Ontario Hot Mix Producers Association

ENVIRONMENTAL PRACTICES GUIDE

Ontario Hot Mix Asphalt Plants

Fifth Edition

Trillium Award

Asphalt. ONTARIO RIDES ON US

TABLE OF CONTENTS

SECTION ONE

INTRODUCTION

The Ontario Hot Mix[1] Producers Association (OHMPA) and its member companies are committed to operating their asphalt plants in a safe, environmentally responsible manner. This "Environmental Practices Guide (EPG or Guide)" was developed by OHMPA. Previous versions of the EPG were developed in consultation with the Ontario Ministry of Environment & Climate Change (MOE). While the 2015 version of the EPG was developed with due consideration to regulatory requirements, comments on the 2015 version of the EPG were not provided by the MOE. The guide includes sections on sources of air emissions, waste and water; best practices to control and minimize air emissions, waste and water; and documentation requirements to demonstrate that the best practices are in place and are being utilized.

This Guide is intended to assist plant operators in operating and maintaining their facilities in a manner that minimizes potential environmental impact. It attempts to outline a "best available practices" approach to environmental management, but does not claim to be all-inclusive or to cover all possible options. Users are advised to seek manufacturer and/or consultant advice where more extensive process and equipment controls are necessary.

The Guide may be used as a reference for dealing with specific concerns or complaints, and to promote ongoing environmental responsibility. The purpose of the information in this Guide is to assist hot mix[1] producers by outlining "best practices" within the industry. It is the individual producer's responsibility to operate their plant(s) in compliance with the MOE's Environmental Compliance Approvals (formerly called Certificates of Approval) for Air/Noise, Waste and/or Water.

Any incident with an environmental impact must, by law, be reported to the MOE.

The 2015 EPG revision provides updated regulatory information, improved descriptions of potential sources of air, noise, waste and water emissions from asphalt plants, refined environmental best practices and an expanded section on record keeping and complaints response. In addition, the sample checklists provided in this 5th edition of OHMPA's EPG Guide have been re-organized to promote a more effective and consistent approach to managing and documenting environmental best practices across the industry.

Members are advised that since the last EPG revision in 2010 OHMPA has updated its air emissions calculator to incorporate recent changes to Environment Canada's National Pollutant Release Inventory (NPRI); to update the calculator for Ontario Regulation 127[2]; and to provide a flag to notify users if reporting under the MOE's Toxics Reduction Act (TRA) is required. Members should check in with OHMPA annually to confirm that they are using the most up-to-date version of the calculator.

[1] The term "hot mix" is a general term encompassing cold, warm and hot mix asphalts.
[2] Ontario Regulation 127 now only includes acetone.

SECTION TWO

ENVIRONMENTAL REGULATIONS GOVERNING HOT MIX ASPHALT PLANTS

Hot mix asphalt production is a highly regulated industry. The following sections summarize the primary environmental regulatory requirements. Detailed information and copies of the regulations can be obtained through the MOE website (provincial regulations); the Environment Canada website (federal regulations); and where applicable, municipal websites.

2.1 AIR

Of particular importance with respect to air emissions, plants must:

- demonstrate compliance with the MOE Regulation 419/05 for Local Air Quality in order to obtain an Environmental Compliance Approval (ECA) for air. The ECA will include additional site-specific conditions which must be met such as equipment maintenance documentation; asphalt cement and product temperature documentation; and a fugitive dust management plan;
- meet the requirements (especially those pertaining to visible emissions) set out in Ontario Regulation 349 for Hot Mix Asphalt Facilities; and
- comply with any local municipal air emission by-law requirements.

It is important that even after an HMA plant obtains its required approvals, it keeps up-to-date with any changes to applicable legislation. For example, from time to time the MOE may change some air quality standards. It is the responsibility of the plant to be able to demonstrate compliance with the relevant updated and/or new standard(s).

In addition, on an annual basis, plants must determine if they need to report annual air emissions (and in a few cases waste transfers and water discharges) to the federal, provincial and municipal governments under:

- the National Pollutant Release Inventory (NPRI) Notice;
- Ontario Regulation 127;
- Ontario's Toxics Reduction Act; and
- Local municipal by-laws

These annual reporting regulations each have screening criteria, for example employee working hours and contaminant threshold levels. For hot mix asphalt plants meeting the initial screening criteria, only the emissions that exceed the contaminant thresholds set out in the reporting requirements need to be reported. These thresholds are not maximum emission limits, rather they are simply the point where each jurisdiction has decided if it is of sufficient interest to them to begin the collection of data.

2.2 NOISE

Of particular importance with respect to noise, plants must:

- demonstrate compliance with the MOE's Noise Pollution Control (NPC) documents in order to obtain an Environmental Compliance Approval (ECA) for noise. The ECA may include additional site-specific conditions which must be met such as an acoustic audit and, if applicable, a noise abatement action plan (NAAP)[3]; and
- comply with any local municipal noise by-law requirements.

It is important that even after an HMA plant obtains its required approvals, it keeps up-to-date with any changes to applicable legislation. For example, from time to time the MOE may change some noise guidelines. It is the responsibility of the plant to be able to demonstrate compliance with the relevant updated and/or new noise guideline(s).

[3] Facilities that cannot demonstrate immediate compliance with the MOE's noise guidelines are allowed to work towards compliance through a noise abatement action plan (NAAP). Note – there is no such MOE accommodation for air emissions.

2.2 WASTE

Waste is defined and regulated in Part V of Ontario's Environmental Protection Act ("EPA") and in Regulation 347 under the EPA. A plant which generates subject waste, as defined under Regulation 347, must register as a generator for each subject waste type on the MOE's HWIN website. This generator registration must be reviewed and renewed annually by February 15th. In order to dispose of subject waste the generator must complete a waste manifest, use an approved waste carrier and send the waste to an appropriate waste receiving facility.

Regulation 347 defines some wastes which are exempt from the requirements of Part V of the EPA under specific circumstances, such as asphalt pavement. Each plant should review Regulation 347 to confirm that it meets the specific circumstances for exemption.

There may be additional waste regulations which could apply to a plant/site with other activities such as a head office. These plants/sites should review other waste regulations under the EPA.

2.3 WATER

Most asphalt plants should not require an ECA for water. However, if the plant/site has sewage works such as a storm water retention pond, a settlement pond, ditches, culverts or a discharge to a watercourse then an ECA is required under Section 53 of the Ontario Water Resources Act (OWRA) and the site may also have requirements under the Fisheries Act.

If a plant/site plans to install or alter a "sewage work", such as a ditch or culvert, then it should review the OWRA to determine if an ECA is required because the Act's definition of a sewage works is very broad.

For a plant/site discharging to a municipal sewage works, the plant/site should review the applicable municipal sewer use by-laws for discharge limits (i.e. for sanitary, process and storm waters). If the plant/site discharges to a sanitary sewer an ECA is likely not required. However, if the plant/site discharges to a combined sewer or storm sewer then an ECA will be required.

There may be additional water regulations which could apply to a plant/site with other activities such as a quarry requiring a Permit to Take Water under Section 34 of OWRA. These plants/sites should review other water regulations.

SECTION THREE

HOT MIX ASPHALT PLANT EMISSIONS AND RELEASES GENERATED ON-SITE

The primary emissions associated with hot mix asphalt plants are air emissions including particulates (dust), combustion gases, organic compounds and odour, as well as noise. In addition, hot mix plants can generate some wastes from pollution control equipment, QA/QC laboratories and maintenance shops. Process wastewater is generally not produced except at a limited number of plants that use wet dust collection systems. All plants have the potential to generate storm water run-off.

3.1 AIR EMISSIONS

3.1.1 PARTICULATES

- Most of the particulate matter or "dust" which may be generated at hot mix asphalt plants consists of inert mineral aggregate.
- Dust created in the hot mix production process may be categorized as either the "open fugitive" type or "ducted" type. See the plant process charts in Appendix A for identification of individual process sources.
- Open fugitive dust may be generated from the delivery, storage and handling of aggregates or from general plant and yard activities. Potential points of origin include stockpiles, cold feed bins, traffic areas, conveyor belts, screens and material transfer points.
- Ducted particulate matter is typically generated during the aggregate heating and drying process. It is properly managed through the asphalt plant's emission control systems.

