

Asphalt Plant Regulation

Policy Intentions Paper for Consultation

1. Introduction

The Ministry of Environment (the ministry) intends to establish an Asphalt Plant Code of Practice to replace the current Asphalt Plant Regulation (APR).

A code of practice (or “minister’s regulation”) is a legally binding and enforceable set of rules. The rules will outline measures and procedures to be followed by the asphalt industry for the protection of the environment. The code of practice would be established under provisions of the [Environmental Management Act](#) (EMA) and the [Waste Discharge Regulation](#) (WDR).

The proposed code of practice would apply across the province and would replace the current APR requirements.

The development process for the code of practice consists of five phases:

- 1. Scoping** – including a review of regulatory approaches in other jurisdictions and current best management practices.
- 2. Policy Intentions Paper for Consultation** – (intentions paper) outlining the ministry’s proposed policy intent for the code of practice, proposed content of the code and any outstanding issues or questions.
- 3. Consultation** – with affected stakeholders and the general public, using the intentions paper and response forms posted on the ministry website, and other means as required.
- 4. Drafting** – preparation of legal language for consideration by the Minister and/or Lieutenant Governor-in-Council.
- 5. Implementation** – training of ministry staff and external stakeholders, development of guidelines and/or best management practices.

The purpose of this intentions paper is to seek responses and comments from stakeholders and the public on the proposed code of practice. This consultation is the third phase in the code of practice development/regulatory review process.

This intentions paper provides a summary of the ministry’s mandate and objectives (section 2), background information and potential environmental and human health concerns associated with asphalt plants (section 3), and the ministry’s intentions for the proposed code of practice (sections 4-7). The final section of this paper describes the avenues for providing comment on the ministry’s intentions.

The intentions paper and response form for providing comments to the ministry, as well as further information and links to related legislation, are posted on the ministry’s website. The information can be accessed on the ministry’s [consultation webpage](#), or from the [Ministry of Environment homepage](#) by following the “*Environmental Management Act* Codes of Practice and Regulatory Review” link.

2. Ministry mandate and objectives

The Ministry of Environment provides leadership in environmental management through legislation and programs, compliance activities and shared stewardship initiatives. The ministry’s mandate is to protect human health and safety, and restore and maintain the diversity of native species, ecosystems and habitats. In support of the government’s goals, the ministry’s core business areas include environmental protection, stewardship and compliance.¹

The ministry’s objectives in establishing the code of practice are to:

- ◆ Establish consistent emission standards and monitoring requirements for asphalt plants to protect the environment and human health.
- ◆ Provide clear regulatory direction, appropriate to degree of risk to the environment and human health, for operation of asphalt plants.
- ◆ Update regulatory provisions to incorporate current and emerging trends and technologies in asphalt plants.

¹ See: [Ministry of Environment Service Plan 2011](#)

Asphalt Plant Regulation

Policy Intentions Paper for Consultation

3. Background information

The APR came into force in 1997 following a technical assessment and review process initiated earlier in the decade. The regulation specifies emission limits for “hot mix” asphalt plants.² The regulation has been subsequently amended to incorporate a two-tiered air emission limit standard – with more restrictive emission standards for asphalt plants registered after 1997 (and/or modified plants) and plants operating in the Lower Fraser Valley and in the Prince George area, and less stringent limits for all other plants in the province.

The *Environmental Management Act* (EMA) and the *Waste Discharge Regulation* (WDR) were brought into force in July 2004. Under the legislation, introduction of waste into the environment from identified “prescribed” industries, trades, businesses, operations and activities require authorization (e.g., permit or approval) from the ministry. The WDR also contains provisions for establishing codes of practice issued by the minister as a form of authorization for specified industries, trades, businesses, operations and activities.

Environmental and human health protection concerns associated with asphalt plants include particulate matter, greenhouse gases, fugitive dust and odours.

