CRUICKSHANK CONSTRUCTION LIMITED

BEST MANAGEMENT PRACTICES PLAN FOR THE CONTROL OF FUGITIVE DUST EMISSIONS

Site Location:
Elginburg Asphalt Plant
2357 Unity Road
Lot 14, Concession 5
City of Kingston, County of Frontenac

December 2013
(Revision 0)

Introduction

This Best Management Practices Plan for the Control of Fugitive Dust (BMP Plan) for Cruickshank Construction Limited's (Cruickshank) asphalt plant located at Lot 14 Concession 5 City of Kingston, County of Frontenac (Site) has been prepared in accordance with the MOE standard requirements for a BMP Plan as summarized below:

MOE Standard Requirements for a BMP Plan

A Best Management Practices Plan shall include, but not be limited to:

(1) Identification of the main sources of fugitive dust emissions such as:
- *(a) On site traffic;*
- *(b) Paved roads/areas;*
- *(c) Un paved roads/areas;*
- *(d) Material stockpiles;*
- *(e) Loading/unloading areas and loading/unloading techniques;*
- *(f) Material spills;*
- *(g) Material conveyance systems;*
- *(h) Exposed openings in process and storage buildings; and*
- *(i) General work areas.*

(2) Potential causes for high dust emissions resulting from these sources;

(3) Preventative and control measures in place or under development to minimize the likelihood of high dust emissions from the sources of fugitive dust emissions identified above. Details of the preventative and control measures shall include:
- *(a) A description of the control equipment to be installed;*
- *(b) A description of the preventative procedures to be implemented; and/or*
- *(c) The frequency of occurrence of periodic preventative activities, including material application rates, as applicable.*

(4) An implementation schedule for the Best Management Practices Plan, including training of facility personnel;

(5) Inspection and maintenance procedures and verification initiatives to ensure effective implementation of the preventative and control measures; and

(6) A list of all Ministry comments received, if any, on the development of the Best Management Practices Plan, and a description of how each Ministry comment was addressed in the Best Management Practices Plan.

(1) Identification of the Main Sources of Fugitive Dust Emissions

The main sources of dust at this Site are from the following sources:

Main Sources of Fugitive Dust Emissions	
A	On-site traffic
B	Paved roads / areas
C	Unpaved roads / areas
D	Unwashed coarse aggregate stockpiles
E	Loading / unloading areas and loading / unloading techniques: • Raw material delivery and delivery techniques • Raw material transfer and transfer techniques • Product loading and loading techniques
F	Material spills
G	Material conveyance systems
H	Exposed openings in the process system (plant)
I	General work areas (covered in above categories)

(2) Potential Causes for High Dust Emissions Resulting from these Sources

The potential causes for high dust emissions from the above sources are as follows:

Main Source of Fugitive Dust Emissions		Potential Causes of High Dust / Opacity Emissions
A	On-site traffic	Traffic movement (raw material delivery trucks and tankers; front-end loaders; shipping trucks; aggregate haul trucks)
B	Paved roads / areas	Accumulated dust from raw material delivery, storage and transfer
C	Unpaved roads / areas	Fines generated from equipment used to transfer raw material / product; wind erosion
D	Aggregate stockpiles	Wind erosion
E	Loading / unloading areas and loading / unloading techniques: • Raw material delivery and delivery techniques • Raw material transfer and transfer techniques	Exposed material drops
F	Material spills	Raw material drops outside of a transfer point;
G	Exposed openings in process	Wind

Note: refer to Figure 1 (Site Layout) in Appendix D for source locations.

Revision History

Revision NO.	Date
Revision 0	December 2013

(3) Preventative and Control Measures in Place or Under Development to Minimize the Likelihood of High Dust Emissions from the Sources of Fugitive Dust Emissions Identified Above

A. ON-SITE TRAFFIC

- Traffic speed on-site is limited to 30 km/hr; and
- Truck and loader travel distances will be limited as appropriate (i.e. shortest routes).

B. PAVED ROADS AND AREAS

- Paved roads and areas are monitored (visual inspection) throughout the day, with particular attention to entrances / exits and frequently travelled areas; and
- As required, paved roads and areas are either flushed or swept[1] based on the Manager's or designate's observations.