3.1.2 COMBUSTION GASES

- Gaseous emissions from hot mix production consist primarily of Sulphur Oxides (SOx), Nitrogen Oxides (NOx), Carbon Monoxide (CO), and Carbon Dioxide (CO2). Organic compounds including Volatile Organic Compounds (VOCs) and semi-volatile organic compounds such as Polycyclic Aromatic Hydrocarbons (PAHs) may also be released.
- Combustion gases (SOx, NOx, CO and CO2) are generated primarily from the dryer, hot oil heater and generators. The quantity is typically related to production volumes, type of fuel used, and energy efficiency of the dryer. Modern burners used in the process are by design typically highly efficient and can minimize the products of combustion.
- Nitrogen Oxides are influenced by the nitrogen content of the fuel, amount of excess air, flame temperature and burner type.
- Sulphur Oxides (SOx) are primarily influenced by the sulphur content in the fuel.
- Carbon monoxide (CO) emissions are usually related to an incomplete combustion process. Emission levels are determined by process efficiency, which may vary according to the type of fuel used.
- Carbon dioxide (CO2) emissions are the product of complete combustion of hydrocarbon fuels. Carbon dioxide emissions generated by hot mix asphalt plants are currently below regulatory reporting thresholds requiring action. However, managing carbon dioxide (and other greenhouses gases including carbon monoxide) emissions may be a key environmental responsibility for hot mix asphalt plants in the future.
- Notably, the most visible emission in an asphalt plant is the white plume from the plant's stack which is simply steam and is the direct result of drying the large aggregate component of the mix.

3.1.3 ORGANIC COMPOUNDS

- Organic compound emissions originate from the use of organic materials (i.e. asphalt cement) and fuels in the production process.
- Potential sources of non-combustion related organic compound emissions include: asphalt cement tanks (especially during unloading), the batch or drum mixer, hot mix storage silos, and loadout areas. Emissions of organic compounds from these sources are directly related to heating temperatures and the type and quantity of asphalt cement used. Use of Reclaimed Asphalt Pavement (RAP) is not a significant source of organic emissions.

3.1.4 ODOUR

- Odour is not considered a toxicological health concern but it is generally recognized as a potential nuisance that may affect neighbours.
- Sources of odour in hot mix production can be asphalt cement, and special additives such as certain liquid anti-stripping agents or polymers. Points of origin can include unloading and loadout.
- In addition, there can be odours from fuel delivery, and some aggregate types can have an "earthy" or "wet" odour.
- Historically petroleum-based solvents used as cleaners or release agents were a potential source of odours. These have essentially been replaced by environmentally friendly low-odour products.

3.2 NOISE

- The primary sources of noise related to a hot mix plant operation typically include the dryer burner/blower system, the baghouse fan and exhaust outlet, as well as the screen deck (when present). Other significant sources of noise can include screens downstream of the cold feed bins and/or RAP hopper, bucket elevator and drag conveyor heads, air releases through pneumatic gates and diesel generators.
- Additional significant noise producing equipment includes front-end loaders and onsite trucks (and integral backup alarms), as well as short-duration, high sound level events such as loading point signal horns/buzzers and the occasional "bang!" from aggregate truck tailgate slams.
- The perception of noise emissions can be greatly influenced by the time of day or night, surrounding ambient noise levels, meteorological conditions, as well as the degree of acoustical shielding afforded by on and off-site structures and intervening terrain.

3.3 WASTE

Hot mix plants can generate some wastes from pollution control equipment, and QA/QC laboratories/maintenance shops located at the asphalt plant:

- In some plants surplus filler from a wet scrubber and filters from a baghouse need to be disposed of.
- A quality control laboratory located at the asphalt plant may be a source of low volumes of solvents.
- Waste oils are generated from periodic equipment maintenance (e.g. loaders, gear-boxes, hot oil heaters).
- In addition, there may be other types of waste from maintenance shops and office staff areas located at the asphalt plant.

3.4 WATER

- With the exception of the few plants in Ontario (less than 5%) utilizing wet dust collection systems, process wastewater is not generated by the plant equipment. Process wastewater is typically collected in closed-circuit settling ponds.
- Storm water primarily consists of run-off from precipitation, but may also include run-off from dust management activities.
- In addition, the site may also have domestic wastewater discharges.

SECTION FOUR

ENVIRONMENTAL BEST PRACTICES

The best practices presented in this section of the Guide outline the suggested maintenance and operational procedures to manage plant emissions and releases. Implementation of many of these environmental best practices can have added benefits of improved production efficiency and product quality.

Sample checklists for various components in the operation of a hot mix plant have been included for reference in Appendix C. These checklists are summarized in the following table along with the applicable reference in this Section of the Guide.

CHECKLIST	SECTION 4 REFERENCE
Roads and Working Areas	4.1.1.1
Aggregate Delivery/Stockpiling	4.1.1.1
Material Transfer Through the Plant	4.1.1.2
Cyclone/Knockout Box	4.1.1.3
Baghouse	4.1.1.4 and 4.1.2.7
Wet Scrubber	4.1.1.5
Burner / Dryer Flights	4.1.2.1, 4.1.2.2 and 4.1.2.7
Exhaust Fan/Damper	4.1.2.3 and 4.1.2.4
Air Seals	4.1.2.5
Fuel Unloading and Storage	4.1.3.1 and 4.1.4.1
Asphalt Cement Unloading and Storage	4.1.3.2, 4.1.3.3, 4.1.4.2 and 4.1.4.3
Hot Mix Asphalt Loading and Storage	4.1.3.4, 4.1.3.5, 4.1.4.4 and 4.1.4.5
Noise	4.2
Settling Pond	4.4.2

Note: These samples are a guide only and are available for use but should be modified, as necessary, by the user to be specific to their site and operations.

4.1 CONTROLLING AIR EMISSIONS

4.1.1 PARTICULATE

As described in Section 3.1.1, sources of particulate matter may be defined as "open fugitive" or "ducted". The following sections describe environmental best practices for both "open fugitive" sources (Sections 4.1.1.1 and 4.1.1.2), and "ducted" sources (Sections 4.1.1.3, 4.1.1.4 and 4.1.1.5).

All dust control systems should function in accordance with the prescribed operator/maintenance manual recommendations and all maintenance records should be maintained per the plant's record keeping procedure.

4.1.1.1 ROADS, WORKING AREAS AND STOCKPILES

Dust control methods include:

- When conditions dictate (very dry, windy, etc.) all roadways and working areas should be adequately watered, swept or given an application of a suitable dust suppressant to minimize the impact of airborne dust being created as the result of vehicle traffic. Sites should be assessed regularly to determine the need for dust control.
- The placement of RAP or the paving of roadways and haulage ways will also reduce the amount of airborne dust created as the result of vehicle traffic
- All stockpile areas should be kept neat and orderly; stockpile heights should be kept to a reasonable minimum in order to reduce wind erosion.
- Stockpiles should be located as close as possible to the cold feed bins in order to minimize front-end loader travel distance between stockpiles and bins.
- Stockpiles should be positioned to take advantage of existing wind screens e.g. on-site buildings, tree screens and berms.
- The speed of vehicular traffic should be controlled by setting speed limits on internal roads. Reduced speed limits reduce the amount of airborne dust created as a result of vehicle traffic.
- All vehicles delivering aggregates to the site should be tarped.

4.1.1.2 MATERIAL TRANSFER THROUGH THE PLANT

- The height of material drop points at transfer locations should be kept to a minimum and be partially or fully enclosed as required.
- Conveyed materials should be effectively protected from wind by the trough configuration of the conveyor belt or shielded by a guard from wind erosion.
- Where installed, hydrated lime storage silos should be equipped with a ventilation filter and a vent valve (i.e. vent through a coupling to dust collection system).
- The elevator housing and plant tower should be inspected for cracks and holes, and repaired as required.
- Tight seals should be maintained at connections between elevator and screens.
- Rubbing-type seals should be properly fitted to maintain negative pressure at the connection to the dryer/collection system.
- Discharge valves, ducts and seals around the dryer intake should be inspected and repaired or replaced as required.
- The number of transfer points in the whole system should be minimized – at design stage or during refit.

4.1.1.3 CYCLONE/KNOCKOUT BOX

- A cyclone is a primary particulate collection device that uses centrifugal force to remove particulate/dust from an asphalt plant's production air stream. If sized and maintained properly, the cyclone is about 99% efficient at removing 30 micron particulate and larger and about 60% efficient at removing 10 micron particulate. The knockout box is also a primary particulate collection device that helps capture large particulates before entering the baghouse and returns them to the mix.
- Proper operation and maintenance of the primary collection equipment will provide the following benefits:
  - o Allows re-introduction of the large particulate into the asphalt mix separate from the fine particulate, which must be very specifically controlled so as not to have a detrimental effect on mix quality.
  - o Prevents premature wear on the bags in the baghouse that would occur if the large particulate was not removed from the air stream.

