Overview of Asphalt Mix Industry Standard (AMIS)

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Asphalt Mix Industry Standard (AMIS) Publication

- The AMIS was published on October 27, 2020
- The AMIS is Chapter 9 of the Technical Standards to Manage Air Pollution document
- The AMIS is an industry standard type of technical standard under O. Reg. 419
- The AMIS is a voluntary air emission compliance option for asphalt plants in Ontario.

Technical Standards Overview

What is a Technical Standard?

- Technical standards are an alternative compliance option to meeting POI limits for registered contaminants
- Registering under a technical standard is considered by the MECP to be an equally valid option to meeting POI limits
- There are two types of technical standards:
  a) industry standards (applies to a sector)
  b) equipment standards (applies to a type of equipment used by multiple sectors)
- Each technical standard is a chapter in the MECP's Technical Standards to Manage Air Pollution document

Key Points About Technical Standards

- Registration is voluntary and facilities can de-register later
- Registration is by contaminant so the facility can pick and choose which contaminants they register for
- The facility is not required to demonstrate non-compliance to a POI limit to register for the corresponding contaminant
- Registration does not expire, but if the Ministry updates the technical standard requirements, registered facilities will be required to meet the applicable changes

How Does a Technical Standard Work?

- When a facility registers for contaminants under a technical standard those contaminants no longer need to meet POI limits or be included in the ESDM report (i.e., they are no longer part of emission calculations or dispersion modelling)
- Instead, for the registered contaminants, the facility needs to meet all of the requirements of the Technical Standard, which include physical controls, operational controls, maintenance, inspection and record keeping requirements

How Does a Technical Standard Work?

- Note: facilities will continue to need an ECA for noise emissions and any unregistered air emissions
- Technical standard registration does not relieve the facility of their other obligations in their ECA

Pros and Cons of AMIS Registration

Why Choose to Register Under the AMIS

1. Not able to meet POI limits
2. Already meeting the requirements under the AMIS
3. Reduce consulting efforts for emission calculations and dispersion modelling in ESDM report
4. Registered contaminants are not impacted by changes to POI limits or dispersion model versions
5. Technical Standards do not expire

What Are the Cons of the AMIS

1. Most asphalt mix facilities are not eligible to register for all contaminants. As a result, these facilities must still maintain an ESDM report. In addition, these facilities are permitted under both the POI and AMIS compliance regimes
2. Generally there are more requirements and substantially more administrative burden under the AMIS compared to meeting POI limits
3. As emission control technologies develop the MECP may decide to amend the AMIS and registered facilities must meet the new requirements

What Are the Cons of the AMIS

4. Negative public perception:
   a) The public knows that Technical Standards are an alternative compliance option and that registered facilities are no longer required to meet POI limits
   b) Even though a facility that meets their respective POI limits can register to a Technical Standard, the public perception can be that any registered facility is unable to meet POI limits

AMIS Scope

AMIS Scope – Operations Included

- All asphalt plants (including portable plants) can register for any contaminant listed in the AMIS, with the exception of suspended particulate matter (SPM) and silica (which have several restrictions)
- The AMIS covers all emission sources for an asphalt plant, plus crushing and screening of recycled asphalt pavement (RAP) (i.e., an asphalt mix facility or AMF)
- The AMIS also covers situations where two (or more) asphalt plants operate on the same property

AMIS Scope – Operations Not Included

- For clarity, the AMIS does not cover the following operations/emission sources:
  - Crushing or screening of aggregate (portable or stationary)
  - Storage or handling of recycled concrete (RC)
  - Crushing or screening of RC (portable or stationary)
  - Depot operations
  - RMC operations
  - Pit/Quarry operations

AMIS Definition: Portable Asphalt Mix Facility

- Portable Asphalt mix facility means an asphalt mix facility that is capable of being transported and is located proximate to the location where the asphalt mix is used

Contaminants Available for Registration under the AMIS

AMIS Scope – Contaminants

- The following groups of contaminants are included in the AMIS (NOTE: registration is by CAS#):
  - Benzo(a)pyrene (BaP)
  - Volatile organic compounds (VOCs)
  - Metals
  - Suspended Particulate Matter (SPM) and Respirable Silica
  - Combustion Gases (i.e., carbon monoxide, carbon dioxide)
  - Sulphur Dioxide
  - Nitrogen Oxides