C. UNPAVED ROADS AND AREAS

- Unpaved roads and areas are monitored (visual inspection) throughout the day; and
- As required, unpaved roads and areas are watered or have calcium applied[1] based on the Manager's or designate's observations.

D. AGGREGATE STOCKPILES

- Some aggregates received to the site are washed. These are mainly the fine aggregates (sand and stone dust) and will have a low potential to cause off-site fugitive dust emissions.
- Unwashed aggregate stockpiles are watered as required for dust control[1];
- Stockpiled aggregate materials are either stored in 3-sided concrete block enclosures or have an earth berm around them on 3 sides and kept below the height of the enclosure/berm or the stockpiles are limited to a height of 6 m;
- The working face of all stockpiles will move around the pile to load out the driest material at all times where it is accessible with the loader to ensure the exposed face of the stockpile is damp;
- Some aggregates received may have a lime dust coating on them. The lime is bonded to the aggregates and has a low potential to cause off-site fugitive dust emissions.

[1] Except during periods of rain, ice or snow.

LOADING / UNLOADING AREAS, LOADING / UNLOADING TECHNIQUES

- Raw material delivery and delivery techniques:

  - Aggregates are unloaded at the entrance of each stockpile enclosure and / or at base of the free-standing stockpile in a controlled manner;
  - The distance between the drop point and the stockpile is minimized; and
  - Raw materials are slowly unloaded in a controlled manner;
  - A loader may be required to handle the delivered aggregate to place in the stockpile. When this is required, handling of the materials will be kept to a minimum and drop points will be minimized and controlled.

- Raw material transfer and transfer techniques:

  - All raw material drop / transfer points are controlled (or completely enclosed):
    - Aggregate materials are transferred from the stockpiles by a front-end loader via a ramp into the appropriate elevated aggregate bin enclosed on three sides;
    - The transfer conveyor from the aggregate bins to the dryer is open but dished to keep the material contained;
    - Once the aggregate enters the dryer the balance of the process is enclosed until discharge of the asphalt product.

- Product loading and loading techniques:

  - The loading point is controlled:
    - There is no dust emissions caused by loading of the final product as the dust is encapsulated in asphalt cement.

F. MATERIAL SPILLS

Significant material spills are not expected. Minor spillage from the front-end loader and conveyor may occur.

- Aggregate Material

  - The front-end loader working areas will be monitored (visual inspection) throughout the day, with particular attention to aggregate material spillage; and
  - Spilled aggregate material will be clean-up as quickly as possible.

G. EXPOSED OPENINGS IN THE PROCESS SYSTEM (PLANT)

- All access panels will be in place when operating the plant to prevent dust emissions;
- Small openings or cracks around access panels are potential areas allowing fugitive dust emissions. These will be kept to a minimum and sealed if emissions occur.

(4) An Implementation Schedule for the Best Management Practices Plan, including Training of Facility Personnel

Upon MOE approval the BMP Plan will be implemented.

Employee personnel assigned to Cruickshank's asphalt plant operations will be trained on the BMP Plan. All new staff assigned will be trained at their hiring and employee personnel will review the training annually (See Appendix B).

(5) Inspection and Maintenance Procedures and Monitoring Initiatives to Ensure Effective Implementation of the Preventative and Control Measures

The effective implementation of the BMP Plan will be the responsibility of the Manager. The Manager will monitor the on-going performance of the BMP Plan on a regular basis. The "Asphalt Plant Operation Record" (see Appendix A - Documentation Requirements) will also be reviewed on a regular basis to ensure that records are being maintained. As necessary specific incidents or improvement recommendations will be assessed.

On an annual basis the Manager will evaluate the overall performance of the BMP Plan. As required, the BMP Plan and record keeping procedures will be updated to reflect Cruickshank's continuous improvement objective.

(6) A list of all Ministry Comments Received, if any, on the Development of the Best Management Practices Plan, and a Description of how each Ministry Comment was Addressed in the Best Management Practices Plan

A list of all MOE comments received pertaining to the BMP Plan, and as necessary, how each comment has been / will be addressed is attached as Appendix C.