- To maintain proper collection and control efficiencies, the following operating procedures should be followed:
    - All ductwork between the dryer and stack should be inspected so that holes or air leaks can be repaired.
    - The main body of the cyclone should be inspected so that holes in the main shell or liners can be repaired, worn outlet tubes can be replaced and plugged outlets can be unplugged.
    - Build-up of fines inside the cyclone or the valves should be prevented.
    - Any foreign debris that may become lodged in the cyclone or ductwork should be removed.
    - Exhaust gas volume at rates compatible with the production rate, and within the design parameters of the cyclone should be maintained.
    - Dust/particulate discharge valves should be operating properly. Valves must allow the particulate to be discharged without allowing excess air into the cyclone. Generally these valves are made up of two types: Rotary Air Locks and Tipping Valves.
- Rotary Air Locks / Vane Feeders
    - The tips of the vane should be adjusted to manufacturer's clearance specifications to create a tight seal and no blowback.
    - Any build-up or caking on vanes should be removed, as this would reduce the volume of dust being removed, which could allow re-entrainment of the dust into the air.
    - Seals should be checked to maintain proper operation.
- Tipping Valves
    - These valves can be very sensitive to binding or dragging, therefore, counterweights and seals should be adjusted to allow easy operation of the valve.

4.1.1.4 BAGHOUSE

- A baghouse is a large airtight structure placed in the exhaust air stream between the cyclone and the exhaust fan. Its sole function is to remove particulate / dust from the aggregate that is entrained in the combustion / process air during the aggregate drying/mixer process. This is accomplished by passing the combustion air through cloth filter bags or socks contained within the baghouse.
- If the baghouse is sized and maintained properly, the collection efficiency for particles 10 micrometres to 1 micrometres in diameter is greater than 99%.
- To maintain proper collection and control efficiencies, the following operating procedures should be followed:
    - The baghouse should always be pre-heated to dry out any moisture or condensation prior to starting production.
    - Upon completion of production, a low fire setting to dry out the baghouse should be used.
    - While operating, the internal operating temperature / exhaust air entering the baghouse should be kept above the dew point (approximately 120°C or 250°F). This will prevent condensation in the baghouse that could cause "mudding" of the bags and reduced airflow.
    - The high temperature baghouse protection device should be working properly.
    - For Nomex bags, a high temperature setting of approximately 205°C (400°F) should be used. For any other fabric, talk to your filter bag supplier for specific operating temperatures.
    - All thermocouples should be the rapid response type and should be functioning properly.
    - Pressure-sensing devices should be operating properly, as they sense the pressure drop across the baghouse and activate the cleaning cycle when the pressure drop reaches a pre-set limit.

Note: In general the preference is to have pressure drops closer to the lower end of the spectrum.

- Bags should not be over-cleaned, as this removes the filter cake, which reduces the filter efficiency of the bags.
- Over-cleaning can also have the following negative effects:
  - Premature failure of the filter bag.
  - Addition of unnecessary excess air that the system must handle, reducing efficiency (reverse air systems only).
  - Lower baghouse temperature, causing increased fuel usage (reverse air systems only).
- The air compressor should be sized to maintain a constant air pressure in accordance with manufacturer's specification and should be able to recover quickly after pulsing.
- Air leaks will prevent the plant from running at peak efficiency.
- All bag access doors on top of the baghouse should be sealed to prevent air infiltration.
- A proper seal between the baghouse and cage should be maintained.
- The clean side of baghouse should be inspected from top inspection doors. Any dust present in this area will indicate holes in the bags or poor bag and cage seals. Bags should be replaced or resealed as necessary.
- A black light inspection system should be used on the clean side of the baghouse to inspect for holes or improperly sealed bags that cannot be detected by the naked eye. Inspection should be completed annually as a minimum.
- The cleaning cycle should be adjusted to match production or type of mix being produced. General rule:
  - increase production = increase cleaning cycle
  - finer mixes = increase cleaning cycle

Note: If the system is designed to clean based on pressure drop across the baghouse, then this will not be required, as it will occur automatically.

- Proper alignment of cleaning air jets should be maintained. Improper alignment could damage bags.
- All rotary air locks and valves should be adjusted and operate properly, as discussed in the cyclone / duct work section.
- Compressed air used for pulse cleaning should be dry and free of oil residue. Moisture or oil will cause the dust to mud or blind the bags, reducing the efficiency of the baghouse.

4.1.1.5 WET SCRUBBER

- Wet scrubbers should be sized correctly and operated according to manufacturers' specifications.

4.1.2 CONTROLLING COMBUSTION EMISSIONS

- Combustion emissions from the production of hot mix asphalt are primarily a result of the combustion process used to dry the moisture from aggregate prior to mixing with the asphalt cement.
- It is important to maintain the proper air to fuel ratio in the aggregate dryer burner in order to completely burn the fuel provided. Incomplete burning of fuel produces higher levels of carbon monoxide and hydrocarbons.
- It is important that the two vehicles of combustion, the burner and air systems work in harmony providing the two-fold environmental benefit of saving fuel while minimizing carbon monoxide and hydrocarbon emissions.

4.1.2.1 BURNER

- All burner valves and linkages should be inspected for wear.
- Fuel pressure, air-fuel ratios, and combustion air pressure should function according the manufacturer's specifications.

- All moving parts should be lubricated as per the manufacturer's specifications.
- All filter systems and strainers should be regularly maintained.
- All nozzles should be clear of foreign materials.
- All blowers should be maintained according to manufacturer's specifications.
- Qualified personnel should perform any tune-ups or repairs as necessary. It is suggested that a tune-up be conducted annually to maintain efficiency.

4.1.2.2 DRYER FLIGHTS

- Dryer flights should be properly maintained to manufacturer's specifications. Proper veiling of aggregate enables the burner system to work at optimum levels.
- IMPORTANT: Never allow aggregate to veil or pass through the combustion zone of the burner's flame. This will create incomplete combustion, which will cause increased carbon monoxide and residual hydrocarbon levels.

4.1.2.3 EXHAUST FANS

- The exhaust fan is an integral part of the asphalt production process. Its main functions are to:
  - Provide air for efficient combustion.
  - Remove products of combustion, (i.e. carbon dioxide, carbon monoxide and water vapour (steam)).
  - Remove and carry away moisture dissipated during the drying process of the aggregates.
- Proper sizing, operation and maintenance of the exhaust fan promote complete combustion and efficient operation of the asphalt plant.
- Correct tension on drive belts should be maintained.
- Fan blades should be checked for wear or dust build-up. This is an indication of holes in the bags or improper seals in the baghouse. Since the fan is on the clean side of the baghouse no dust should be present.
- In wet scrubber applications, premature wear of the exhaust fan indicates ineffective or faulty primary dust collector efficiency, such as worn baffles and caking.
- The fan impeller should be properly balanced.

4.1.2.4 DAMPER

- The fan damper is probably the most useful piece of equipment for controlling efficiency. The damper is most effective when the plant is running at less than full capacity. Proper operation of the exhaust fan damper will provide the correct amount of air for the combustion process.
- General rule of thumb is to adjust the damper to the point where it is just preventing puff back at the burner end of the drum.
- A properly maintained and operated damper will provide the following:
  - Decreased fuel consumption (less emissions).
  - Increased productivity.
  - Reduced process air velocity.
  - Limit entrainment of fines into the air.
  - Increased contact time in the drum for air and aggregates (more efficient drying).
  - Reduced abrasion of ductwork and equipment due to lower internal air speeds, and less particle entrainment.
  - Reduced electrical savings, due to decreased load on the fan.
  - Reduced load on the generator in a portable plant.
  - Reduced pressure across the baghouse, thus extending the life of the bags and increasing efficiency.

4.1.2.5 AIR SEALS

- All drum and duct air seal points should be intact and in proper working order.
- Leaking air at any point throughout the system directly affects the air to fuel ratio.

4.1.2.6 HOT OIL HEATER SYSTEMS

- Hot oil heater burner systems should be kept clean and functioning according to the manufacturer's specifications. The hot oil should be tested annually within the system to monitor for and prevent oxidation.
- Hot oil heater lines should be in good working order.