Air emissions in most of British Columbia (B.C.) are regulated by the Ministry of Environment; although the Metro Vancouver Regional District (Metro Vancouver) also has authority to manage air emissions within their jurisdiction under section 31 of EMA. As such, air emissions from asphalt plants located within Metro Vancouver are also subject to the limits and rules specified by Metro Vancouver.

There are nine asphalt plants operating in the Metro Vancouver region and approximately 92 other asphalt plants located outside of the Lower Fraser Valley and registered under the current regulation. Overall asphalt production in 2010 was

over three million tonnes, with most operators working at less than full capacity. The major purchaser of asphalt in the province is the Ministry of Transportation and Infrastructure.

Air Quality Issues and Asphalt Plants

Air quality concerns in British Columbia include: exposure to particulate matter (and/or ozone) at concentrations that could lead to detrimental human health and ecosystem effects; greenhouse gases (and their associated contribution to global climate change); impairment of visibility; and odorous emissions. Fine particulates (particulate matter) are presently considered the type of air pollution of most concern in B.C.

The most significant risks to air quality posed by the asphalt industry are associated with the emission of fine particulates and in particular, “inhalable” particulates < 10µm in diameter and “respirable” particulates < 2.5µm in diameter (by comparison, the average human hair is about 70 µm in diameter).

Protection and Stewardship of British Columbia's Air Quality

The ministry strives to reduce the impacts of air pollution on human health and the environment. Reducing emissions of some pollutants has benefits for both air quality and climate change. In support of this, the ministry encourages the use of clean technologies and seeks to establish effective emissions standards.

The ministry's goals and strategies for improving air quality are set out in the [ministry's service plan](#).

Additional information related to the protection and stewardship of B.C.'s air is available from the [ministry's air quality website](#).

² Defined in the regulation as a plant that is used for the production of hot mix asphalt by mixing hot dry aggregate with bitumen.

Asphalt Plant Regulation

Policy Intentions Paper for Consultation

4. Ministry intentions

4.1 Replace the current regulation with a code of practice

The ministry intends to establish a code of practice to regulate waste discharges to the environment from asphalt plants – to provide consistent requirements across the province and to protect the environment and human health in the areas where asphalt plants operate.

Many requirements of the existing regulation would remain the same or similar in the proposed code of practice. The proposed code encompasses the following elements:

- ◆ Revised definitions for asphalt plants that produce *hot mix* asphalt and/or *warm mix* asphalt and/or *cutback* asphalt.
- ◆ Removal of references to “mobile” and “stationary” plants.
- ◆ A single set of clear and consistent *air emission standards* for asphalt plants.
- ◆ Revised *registration, monitoring and reporting* requirements for asphalt plants.
- ◆ Revised *definitions* that will include portable recycled asphalt pavement (PRAP) plants.

The code of practice will complement existing legislation, including the *Environmental Management Act* and associated Regulations – such as the Waste Discharge, Hazardous Waste, Contaminated Sites and Spill Reporting Regulations.

Establishments registered under the code would remain subject to the relevant provisions of these Acts and Regulations. It is important to note also that the code of practice would not exempt establishments from meeting all applicable requirements of other provincial and federal agencies and of local government laws, bylaws and zoning.

4.2 Definitions – scope of the code of practice

The current regulation includes definitions for hot-in-place asphalt recycling, hot mix asphalt, and mobile and stationary plants. These definitions are overly specific and do not encompass the full extent of the current and emerging asphalt industry.

The ministry intends to:

- ◆ Amend the definitions in the code of practice to ensure that the code is applicable to “**any type of plant that produces asphalt for road, driveway, or pathway surfacing**” – these definitions would include hot-in-place, warm mix and hot mix asphalt plants, as well as recycled asphalt pavement plants using 100% recycled asphalt or any combination of recycled asphalt and fresh mix asphalt, cutback asphalt and possible additives such as rubberized material and/or polymers.
- ◆ Remove the distinction between definition of “mobile” and “stationary” asphalt plants. The ministry’s intention is to have consistent requirements for both types of plants.

