Truck box oiling has been an area of concern.

- Beginning in 1994, only alternative release agents could be applied to the truck boxes and the use of diesel fuel for this purpose was prohibited. This has considerably reduced the amount of hydrocarbon contaminated soil at asphalt plants.
- Alternative release agents must be bio-degradable and non-toxic.
- During application owner/operator must submitted the alternative release agent's MSDS.

11.0 DISPOSAL OF OFF-SPEC ASPHALT AND GENERAL REFUSE

- *Burial*. Burial of small amounts of off-spec asphalt on the plant site is an **unacceptable** practice.

- *On-Site Paving*. Some operators have used off-spec asphalt to pave part of the sites which were subsequently abandoned. This is an **unacceptable** practice.

- *"Road Shoulder Stabilization"*. This is not considered a sufficient excuse for the dumping of off-spec asphalt at the job site. Service NL officials will require that this material be removed. The contractor is considered responsible even if the actual dumping was done by a subcontractor or an independent trucker.

- *Lunch Waste*. Lunch waste has been found littered around the asphalt plants. Much of this waste is associated with truck drivers waiting in line for fresh asphalt. To help alleviate this problem the asphalt plant operator is required to place one or more empty drums or other containers in the area where trucks wait for fresh asphalt and dispose of the collected waste as required at an approved waste disposal site. Also, open burning of waste materials is not permitted. These wastes must be removed from the site **on a minimum of a weekly basis** and disposed of at an approved waste disposal site

- *General Refuse*. General refuse from maintenance activities, fuel spill clean-ups, etc. must be removed from the site **on a minimum of a weekly basis** and disposed of at an approved waste disposal site.

- *Off-Spec Asphalt, Waste Asphalt, and Spilled Liquid Asphalt*. These should be recycled or send to an approved waste asphalt storage area.

- The consent of the owner/operator of the sites must be obtained and should be arranged before work commences and preferably at the time of bidding on the contract.

- Failure to comply with these requirements may adversely affect an operator when applying for future Certificates-of-Approvals. Also, this could be considered illegal dumping under the *Waste Material Disposal Act* and could therefore be subject to prosecution.

12.0 SITE CLOSURE

- Upon termination of asphalt plant operations at a site, or when the paving season has come to an end, certain site closure activities must take place.

- *Fuel Storage Tanks*. If the plant has ceased operation for the paving season, fuel storage tanks shall be drained of product if they are to remain on site.

- *RAP, Waste Asphalt and Off-Spec Asphalt.* Stored at an approved waste asphalt facility.

- *Petroleum Contaminated Soil (PCS)*. All contaminated soil must be sent to an approval soil treatment facility.

- *Lightly Stained Oily Rag/Towels/Absorbents.* For oily waste (rags, towels and absorbents) lightly stained with oily products: a two drum generation per month per site is acceptable for disposal to an approved Waste Disposal Site. Greater than two drums per month the waste would be considered a Waste Dangerous Good (WDG), which is sometimes referred to Hazardous Waste (HW). WDG must be transported by a licenced WDG transporter. Opening burning is not acceptable as a disposal method.

- *Soaked Oily Rag/Towels/Absorbents.* For oily waste soaked (with free flowing products) the two drum rule does not apply and this waste shall be considered WDG/HW. The oily waste shall be collected separately in approved container as WDG/HW. If waste oily rags and absorbents are generated on a regular basis, a waste collection container needs to be set up in the work area. The container should be lined with a compatible liner (such as a clear plastic bag), properly labeled as oily rags, and closed when not in use. WDG must be transported by a licenced WDG transporter. Open burning is not acceptable as a disposal method.

- *Refuse*. Lunchroom refuse and maintenance waste must be disposed of at an approved waste disposal site.

- *Settling Ponds*. At permanent and temporary sites that are used for more than one season, settling ponds may be filled in, or clearly marked to caution the general public. Otherwise, settling ponds are to be filled to grade when the asphalt plant has been moved off-site. Under no circumstances shall waste material be used for the infilling of a settling pond.

- *Site Restoration*. This may include: grading of slopes to eliminate any sudden and/or drastic changes in grade which may be hazardous; road shoulders, ditches, adjacent roadside areas shall cleaned of waste asphalt; all waste collected from these areas disposed at an approved

waste disposal site; and additional site-specific closure requirements as per Certificate-of-Approval(s) and/or quarry permits.

- *Service NL Notification*. Yearly, and a minimum of five working days prior to departing an approved site, the asphalt plant operator shall contact Service NL to allow for a closure inspection by a Service NL official. The owner/operator shall remedy any deficiencies identified by the Service NL official within the time frame as specified by the official.

- *Future C-of-A's*. These are conditional on a satisfactory site closure inspection by a Service NL official. If site rehabilitation is deemed unsatisfactory to the Minister, then future C-of-A's may not be issued to the owner and/or operator.

Appendix B

Summary of Applicable Acts, Regulations and Policies

SUMMARY OF APPLICABLE ACTS, REGULATIONS & POLICIES

Most of the Acts, regulations and policies listed-below are listed on the Department of Municipal Affairs and Environment's website. Unless indicated, the regulations and policies listed-below are under the Environmental Protection Act

1) Environmental Protection Act

2) Municipalities Act, 1999 (for Municipalities to regulate asphalt plants)

3) Water Resources Act

4) Waste Material Disposal Act

5) Pesticide Control Act

6) Guide to the Environmental Protection Act

7) Guide to the Water Resources Act (under the WRA)

8) Air Pollution Control Regulations, 2004

9) Storage and Handling of Gasoline and Associated Products Regulations, 2003

10) Environmental Control Water and Sewage Regulations, 2003 (under the WRA)

11) System Installation and Inspection Manual Heating Oil Storage Tank Systems

12) Heating Oil Storage Tank System Regulations, 2003

13) Environmental Assessment Regulations, 2003

14) Pesticides Control Regulations, 2012 (under the PCA)

15) Used Oil Control Regulations

16) Sanitation Regulations (under the Public Health Act)

17) Waste Material Disposal Areas (under the WMDA)

18) Fire Chief Regulations (under the Municipalities Act, 1999)

19) Operation of Small Asphalt Heaters For Driveway Paving Policy (17/02/97)