4.1.2.7 THERMOCOUPLES AND PRESSURE SENSORS

- Thermocouples and other sensors throughout the system are in place to monitor temperature and pressure changes within the system. Thermocouples and other sensors should be regularly calibrated to keep them functioning at optimum levels.

4.1.2.8 TRUCKS AND LOADERS

- Vehicles and equipment not in use should be shut off during idle periods to reduce tailpipe emissions.
- Engines and equipment should be properly maintained, serviced and tuned up at regular intervals.

4.1.3 CONTROLLING ORGANIC EMISSIONS

This section deals with the management of organic emissions originating from the unloading and storage of asphalt cement and fuels, as well as storage and loadout of asphalt at the plant. The Best Practices contained herein offer assistance to the plant manager to manage and minimize organic emissions. For instance, maintaining the asphalt cement at the proper working temperature helps to reduce organic emissions.

4.1.3.1 FUEL UNLOADING AND STORAGE

- Lids on fuel storage tanks should be kept closed.
- Any spills should be cleaned up as quickly as possible.
- Minor fuel leaks and drips should be limited/ prevented.

4.1.3.2 ASPHALT CEMENT UNLOADING AND STORAGE

- Require and check that the asphalt cement supplier maintains proper pumping temperatures.
- Proper asphalt cement storage temperatures should be maintained.
- Lids on asphalt cement storage tanks should be kept closed.
- Asphalt cement lines should be inspected to keep them secure and in good working order.
- Design the unloading area to minimize spillage.
- Any spillage should be cleaned up immediately as per MSDS.

4.1.3.3 AC PUMPING AND STORAGE TEMPERATURES

- Recommended asphalt cement temperatures for pumping and storage are outlined in the following chart. The lower the asphalt cement temperature the lower the emissions.
- Asphalt plants should record asphalt pumping temperatures (e.g. on the asphalt cement delivery ticket).

Performance Graded Asphalt Cement (PGAC AASHATO M320)*	AC PUMPING TEMP. (Unloading)		AC STORAGE TEMP.	
	Min.	Max.	Min.	Max.
PG 52-34	120°C	150°C	130°C	160°C
PG 52-40	120°C	150°C	130°C	160°C
PG 58-22	130°C	160°C	140°C	165°C
PG 58-28	130°C	160°C	140°C	165°C
PG 58-34	135°C	160°C	140°C	165°C
PG 64-28	140°C	165°C	150°C	170°C
PG 64-34	145°C	170°C	150°C	170°C
PG 70-28	145°C	170°C	150°C	170°C
PG 70-34	150°C	170°C	150°C	170°C

*For specialty asphalt cements check with the asphalt cement supplier.

4.1.3.4 HOT MIX ASPHALT STORAGE

- Design the loadout area to minimize spillage.
- Any spillage should be cleaned up immediately as per MSDS.
- Asphalt storage temperatures should be kept as low as possible.

4.1.3.5 HMA MIXING/LOADING TEMPERATURE

- The HMA mix temperature at the discharge point should not exceed 175°C (347°F), unless directed by owner specifications or suppliers guidelines.
- Asphalt plants should record the mixing/loading temperature either manually or automatically at an appropriate location for the plant.

4.1.3.6 ANTI STRIPPING ADDITIVES

- Anti-stripping additives should be well blended.
- Anti-stripping additives should be stored in accordance with manufacturer's recommendations.

4.1.4 CONTROLLING ODOUR

This section deals with the management of odours originating from the unloading and storage of asphalt cement and fuels at the plant. The Best Practices contained herein offer assistance to the plant manager to manage and minimize odours. For instance, maintaining the asphalt cement at the proper working temperature helps to diminish odour emissions and alleviates a potential nuisance to your neighbours.

- Be aware of the effects that prevailing winds have on odour disbursement when considering plant location.

- Establish a complaint response plan.
- Weather information should be monitored and records daily (including temperature, wind direction and speed).

4.1.4.1 FUEL UNLOADING AND STORAGE

- Where possible, fuel unloading should be scheduled during periods when the neighbours are least affected.
- If necessary, install an odour mitigation system on fuel storage tanks.
- Lids on fuel storage tanks should be kept closed.
- Any spills should be cleaned up as quickly as possible.
- Minor fuel leaks and drips should be limited/ prevented.

4.1.4.2 ASPHALT CEMENT UNLOADING AND STORAGE

- Where possible, asphalt cement unloading should be scheduled during periods of least impact to neighbours.
- Require and check that the asphalt cement supplier maintains proper pumping temperatures.
- Proper asphalt cement storage temperatures should be maintained.
- If necessary, install an odour mitigation system on asphalt cement storage tanks.
- Daily weather and wind information should be recorded during asphalt cement unloading.
- Lids on asphalt cement storage tanks should be kept closed.
- Asphalt cement lines should be regularly inspected to keep them secure and in good working order.
- Design the unloading area to minimize spillage.
- Any spillage should be cleaned up immediately as per MSDS.

4.1.4.3 AC PUMPING AND STORAGE TEMPERATURES

- Asphalt cement pumping and storage temperatures should be kept as low as possible.
- Asphalt plants should record asphalt pumping temperatures (e.g. on the asphalt cement delivery ticket).

4.1.4.4 HOT MIX ASPHALT STORAGE

- Design the loadout area to minimize spillage.
- Any spillage should be cleaned up immediately as per MSDS.
- Asphalt storage temperatures should be kept as low as possible.

4.1.4.5 HMA MIXING/LOADING TEMPERATURE

- The HMA mix temperature at the discharge point should not exceed 175°C (347°F), unless directed by owner specifications or suppliers guidelines.
- Asphalt plants should record the mixing/loading temperature either manually or automatically at an appropriate location for the plant.

4.1.4.6 ANTI STRIPPING ADDITIVES

- Low odour anti-stripping additives should be used where possible.
- Anti-stripping additives should be well blended.
- Anti-stripping additives should be stored in accordance with manufacturer's recommendations

4.2 CONTROLLING NOISE EMISSIONS

- The following steps can be taken to minimize offsite noise levels:
  - Where possible, aggregate stockpiles as well as landscaping features and berms should be strategically located in order to maximize beneficial shielding from offsite receptors (e.g. homes).
  - Where required/appropriate, localized barriers should be installed and/or high noise producing equipment (e.g. burner, baghouse outlet) should be equipped with specialized control measures such as acoustical enclosures and/or silencers.
  - If appropriate, the use of broadband sound backup alarms and/or strobe lights during night-time operations should be considered to replace loading point signal horns/buzzers with signal lights.
  - All equipment and associated noise control features should be well maintained and operated.
  - Where required/appropriate, administrative controls should be used to limit/restrict excessive braking, engine revving, horn blowing and tailgate slams in the plant yard. In addition, mobile equipment and trucking routes should be planned/reviewed to minimize reversing (and thus the activation of backup alarms).
  - A response procedure should be established to address noise complaints immediately.

4.3 STANDARD PRACTICES FOR WASTE MANAGEMENT

- Hot mix asphalt plant operations are traditionally low volume generators of waste.
- Any materials generated by the asphalt plant process that requires removal from the site should be handled in accordance with MOE requirements.
- If necessary, subject wastes should be stored in sealed containers in a manner to reduce spills and be clearly labelled.
- Subject wastes must be disposed of within 90 days of generation (unless otherwise authorized by the MOE).
- Where possible, wastes should be recycled.
- Where recycling is not possible wastes (including subject wastes and municipal wastes) should be disposed of in accordance with waste regulations.

4.4 STANDARD PRACTICES FOR WATER MANAGEMENT

4.4.1 GENERAL

- If the site generates process wastewater this water should be kept separate from storm water.
- Efforts should be made to not contaminate storm water. For example, where possible, a biodegradable truck box cleaning solution should be used in place of diesel fuel. Spill containment should be maintained around fuel tanks (unless double walled) and fuel pumps. Spills should be cleaned up promptly.
- The site should be appropriately graded to minimize run-off from active areas.
- While watering may be required as part of the site's dust management plan effort should be made to apply only the appropriate amount of water to minimize run-off.
- Water released from the site should be discharged to appropriate municipal sewers or other approved sewage works and must meet the sewer use by-law criteria or typical water quality guidelines.

4.4.2 SETTLING POND

Wet Scrubbers are operated in conjunction with settling ponds.