The ministry intends to include the following new and revised definitions in the proposed code of practice:

- ◆ “**Asphalt plant**” means any type of plant other than a PRAP plant or hot-in-place asphalt recycling plant that produces asphalt for road, driveway or pathway surfacing by mixing aggregate, bitumen, and other additives to produce hot mix asphalt and/or warm mix asphalt and/or cut back asphalt. This definition would replace the current definition of “hot mix asphalt plant”.
- ◆ “**Portable recycled asphalt pavement (PRAP) plant**” means a plant that produces an asphalt mix using recycled asphalt pavement (RAP), which also may include a recycling or rejuvenating agent and has a **maximum production rate of 10 tonnes per hour**.
- ◆ “**Warm mix asphalt**” means asphalt designs that are modified to be produced, placed and

Asphalt Plant Regulation

Policy Intentions Paper for Consultation

compacted at lower temperatures than hot mix asphalt.

- ◆ **“Aggregate”** means any combination of crushed rock, gravel, sand, recycled asphalt pavement or granular material suitable for the manufacture of asphalt.
- ◆ **“Hot mix asphalt”** means an asphalt mix that is produced using virgin aggregates, bitumen and recycled asphalt pavement with the inclusion of recycled asphalt pavement being optional.
- ◆ **“Recycled asphalt pavement (RAP)”** means asphalt pavement that has been removed from an existing road surface and mechanically broken down into smaller pieces.

4.3 Air emissions standards

A. Asphalt plant air emission standards

Under the current APR, asphalt plants in the Lower Fraser Valley and Prince George, as well as new and modified plants cannot exceed 90 mg/m³ of particulates, while plants outside these regions of the province are subject to a less stringent upper limit of 120 mg/m³. There are corresponding limits for organics, opacity and carbon monoxide.

The ministry has conducted a scan of other North American jurisdictions for emission standards and direction with respect to “Best Achievable Technology” (BAT). The Province of Alberta, for example, has recently conducted a review and has proposed emission limits for discharge of particulate from asphalt plants decreasing from 228 mg/m³ in 2011 to 82 mg/m³ in 2017. United States EPA standards of performance set a limit of 90 mg/dscm for particulate with an opacity not to exceed 20%. The New Jersey Department of Environment has set a limit of 0.04 grains/scf (equivalent to 90 mg/m³) in a 2010 permit. Seven of the nine asphalt plants operating within the Metro Vancouver region are required to meet a standard of 90 mg/m³ with two other plants subject to more restrictive standards in keeping with Metro Vancouver’s Air Quality Management Plan which applies a “continuous improvement – best available

control technology” approach for emissions as permits are amended.

The ministry’s intention is to establish a single set of air emission standards for asphalt plants, consistent with current standards in other North American jurisdictions. The current APR has standards that align with other North American jurisdictions, however, these standards only apply to asphalt plants in the Lower Fraser Valley and Prince George areas, and for new and significantly modified plants. The ministry proposes to make these standards, set out below in Table 1, applicable to asphalt plants throughout B.C.

Table 1. Asphalt plant emission parameters and limits

Parameter	Emission Limit
Particulates	90 mg/m ³
Organics	60 mg/m ³ (1 hr average)
Opacity	20%
Carbon monoxide	200 mg/m ³

Under the proposed code, air emissions will be measured in terms of the weight in a given volume of air (i.e., mg/m³) at standard conditions, and by “opacity”.³

The revised emission standards would come into effect two years after enactment of the new code. They would apply to all plants currently registered under the APR and all new plants.

In conjunction with the above revised standards, an oxygen combustion level measured between 12-16% will be required.⁴ A correction factor of 14% will be required if a tested plant is operating outside the required oxygen range.

³ Opacity is a measure of the impenetrability of a medium to light. It is usually expressed in percentage (%).

⁴ The ministry’s analysis of historical stack testing data found the average oxygen content of B.C. registered plants to be 14.6% with limited variation. This suggests that application of an oxygen correction factor is of little value in improving data quality. US EPA standards and Alberta standards do not require application of an oxygen correction factor.