AMIS Scope – Restrictions to Registering for SPM and/or Silica

- Asphalt plants in the following scenarios **cannot** register for SPM and/or silica:
  a) Portable asphalt plants (as defined by AMIS)
  b) Asphalt plants located on properties (or assessed as part of combined/adjacent properties) that have activities/operations other than those covered under the definition of an AMF. These activities could include, but are not limited to:
     - Storage, handling, crushing or screening of RC
     - Crushing or screening of aggregates
     - RMC plants, pits, quarries, or aggregate material depots
     - Sites where portable equipment is periodically operated (Note: there may be some exceptions for crushing of RAP)

Sections of AMIS by Contaminant Group

Appendix	Contaminants	Applicable AMIS Sections
9-A	All contaminants	1-3, 18-20, 22-25, 37-43
9-B	Volatile Organic Compounds	5-17, 21, 26-28, 31
9-C	Benzo(a)pyrene	5-17, 21, 26-28
9-D	Metals	5-17, 21, 26-28
9-E	Suspended Particulate Matter (which includes silica)	4, 9, 26-28, 32-36
9-F	Combustion Gases (i.e., CO, CO_2)	N/A
9-G	Sulphur Dioxide	29
9-H	Nitrogen Oxides	30

Key Requirements By Registered Contaminant

Benzo(a)pyrene, Metals and/or VOCs

Asphalt Mix (AM) Discharge Temperature Measurements

- The temperature of AM must be measured at each AM discharge point at the asphalt mix facility (AMF)
- For batch-mix → temperature measured each time that AM is discharged from the mixing structure
- For drum-mix → temperature measured at least once every 5 minutes when AM is being discharged from the mixing structure
- Temperature, date and time recorded electronically

Asphalt Mix Records

- Record the total mass of AM produced each day
- Record what types of AM were produced each day, and the times when the type was produced (so it can be linked to the temperature records)
- Retain a mix design from a certified lab for each type of AM that is produced at the AMF

Performance Limit

- The annual weighted average AM temperature must be less than the sum of 168°C plus the standard tolerance for the measuring device (the performance limit)
- The annual weighted average AM temperature must be calculated 3 times a year (by specified dates). If any of those 3 results are over the performance limit the facility must submit a report to the District Officer
- Not required for portable AMF unless the plant operated only at one location in the calendar year

Baghouse or Wet Scrubber

- Air emissions from a mixing structure or dryer must be discharged to a baghouse (or a wet scrubber if it was installed at the AMF before January 1, 2020)

Scavenging System

- One or more scavenging systems must be installed to capture registered contaminants from each AM drag conveyor, AM storage silo transfer conveyor and AM storage silo batcher at the AMF
- Scavenging system conveys air to the baghouse (or wet scrubber if installed before January 1, 2020), or the dryer (which must then discharge to an air pollution control device)

Enclosure of Conveyors

- Each AM drag conveyor must be covered such that, other than at the AM discharge point, the AM drag conveyor is fully enclosed
- Each AM storage silo transfer conveyor must be fully enclosed

AC Storage Tanks

- The following must be recorded for each AC storage tank that is not empty:
  a) temperature of AC, measured and recorded electronically at least once in each 24hr period
  b) the date that each load is received and the temperature of the load when it was loaded into the AC storage tank
  c) The maximum storage temperature specified by the AC supplier for the AC type

VOCs only – Odour Management Plan

Action	Stationary AMF	Portable AMF
Prepare an Odour Management Plan (OMP)	If AM discharge point is ≤500m from a sensitive receptor	Yes – regardless of location
Implement an OMP	If AM discharge point is ≤500m from a sensitive receptor	Only when operating and AM discharge point is ≤500m from a sensitive receptor
Train all workers on implementation of OMP before production begins each year	If AM discharge point is ≤500m from a sensitive receptor	Yes – regardless of location
Review and update OMP by March 31st	If AM discharge point is ≤500m from a sensitive receptor AND AMF received an odour complaint the previous year	AMF received an odour complaint the previous year while the AM discharge point was operating ≤500m from a sensitive receptor

Combustion Gases

Sulphur Dioxide

- Any dryers, hot oil heater burners, or generators operated as part of the AMF must be powered by electrical power, gaseous fuels and/or liquid fuels
- If liquid fuel is used <u>either</u>:
  a) The sulphur content must be less than 0.5% OR
  b) An air pollution control device must be used to remove sulphur dioxide from combustion emissions