- In general, two ponds are used, one for settlement of the particulate and the other for clean water supply to the scrubber.
- Ponds should be sized to hold a minimum of one half day's wet scrubber requirements. Regardless pond depth should be a minimum 1.8m, but with sufficient surface area to promote settling and cooling of the water.
- When the depth of settled fines reaches approximately one-third of the total pond depth, the material should be removed.
- The check-dam height should be maintained to allow only clean water to pass from settling pond to supply pond.
- The supply side pond should be kept clean enough so as not to interfere with the pump, foot valve etc.
- Sufficient make-up water should be added daily to maintain the pond volume. Water should be recycled.
- The quantities of make-up water required to top up the water supply is normally less than 50,000 litres/ day and does not require a Permit to Take Water.
- The dust settling in the bottom of the ponds may be re-used in an on-site process, or it may be shipped off-site per MOE waste regulations.

SECTION FIVE

RECORDS KEEPING AND COMPLAINT RESPONSE

5.1 RECORDS KEEPING

- An up-to-date operating and maintenance manual/set of instructions should be developed and a copy should be kept on-site. This manual/set of instructions should identify what operating and maintenance records need to be filled in and where they are to be filed. Example operating and maintenance records are provided in Appendix C. The facility should confirm that their records include any specific operating and/or maintenance requirements stipulated in the facility's MOE ECA(s).

  The operating and maintenance manual/set of instructions and the associated records should be reviewed regularly to confirm that the manual/set of instructions are up-to-date, are being followed and that proper records are being kept.

- A Best Management Practices (BMP) Plan for the Control of Fugitive Dust Emissions should be developed and a copy should be kept on-site (see Section 6.1 for a description of the BMP Plan requirements). Record keeping associated with fugitive dust management can be included as part of the operating and maintenance checklists or separate checklists can be developed.

  The BMP Plan and associated records should be reviewed regularly to confirm that the BMP Plan is up-to-date, is being implemented, and is effective and that proper records are being kept.

- A Spill Contingency Plan should be developed if required and a copy should be kept on-site (see Section 6.2 for a description of spill contingency plan requirements).

- Weather conditions (particularly wind direction, wind speed, temperature, precipitation and snow cover) should be monitored and recorded daily. Weather data can be measured on-site using a meteorological station or by installing a wind vane or flag. Alternatively weather data can be obtained online from Environment Canada's website. An example weather checklist is included in Appendix B.

- A copy of the plant's ECA(s) and the supporting documentation (i.e. Emission Summary and Dispersion Modelling (ESDM) report and, where required, Acoustic Assessment report (AAR) that made up the original application should be kept on-site. The complete reports can be requested by and must be provided to an MOE officer. A separate copy of the report ESDM report Executive Summary should also be maintained on-site. This Executive Summary can be requested by a member of the general public.

- Significant operating and plant changes/upgrades require an ECA amendment (however, if the facility has a Limited Operational Flexibility ECA an amendment may not be required). These changes need to be reflected in the operating and maintenance manual/set of instructions and/or BMP Plan.

- A copy of the plant's annual reporting assessments (and, as appropriate, annual reports) should be kept on-site for the required length of time stipulated in the associated regulation. For example, records of NPRI assessments (and, as appropriate, reports) must be kept for three years. These records can be requested by and must be provided to Environment Canada, an MOE officer, and/or a municipal officer.

5.2 COMPLAINT DOCUMENTATION AND RESPONSE

- The hot mix plant/site should have in place a response plan to deal with cases where complaints are registered directly with the company, through the MOE, or through appropriate municipal government agencies. The complaint response plan should provide instructions on who should receive, report and follow-up on a complaint; what information needs to be collected (and at what times); what information needs to be reported (and at what times) and who information needs to be reported to. It should also provide a complaint checklist(s) which should include:
  - Date and time of the complaint.
  - Nature of the complaint.

- Weather and wind conditions at the time of the complaint.
- Identification of the suspected source(s) of the problem giving rise to the complaint (particularly any off-site sources that are not associated with the plant).
- Measures taken to correct the problem (if the source is the plant).
- Assessment of the relative success of the measures taken in correcting the problem (if the source is the plant).
- Follow-up regarding the complaint.

- An example of a Complaint Response Form is provided in Appendix D of this guide.
- Most ECA's require that the plant notify the MOE in writing of an environmental complaint within 1 or 2 business days of receiving the complaint.
- In the event of a formal complaint, the hot mix plant should use their operating and maintenance records, BMP Plan and spills checklists to assist in investigating the cause of the complaint.

Note: a plant may wish to keep a "no complaint today" entry as part of one of their daily checklists.

SECTION SIX

DUST MANAGEMENT PLAN AND SPILLS CONTINGENCY PLAN

OHMPA Environmental Practices Guide recommends that each plant have a site-specific Dust Management Plan and Spills Contingency Plan even if they are not required as a condition of an ECA.

The following sections provide general guidance on aspects that should be considered in these Plans.

6.1 DUST MANAGEMENT PLAN (BMP PLAN)

The hot mix plant should have in place a Best Management Practices Plan for the control of fugitive dust emissions (i.e. a BMP Plan). The Plan should include:

- Identification of the main sources of fugitive dust emissions specific to each site such as:
  - On-site traffic.
  - Paved roads/areas.
  - Unpaved roads/areas.
  - Material stockpiles.
  - Loading/unloading areas and loading/unloading techniques.
  - Material spills.
  - Material conveyance systems.
  - Exposed openings in process and storage buildings; and
  - General work areas.
- The plan should also address the potential causes for high dust emissions resulting from these sources along with preventative and control measures in place or under development to minimize the likelihood of high dust emissions from the sources of fugitive dust emissions. Details of the preventative and control measures should include:
  - A description of the control equipment (existing or to be installed)
  - A description of the preventative procedures (implemented or to be implemented); and/or
  - The frequency of occurrence of periodic preventative activities, including material application rates, as applicable
- Where the plan is not fully implemented or is in a state of change, an implementation schedule for the BMP Plan should be provided, including training of facility personnel.
- The plan should address inspection and maintenance procedures and verification initiatives to ensure effective implementation of the preventative and control measures.
- In order to be effective, the BMP Plan must also employ on-site and make readily available records that document the implementation of the elements of the plan on a periodic basis (daily, weekly, monthly, etc. as required by that portion of the plan). The record keeping requirements for each operation covered by the plan should be listed in the plan for clarity.
- Records should be reviewed frequently and the overall BMP Plan should be reviewed annually to confirm that the fugitive dust is being well controlled on-site.

6.2 SPILLS PREPAREDNESS, RESPONSE AND REPORTING

- The asphalt plant should have a Spills Contingency Plan in place to deal with cases where materials are released into the environment.
- Typical liquid materials at a hot mix plant may include, but may not be limited to, the following:
  - asphalt cement
  - diesel/furnace oil
  - gasoline
  - heat transfer oil
  - anti-stripping agents
  - asphalt release agents
  - glycol/antifreeze
  - emulsion (Tack Coat)
- A Spills Contingency Plan will help asphalt plants be prepared for a material spill, and will detail appropriate actions, roles and responsibilities in the event of a material spill. The Plan should be reviewed periodically, and training should be provided (and documented) on a regular basis.
- The foundation of an effective Plan is built around an overview of the site, potential spill scenarios, and environmental impacts.

SECTION SEVEN

OTHER RESOURCES

UN 13 (CEMP –ET)	"Hot Mix Asphalt Paving Handbook" (Part Two Section 1-7) U.S. Army Corps of Engineering
IS 52 & 52A (Combined)	"The Maintenance and Operation of Exhaust Systems in the Hot Mix Batch Plant" National Asphalt Pavement Association (NAPA)
QIP 120	"Control of Baghouse Fines" National Asphalt Pavement Association (NAPA)
IS 123	"Recycling Hot Mix Asphalt Pavements" National Asphalt Pavement Association (NAPA)
IS 73	"Fugitive Dust Control and Hot Mix Plants" National Asphalt Pavement Association (NAPA)
IS 101	"Guidelines for the Use of Baghouse Fines" National Asphalt Pavement Association (NAPA)
SR 177	"Determination of Non-Process Fugitive Dust Emissions From HMA Facility Operations" National Asphalt Pavement Association (NAPA)
IS 86	"Preventing Fires and Explosions in Hot Mix Asphalt Plants" National Asphalt Pavement Association (NAPA)
IS 52 & 52A	"The Maintenance and Operation of Exhaust Systems in the Hot Mix Batch Plant" National Asphalt Pavement Association (NAPA)
SR 166	"Evaluation of Stack Emissions From HMA Facility Operations" National Asphalt Pavement Association (NAPA)
IS 75	"Noise In and Around Asphalt Plants" National Asphalt Pavement Association (NAPA)
IS 122	"Spill Prevention Control and Countermeasures (SPCC) Plan Guidance Manual" National Asphalt Pavement Association (NAPA)
SR 167	"Storm Water Pollution Prevention Plan and Guidance Manual" National Asphalt Pavement Association (NAPA)
ASTEC · T 119	Dryer Drum Mixer (J. Don Brock)
T 121	Baghouse Fines (J. Don Brock)
T 126	Productivity (J. Don Brock & John Milstead)
T 128	Emissions (E. Gail Mize)
T 129	Stockpiles (George H. Simmons)
T 132	Aggregate Drying Theory & Practice (Malcolm Swanson & John Preston)
T 133	Heating, Mixing and Storing Modified Asphalt (Jim May & Tom Wilkey)