Asphalt Plant Regulation

Policy Intentions Paper for Consultation

B. Hot-in-place asphalt recycling plant air emission standards

The ministry is proposing to retain existing air emission limits for hot-in-place asphalt plants in the proposed code of practice. No need for changes to existing requirements is seen due to the low number of these types of plants in operation in B.C. and a lack of data or identified concerns related to these operations in other jurisdictions.

The ministry is however, proposing that the restriction of 25 mm shroud clearance be removed and substituted with the requirement for operators to **keep the shroud as close to the road surface as practically possible to ensure capture of emissions.**

4.4 Registration requirements

The ministry intends to update requirements for registration information for **asphalt plants** to maintain consistency throughout the proposed code of practice. In addition to information already required in the current regulation, registration information would include **a complete description of the major asphalt plant equipment components.**

No new registration requirements are proposed for hot-in-place asphalt plants.

4.5 Revised monitoring requirements for asphalt plants.

Issues associated with monitoring requirements in the current APR include:

- ◆ Difficulty in sampling under prescribed operating conditions (i.e., when operating at 80% or more of maximum hourly production capacity).
- ◆ A lack of consistency and accountability from periodic stack tests.
- ◆ A need for improved procedures to follow stack test failure.
- ◆ Unclear instructions for initial monitoring of new plants.

The ministry's proposals to address these issues are described below.

A. Operational sampling conditions

The ministry intends to remove the current requirement for sampling at 80% of the maximum production rate and replace it with a requirement to **sample at a historical average production** – based on a rolling average over the three months from June to August. New asphalt plants would be asked to sample at their anticipated average production rate.

The ministry also intends to introduce a requirement that **prohibits fuel switching for monitoring purposes.** For example, switching from waste oil as a regular fuel source to low sulfur fuel oil for the purpose of undergoing stack monitoring would not be an acceptable practice.

The ministry intends to introduce requirements for asphalt plants to **maintain daily records** of the types and volumes of fuels used in the production of asphalt; to make the records available for inspection by an officer; and to retain the records for at least seven years.

B. Stack monitoring frequency

Regular monitoring of stack emissions provides assurance that an asphalt plant is operating within emission standards. Monitoring requirements vary between jurisdictions. Metro Vancouver requires annual monitoring of asphalt plants. Alberta's code of practice requires testing within the first two years of start-up and every two years following, as well as a fluorescent tracer dust test every 200 hours for plants equipped with bag houses. Monitoring requirements in US states vary from every five years in Oregon to annually in California.

The current APR allows biennial (every second year) monitoring for plants with an annual production less than 10,000 tonnes per year and for plants with greater production if they have operated within emission standards (with demonstrated monitoring results) for three consecutive years. Otherwise, asphalt plants with an annual production capacity greater than 10,000 tonnes must monitor

Asphalt Plant Regulation

Policy Intentions Paper for Consultation

their stacks (stack test) annually. The ministry intends to maintain the above requirements set out in the current APR for the new code of practice.

The ministry intends to introduce a notification requirement in the event an asphalt plant with an annual production of less than 10,000 tonnes is unable to comply with the stack monitoring requirements. Often the cause of this event can be attributed to a plant's inability to run production for durations necessary to perform a stack test (a valid stack test requires a minimum of three test runs with each run approximately one hour in length). In the case of such an event, the ministry is proposing that the plant operator be required to notify the ministry and submit the following information:

- ◆ The date, duration (hours) and amount (tonnes) of asphalt produced for each event where asphalt was produced.
- ◆ Total annual production (tonnes).

- ◆ An opacity reading, during normal plant operating conditions, performed by a certified opacity reader.

C. Test failures – required action and subsequent monitoring (re-testing)

In addition to the current requirements set out in section 13.1 of the current APR, the ministry intends to introduce provisions in the code of practice to ensure that in the case of a monitoring test failure, the operator will undertake timely remedial action and retesting to ensure that the asphalt plant operates within prescribed emission standards. This would apply to all asphalt plant emission test failures, including the opacity reading described above in subsection B.