Nitrogen Oxides

- Each dryer burner, hot oil heater burner or generator installed at the AMF on or after January 1, 2024 must meet the nitrogen oxide emission limits in Appendix 9-I
- Before a dryer burner, hot oil heater burner or generator is installed at the AMF on or after January 1, 2024, the facility must obtain written verification from a licensed engineering practitioner that the burner will meet the nitrogen oxide emission limits in Appendix 9-I

Carbon Dioxide and Carbon Monoxide

- There are no requirements for registering to either carbon dioxide or carbon monoxide

Suspended Particulate Matter (SPM) and Silica

Best Practices Procedure (BPP)

- A BPP must be prepared and implemented
- A BPP is similar to a BMP Plan required under an ECA, however it is more detailed with requirements specified in the AMIS
- The BPP must be updated annually by March 31st
- All workers must be trained on the BPP annually before production begins for the year

Impacting Factors

There are 2 specified factors that may dictate additional or more stringent requirements for SPM and/or silica

1. Silt in aggregate material → defined under the AMIS as material that is ≤75 µm (or 0.075mm)
2. Maximum wind speed → speed determined by the AMF at which, when the activity is engaged (e.g., aggregate handling, RAP crushing), a visible discharge of particulate matter beyond the activity area is not likely

Aggregate/RAP Storage and Handling

- Water or chemical dust suppressant must be applied to stored aggregate or RAP that contain silt at least once a day and a record kept
- Aggregate that contains silt may not be handled unless the wind speed is below the maximum wind speed in the Best Practices Procedure (BPP)
- Storage piles must be labelled with signs
- Drop height must be minimized at all transfer points

RAP Crushing

- RAP may not be crushed or screened unless the wind speed is below the maximum wind speed in the BPP
- Sufficient water must be applied to RAP crushing or screening to prevent the discharge of particulate matter into the air
- Crushing or screening of other materials is not included in the AMIS, and facilities with these activities cannot register for SPM or silica

Visual Inspection Requirements for BaP, Metals, VOCs, SPM or Silica

Visual Inspections

- The AMIS details visual inspection frequencies and objectives for various emission sources (by contaminant)
- Records must be kept of:

a) The visual inspection

b) Monthly review of the visual inspection records

c) Actions taken to investigate and correct missed objectives or deviations

General Requirements for Any Contaminant

Additional Actions

- Operating Parameter Summary Table → parameters to be measured, frequency and location of measurements, normal operating range. Note: also, actions to be taken if operation is outside normal operating range (i.e., deviations)
- Inspection and Maintenance → required actions to be completed with specified frequency, and records
- Respond to, report and document complaints

Additional Record Keeping

- Prepare annual updates to summary records and have them reviewed by March 31st by the highest-ranking person regularly present at the AMF who has management responsibilities relating to the facility
- Track and record changes to documentation required by the AMIS and prepare various summaries of the changes or deviations

Documents to be Made Public

1. Performance Summary Table identifying:
   - If the AMF facility did not meet the annual weighted average performance limit of 168°C
   - If any orders were received from the MECP to amend the AMF's Operating Parameter Summary Table or the Inspection & Maintenance Summary Table
2. Implementation Summary Table identifying:
   - The sections of the AMIS that apply to the AMF and the date when they first applied to the AMF
   - The date when the AMF achieved compliance with the section

Record Retention

- Records required by the AMIS, including procedures, measurements, notifications, tables and reports, as well as any notices or orders given under the AMIS must be retained for 5 years and be available at the AMF
- Documents related to the operation and maintenance of equipment under the AMIS must be kept for 5 years from the date the equipment was last used at the AMF (i.e., for 5 years after the life of the equipment)

Questions / For further information:

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Link to AMIS:

https://www.ontario.ca/document/technical-standards-manage-air-pollution-0/asphalt-mix-industry-standard

Disclaimer

- This training presentation was prepared by BCX Environmental Consulting (BCX) for ORBA and ORBA members, for the purpose of providing general regulatory knowledge through a webinar.
- This presentation was prepared based on BCX's understanding of Version 1.0 of the Asphalt Mix Industry Standard requirements.