WEBSITES

Asphalt Institute
www.asphaltinstitute.org

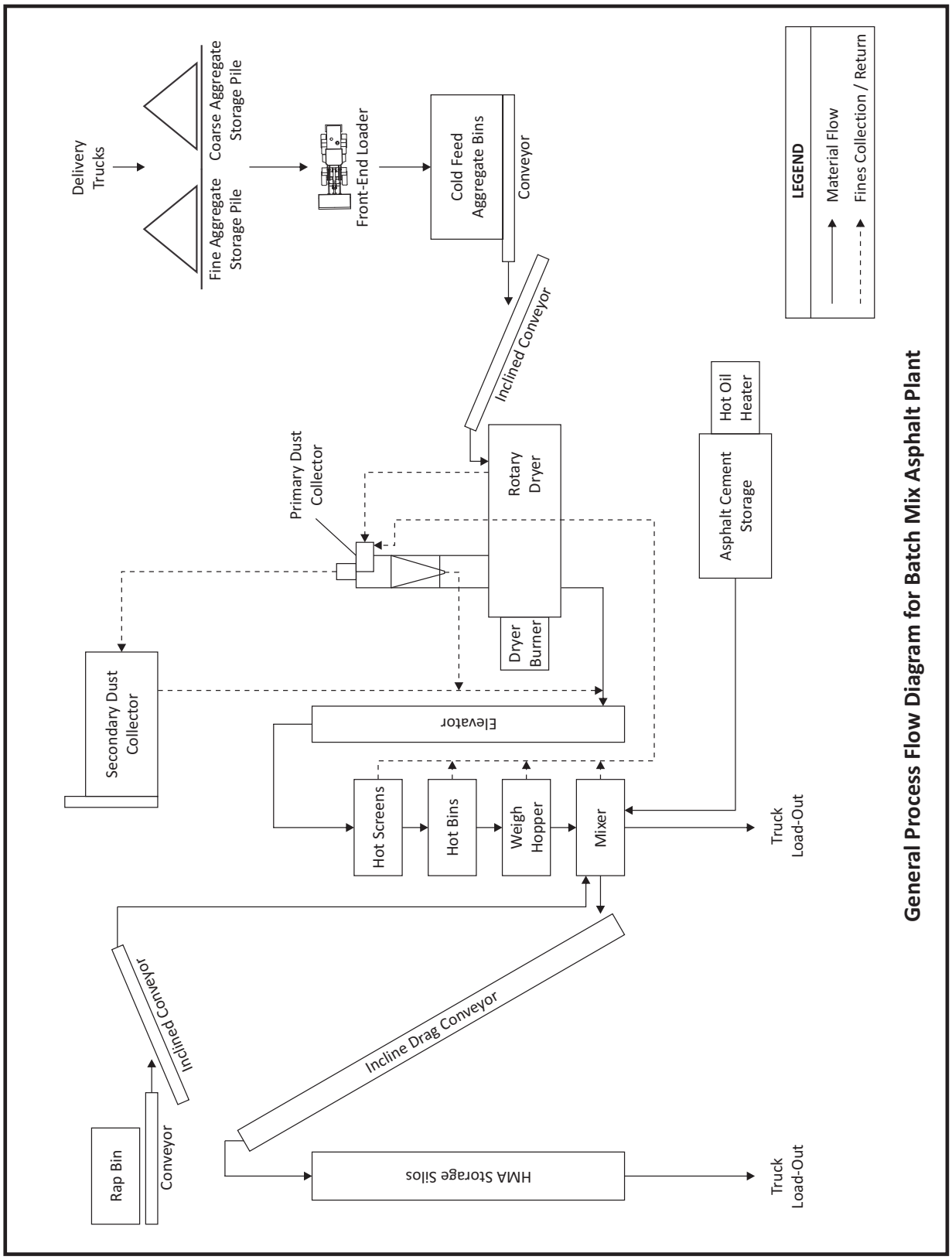
National Asphalt Paving Association
www.hotmix.org