Table 2 summarizes actions that are being proposed to be undertaken in the event of a failed monitoring test.

Table 2. Subsequent monitoring requirements in the event monitoring test results show failure to comply with emissions limits

Emission Control Equipment	Subsequent Requirements
Bag House	<ol style="list-style-type: none"> 1) Take immediate action to bring emission levels into compliance 2) Maintain daily maintenance records 3) Make daily maintenance records and the results of at least one fluorescent tracer dust test available for inspection by an officer
Scrubber	<ol style="list-style-type: none"> 1) Take immediate action to bring levels into compliance 2) Maintain daily maintenance records 3) Make daily maintenance records available for inspection by an officer: Records should include information regarding the inspection, cleaning and/or replacing of nozzles and pumps as necessary to bring emission levels into compliance and emission control works into good working order

Asphalt Plant Regulation

Policy Intentions Paper for Consultation

4.6 Revised record keeping and reporting requirements for asphalt plants

The proposed code would require the owner or operator of a plant to:

- ◆ Maintain daily inspection and emergency shutdown records and retain these records for a **minimum of seven years** and make them available to the ministry on request.
- ◆ Notify the ministry within 24 hours of an “emergency condition” and provide subsequent information to the ministry within 30 days, confirming the remedial action that was taken and that emission control components are repaired and returned to good working order.

4.7 Notification for relocation of mobile plants

The current regulation requires that a plan of operation, including a site plan, be submitted 14 days prior to relocating a mobile plant. Included in the site plan is a requirement to provide the general plant equipment layout. The ministry is proposing that this requirement to include the general equipment layout within the site plan be removed. This proposal is based on feedback from industry that the general equipment layout could not be provided until the plant is relocated and reassembled.

Although the requirement for the general equipment layout may be removed, the site plan must still provide evidence that siting requirements are being met.

4.8 Asphalt plant siting requirements

The ministry is considering introducing siting requirements for stationary plants at new locations that mirror the requirements for mobile plants. The primary purpose of siting requirements is to protect air quality in populated areas near asphalt plants.

The setback distances the ministry is proposing consider the likelihood of adjacent air pollution sources. The ministry is also proposing to clarify language for point of impingement or the nearest point

where air contamination emitted by a source will impinge on a building or beyond the property line. The ministry is proposing that a stationary plant or a mobile plant located at a site not previously used for asphalt production must not, from point of discharge to point of impingement, be located:

- ◆ Within 50 metres of a stream or water body.
- ◆ Within 300 metres of a business or residence.
- ◆ Within 500 metres of an existing school, day care, hospital or continuing care facility.

4.9 Inclusion of portable recycled asphalt pavement (PRAP) plants

A. PRAP plant air emission standards

The ministry is proposing that emissions from a <10t/hr PRAP plant do not exceed an opacity reading of 20%. Emission control systems that are capable of meeting the 20% opacity limit include, but are not limited to, fabric filters or wet scrubbers.

B. Registration requirements for PRAP plants

The ministry intends to introduce a requirement for all recycled asphalt pavement plants to register with the ministry and have conducted at the time of registration, an environmental management plan outlining how emissions will be minimized.

C. Environmental management plan

The environmental management plan required under the regulation would include:

- ◆ Provisions for annual service and/or calibration of the plant burner by a qualified technician.
- ◆ Provisions for maintenance of the emission control components (if applicable).
- ◆ Provisions for plant operator training in accordance with best management practices which include, but are not limited to, temperature control for minimization of emissions discharged to the air.

Asphalt Plant Regulation

Policy Intentions Paper for Consultation

4.10 Dust and odour management plan

The ministry is proposing that a person operating an asphalt plant, a hot-in-place asphalt plant or a PRAP plant must create a plan that describes measures that will be undertaken to control dust and odour produced in the operation of the establishment, including any dust produced at the establishment premises by traffic, storage activities or the handling of materials.

4.11 Requirements for handling of material collected by emission controls

The ministry is proposing to update requirements for the handling of process water and establishment runoff to be more consistent with other regulations under the *EMA*.