Astec
www.astecinc.com

APPENDIX A

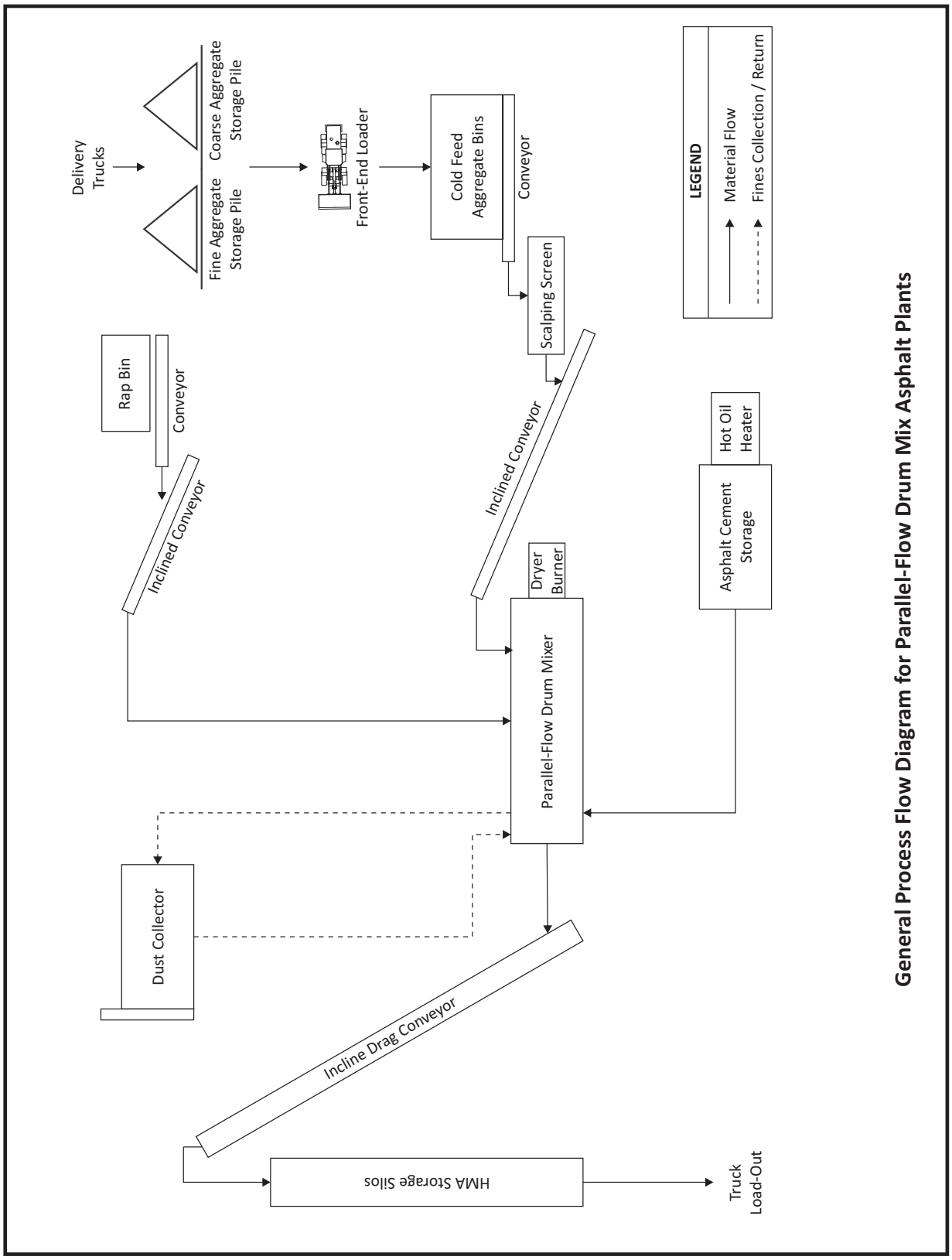
SAMPLE PLANT FLOW DIAGRAMS

General Process Flow Diagram for Batch Mix Asphalt Plant



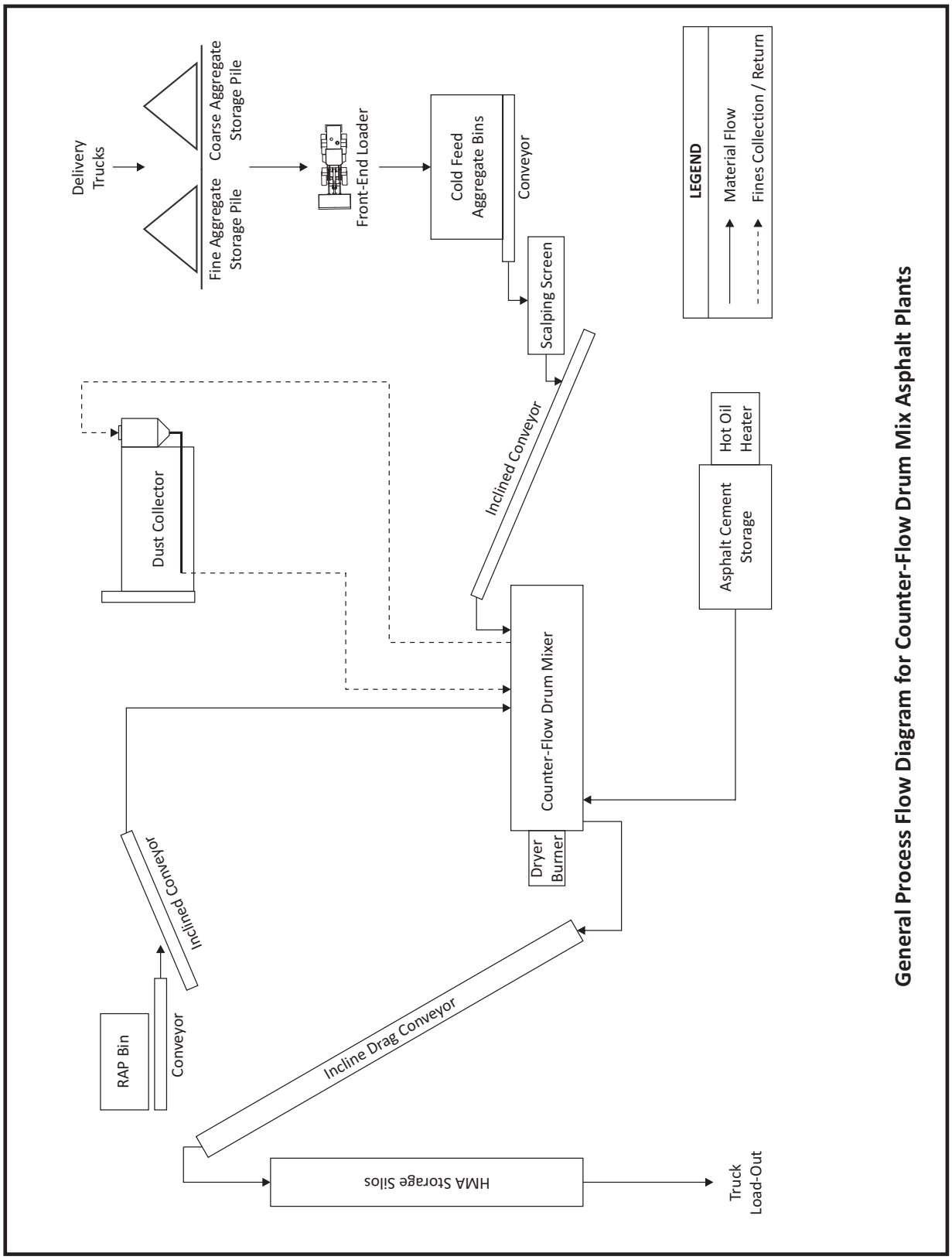
SAMPLE PLANT FLOW DIAGRAMS

General Process Flow Diagram for Parallel-Flow Drum Mix Asphalt Plants



SAMPLE PLANT FLOW DIAGRAMS

General Process Flow Diagram for Counter-Flow Drum Mix Asphalt Plants



APPENDIX B

SAMPLE WEATHER RECORD FOR A 5 DAY A WEEK OPERATION

WEATHER RECORD

Mon. **Date:** _____ **Temp.** _____ **Hi** _____ **Lo** _____

Conditions: Sunny ☐ Pt. Cloudy ☐ Cloudy ☐ Overcast ☐

Wind: Still ☐ Light ☐ Gusting ☐ Strong ☐

Direction (From): _____ **Plant Operating Times:** Start: _____ End: _____

Tue. **Date:** _____ **Temp.** _____ **Hi** _____ **Lo** _____

Conditions: Sunny ☐ Pt. Cloudy ☐ Cloudy ☐ Overcast ☐

Wind: Still ☐ Light ☐ Gusting ☐ Strong ☐

Direction (From): _____ **Plant Operating Times:** Start: _____ End: _____

Wed. **Date:** _____ **Temp.** _____ **Hi** _____ **Lo** _____

Conditions: Sunny ☐ Pt. Cloudy ☐ Cloudy ☐ Overcast ☐

Wind: Still ☐ Light ☐ Gusting ☐ Strong ☐

Direction (From): _____ **Plant Operating Times:** Start: _____ End: _____

Thurs. **Date:** _____ **Temp.** _____ **Hi** _____ **Lo** _____

Conditions: Sunny ☐ Pt. Cloudy ☐ Cloudy ☐ Overcast ☐

Wind: Still ☐ Light ☐ Gusting ☐ Strong ☐

Direction (From): _____ **Plant Operating Times:** Start: _____ End: _____

Fri. **Date:** _____ **Temp.** _____ **Hi** _____ **Lo** _____

Conditions: Sunny ☐ Pt. Cloudy ☐ Cloudy ☐ Overcast ☐

Wind: Still ☐ Light ☐ Gusting ☐ Strong ☐

Direction (From): _____ **Plant Operating Times:** Start: _____ End: _____

APPENDIX C

ENVIRONMENTAL BEST PRACTICES – GUIDANCE FOR DEVELOPING PLANT – SPECIFIC CHECKLISTS

The following guidelines include items to consider when developing plant specific checklists. Plant specific checklists should include appropriate record keeping frequencies. Best practice record keeping can, and as applicable, should be incorporated into regular maintenance checklists to avoid unnecessary duplication.

ROADS AND WORKING AREAS	YES	NO	N/A	If No, Date Corrected
Plant yard paved areas maintained clean and dust free.	☐	☐	☐	
Unpaved yard areas treated regularly with water or other environmentally friendly suppressant.	☐	☐	☐	
Efficiently designed traffic patterns enforced.	☐	☐	☐	
Vehicle speeds in yard enforced to minimize dust generation.	☐	☐	☐	

If you answer No to any item, please provide details below.

AGGREGATE DELIVERY/STOCKPILING	YES	NO	N/A	If No, Date Corrected
Vehicles delivering aggregates are tarped.	☐	☐	☐	
Fine aggregate piles protected from wind by coarse piles.	☐	☐	☐	
Stockpiles located as close as possible to cold feed bins.	☐	☐	☐	
Stockpiles covered or treated with water or suitable wetting agent when material is especially dusty or when required by wind conditions.	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

MATERIAL TRANSFER THROUGH THE PLANT	YES	NO	N/A	If No, Date Corrected
Hydrated lime storage silos ventilation filter and vent valve working.	☐	☐	☐	
Inspect elevator housing and plant tower for cracks and holes. Repair as required.	☐	☐	☐	
Inspect seal at connections between elevator and screens. Repair or correct as needed.	☐	☐	☐	
Inspect rubbing-type seals at the connection to the dryer/collection system. Repair or correct as needed.	☐	☐	☐	
Inspect discharge valves, ducts and seals around dryer intake. Repair or replace, as required.	☐	☐	☐	
(Batch Plants) Purging or draining for change in mix has dust creation minimized.	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

CYCLONE / KNOCKOUT BOX	YES	NO	N/A	If No, Date Corrected
Are all joints sealed and airtight in the duct work?	☐	☐	☐	
Are any holes present in duct work or cyclone?	☐	☐	☐	
Is there any damage or wear to internal cyclone components (i.e. outlet tube or liners)?	☐	☐	☐	
Is any of the duct work thin or worn?	☐	☐	☐	
Are cyclone and all duct work free from dust build-up or caking?	☐	☐	☐	
Are all rotary air locks and/or tipping valve adjusted and operating properly?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