The ministry is proposing the following new requirements:

- ◆ Process water or establishment runoff water of an asphalt plant that is discharged to the ground must not cause pollution of any groundwater.
- ◆ A person operating an asphalt plant must ensure that its process and establishment runoff water, if discharged to surface or marine water, is sampled and analyzed at least once during the operating season.
- ◆ A record of the sampling and analysis must be made available upon request from an Environmental Protection Officer.
- ◆ Process water or establishment runoff water from an asphalt plant must not be discharged into surface water or marine water except in accordance with requirements set out in the regulation.

As well, the person responsible for operating an asphalt plant:

- ◆ Must implement an effluent treatment system for the treatment of process water and establishment runoff discharged or flowing into surface water or marine water.
- ◆ Must ensure that such process water or establishment runoff:

- » has a pH level between 6.5 and 9;
 - » contains no more than 75 mg/L total suspended solids;
 - » contains no more than 15 mg/L total extractable hydrocarbons; and
 - » is not acutely lethal to fish⁵.
- ◆ Ensure that the effluent treatment system is inspected at least once a month, and inspection results are recorded with maintenance records to verify that it is in good working order.

5. Best management practices

The proposed code of practice may be supported by guidelines and/or best management practices (BMPs) that could provide detailed discussion and direction related to practices and procedures. These practices and procedures may be developed by the industry jointly with government and would not have the force of law. Guidelines or BMPs may be considered as assistance to persons governed by a code of practice in meeting their legal obligations.

6. Assuring compliance

A. Compliance promotion

Ensuring compliance with and enforcement of environmental laws and regulations are key ministry responsibilities. The work of ministry staff is focused on preventing environmental, human, health and safety issues before they occur and aims at deterring the violation of environmental law. Compliance promotion may entail training for ministry staff, as well as information and education (e.g., best management practices) for the industry sector.

Operators of asphalt plants are required to comply with all relevant regulations for the protection of the environment and human health, including the

⁵ “**Acutely lethal to fish**” means that the process water or establishment runoff, at 100% concentration, kills more than 50% of the rainbow trout in a 96-hour LC50 rainbow trout bioassay.

Asphalt Plant Regulation Policy Intentions Paper for Consultation

management of hazardous wastes and reporting of spills.

B. Compliance verification

The ministry's approach to compliance verification involves regular and random compliance reviews and inspections.

The ministry utilizes compliance data and other information to guide the ongoing management of asphalt plants and assure the goals for environmental protection are being met.

C. Enforcement

The ministry response to non-compliance entails written advisories and warnings, directives and prosecutions. Response will be based on standard ministry-wide policy, the compliance history of the industry and the significance of the impact on the environment from the non-compliance occurrence.

7. Fees

Provisions for annual fees for asphalt plants covered by the proposed code of practice are set out in section 9 of the Waste Discharge Regulation. The ministry does not anticipate any significant changes to fees for asphalt plants.

8. Providing comment on the proposed Code of Practice

The ministry intends to finalize and implement the code of practice for asphalt plants in 2012. Comments regarding the ministry's intentions are being solicited and will be considered in development of the code.

This intentions paper and a response form with questions based on the proposed contents of the code have been posted on the [ministry's consultation website](#).

Those interested are invited to submit comments on the ministry's intentions. Submissions will be reviewed for inclusion in a consultation summary report. Comments will be treated as confidential by ministry staff and contractors when preparing

consultation reports. Please note that comments you provide and information that identifies you as the source of those comments may be publicly available if a Freedom of Information request is made under the *Freedom of Information and Protection of Privacy Act*.

If you have any questions or comments regarding the consultation process, review the information posted on the ministry website, or contact Cindy Bertram of C. Rankin & Associates, who has been contracted to manage consultation comments, at:

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Victoria BC V9B 6K8

Fax: (250) 598-9948

Comments to the ministry should be made on or before April 16, 2012.

Thank you for your time and comments!