BAGHOUSE	YES	NO	N/A	If No, Date Corrected
Is baghouse preheated before start-up?	☐	☐	☐	
Is baghouse operated above dew point 250°F (121°C)?	☐	☐	☐	
Is the baghouse high temperature protection device operating properly?	☐	☐	☐	
Is the high temperature set point set 50o F below the high operating temperature of the filter fabric?	☐	☐	☐	
Are all plant pressure sensing devices operating properly?	☐	☐	☐	
Are all thermocouples operating properly?	☐	☐	☐	
Are there any leaks in the shell of the baghouse? Or around any door seals?	☐	☐	☐	
Is the clean air cycle time set to clean the bags only as, and when, needed?	☐	☐	☐	
Inspect the baghouse bag: a) Are all bag seals intact? b) Is any dust present in this area?	 ☐ ☐	 ☐ ☐	 ☐ ☐	
Inspect bag with black light inspection system. Are there any indications of bag failure?	☐	☐	☐	
Are air jets properly aligned in the center of the bag aiming straight down into the bag?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

WET SCUBBER	YES	NO	N/A	If No, Date Corrected
Is water supply pump operating at correct pressure and volume?	☐	☐	☐	
Are water spray nozzles providing correct spray pattern and coverage?	☐	☐	☐	
Are all valves, manifolds and pipes free from plugging and leaking?	☐	☐	☐	
Is venturi adjusted to manufacturer's recommendations?	☐	☐	☐	
Are manometer/pressure drop readings in recommended operating ranges?	☐	☐	☐	
Is exhaust gas velocity and temperature entering the scrubber at the manufacturer's recommended design ranges?	☐	☐	☐	
Is the exit exhaust gas through the stack at recommended temperature range?	☐	☐	☐	
Is the plume form the stack visually acceptable and free from any dust tail?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

BURNER / DRYER FLIGHTS	YES	NO	N/A	If No, Date Corrected
Check fuel valves for leaks.	☐	☐	☐	
Inspect and confirm linkages are in proper adjustment.	☐	☐	☐	
Lubrication of moving parts is maintained.	☐	☐	☐	
Check nozzle for foreign materials to allow proper flow of fuel.	☐	☐	☐	
Are filters and strainers in clean working order as per manufacturer's recommendations?	☐	☐	☐	
Are thermocouples functioning properly?	☐	☐	☐	
Are dryer flights properly maintained?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

EXHAUST FAN	YES	NO	N/A	If No, Date Corrected
Are fan belts adjusted to the proper tension?	☐	☐	☐	
Are sheaves properly aligned and in good repair?	☐	☐	☐	
Are fan bearings in good working order?	☐	☐	☐	
Is there any dust build-up on the fan impeller or internal fan housing?	☐	☐	☐	
Is fan balanced and running smoothly?	☐	☐	☐	
Are there any cracks / holes in the fan impeller (very dangerous - fix immediately).	☐	☐	☐	
Are there any signs of abrasive wear on the impeller?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

DAMPER	YES	NO	N/A	If No, Date Corrected
Is damper modulating motor functioning properly?	☐	☐	☐	
Are the damper linkages intact and lubricated?	☐	☐	☐	
Are the pressure sensors that actuate the damper functioning properly?	☐	☐	☐	
Are the blades of damper showing any signs of abrasive wear?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

AIR SEALS	YES	NO	N/A	If No, Date Corrected
Are front and rear drum seals in working order?	☐	☐	☐	
Check and maintain flanges at interconnecting equipment.	☐	☐	☐	
Are all bag house seals in good working order?	☐	☐	☐	
Are seals at access points functioning properly?	☐	☐	☐	
Are joint seals on the fugitive emission system operating as specified?	☐	☐	☐	
Are seals at recycling collar and gate functioning as specified?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

FUEL UNLOADING AND STORAGE	YES	NO	N/A	If No, Date Corrected
Has fuel unloading time and weather information been noted?	☐	☐	☐	
Are odour mitigation filters installed and in clean working order?	☐	☐	☐	
Has the supplier provided the requested fuel type?	☐	☐	☐	
Are all fuel lines within the system operating properly?	☐	☐	☐	
Are access points to fuel tanks closed?	☐	☐	☐	
Has the fuel supplier provided clean tanker verification?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

ASPHALT CEMENT UNLOADING AND STORAGE	YES	NO	N/A	If No, Date Corrected
Are unloading temperatures within the proper discharge temperature range?	☐	☐	☐	
Are odour mitigation filters clean and functioning properly?	☐	☐	☐	
Are asphalt cement storage temperatures within the prescribed temperature range?	☐	☐	☐	
Are storage tank lids closed?	☐	☐	☐	
Are all asphalt cement transfer lines intact and functioning properly?	☐	☐	☐	
Has weather information and time been recorded during unloading of asphalt cement?	☐	☐	☐	
Has anti stripping additive been well blended?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

HOT MIX ASPHALT STORAGE	YES	NO	N/A	If No, Date Corrected
Are asphalt storage temperatures within the prescribed temperature range?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

HOT MIX ASPHALT LOADOUT	YES	NO	N/A	If No, Date Corrected
Are proper temperatures being maintained at loadout?	☐	☐	☐	
Has anti stripping additive been well blended?	☐	☐	☐	
Are transport vehicles tarping loads immediately following load out?	☐	☐	☐	
Are spills cleaned up immediately per MSDS?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

NOISE	YES	NO	N/A	If No, Date Corrected
Check large horsepower electric motors for transmission of vibrations. Are vibration isolation motor mounts working correctly?	☐	☐	☐	
If equipped, is turbo blower intake silencer working correctly?	☐	☐	☐	
Is exhaust fan balanced and operating without vibrations?	☐	☐	☐	
Are chains on slat conveyors, bucket elevators and drum/dryer drives adjusted to the correct tension, without excess slack?	☐	☐	☐	
Are all bearings, gear boxes and drives lubricated correctly to prevent excess noise?	☐	☐	☐	
Are screen decks properly isolated and sealed?	☐	☐	☐	
Are screen deck mounting springs working correctly?	☐	☐	☐	
Are safety guards/ screens installed and solidly affixed at all mounting points?	☐	☐	☐	
Are all noise and vibration control measures installed and properly maintained (e.g. Acoustic mufflers /silencers, enclosures, barriers,vibration isolation systems)?	☐	☐	☐	
Is mobile equipment (including exhaust muffler, back up alarm) well maintained?	☐	☐	☐	
Are mobile equipment operators and truck drivers aware of on-site policies regarding limiting reversing, tailgate slams, etc.?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX C

SETTLING POND	YES	NO	N/A	If No, Date Corrected
Are settling ponds constructed to proper size and volume as per manufacturer's recommendations?	☐	☐	☐	
Is the sludge removed from the settling pond to maintain correct depth of water?	☐	☐	☐	
Is foot-valve free from debris?	☐	☐	☐	
Is sludge being disposed of in accordance with the plant ECA or local MOE requests?	☐	☐	☐	

If you answer No to any item, please provide details below.

APPENDIX D

SAMPLE COMPLAINT RESPONSE FORM

Complaint Response Form

Source of Complaint _____

Date _____ Time _____

NATURE OF COMPLAINT

☐ Dust ☐ Noise ☐ Odour

☐ Opacity ☐ Waste ☐ Water

Give Specific Details of Complaint _____

_____

PLANT/PRODUCTION INFORMATION

Plant Type: ☐ Batch ☐ Drum ☐ Other

Mix Type: ☐ HL Mix ☐ RAP Mix ☐ Other

Asphalt Cement type/grade _____

Additives _____

If RAP mix, note percentage of recycled material _____

ENVIRONMENTAL DATA

Air Temperature _____ ☐ Sunshine ☐ Overcast ☐ Rain

Wind Speed _____ Wind Direction From _____

Identify suspected source of problem _____

_____

Identify measures taken to resolve complaint _____

_____

Identify measures taken to follow up with complaint _____

_____

Other Comments _____

_____

Form Completed by _____ **Date** _____

Signature _____

Date Submitted to MOE _____

NOTES

NOTES

ENVIRONMENTAL PRACTICES GUIDE

Ontario Hot Mix Asphalt Plants

Ontario Hot Mix
Producers Association

ohmpa.org