APPENDIX A

DOCUMENTATION REQUIREMENTS / RECORD RETENTION

Documentation Requirements

MOE Standard Requirements for a BMP Plan

The company shall record, in a logbook, each time a specific preventative and control measure described in the Best Management Practices Plan is implemented. The company shall record as a minimum:

(1) The date when each emission control measure is installed, including a description of the control measure.

(2) The date when each new preventative measure or operating procedure to minimize emission is implemented, including a description of the preventative measure or operating procedure.

(3) The date, time of commencement, and time of completion of each periodic activity conducted to minimize emissions, including a description of the preventative measure/procedure and the name of the individual performing the periodic activity.

- **Dust Control Log**

Fugitive Dust Control Log will be structured as a series of chapters and tables to facilitate record keeping, as follows:

Chapter 1 - Daily Inspections

The main sources of fugitive emissions will be visually inspected at least once per operating day. The main sources include:

- Paved roads / areas;
- Unpaved roads / areas;
- Coarse aggregate stockpiles; and
- Loading / unloading areas.

Daily observations of fugitive emissions and any immediate corrective actions necessary will be recorded on "Asphalt Plant Operation Record". See Appendix E Forms.

Chapter 2 – Periodic Activities

Cruickshank or a contractor will apply dust controls periodically during Site operations. Periodic activities such as sweeping, flushing and watering will be recorded on "Asphalt Plant Operation Record". See Appendix E Forms.

Chapter 3 – Fugitive Dust Incidents and Suggestions for Improvement

This chapter is included to assist the Manager with identifying and developing continuous improvement initiatives with respect to fugitive dust. Data from Chapter 1 and Chapter 2 will be used to facilitate this activity.

Fugitive dust incidents and suggestions for improvement will be reviewed periodically with opportunities for improvement noted on "Non Conformance and Corrective Measure / Preventive Action Form". See Appendix E Forms.

Chapter 4 – Installation of New or Improved Control Measures; and New or Improved Preventative Measures / Operating Procedures

Based on the actions presented in Chapter 3, Chapter 4 will document the installation of any new or improved control measures; and / or new or improved preventative measures / operating procedures.

RECORD RETENTION

MOE Standard Requirements for a BMP Plan

> ***The company shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this certificate, and make these records available for review by staff of the Ministry upon request, including:***
>
> - ***The logbook, which contains all records on the preventative and control measures in place and implemented for each source of fugitive dust emissions identified in the Best Management Practices Plan.***

Cruickshank will retain the Fugitive Dust Control Log book on-site for a minimum of 2 years.

APPENDIX B

TRAINING

- **Training Focus**

Training will focus on the requirement of plant personnel to:

VISUALLY MONITOR FOR HIGH DUST EMISSIONS (AND AS NECESSARY REPORT TO THE MANAGER) THROUGHOUT THEIR WORK SHIFT.

- **Training Materials**

Training materials will include:

- BMP Plan
  - ✓ Overview and Importance
  - ✓ Responsibilities
  - ✓ Fugitive Dust Prevention and Control Measures
  - ✓ Reporting Fugitive Dust Events
  - ✓ Periodic and annual review of the BMP

- Forms and Checklists
  - ✓ Visual Observation Forms
  - ✓ Periodic Check Lists
  - ✓ Fugitive Dust Incident / Improvement Suggestions

- **Staff Training Records**

Staff training will be recorded and stored by Human Resources in Kingston office

APPENDIX C

MINISTRY COMMENTS

Table C.1 – Ministry Comments

Date	Ministry Comment Received	Description of How the Comment was Addressed in the BMP Plan

APPENDIX D

FIGURE

APPENDIX E

FORMS

Nancy Cornish

From: Ken Bangma <IMCEAEX-_o=First+20Organization_ou=Exchange+20Administrative+20Group+20+28FYDIBOHF23SPDLT+29_cn=Recipients_cn=ken+2Ebangma@cruickshankgroup.com>
Sent: Friday, September 11, 2015 10:31 AM
To: Dick, Sarah (MOECC)
Cc: Scott Wood
Subject: Elginburg Quarry - Improved Dust Management Plan.

Sarah,

In an effort to amend our mitigation of site dust at this property, we have established and implemented the following upgraded action plan.

It should be noted that although this year has been a particularly dry year and dust emissions from the site may have increased, we have taken steps to increase dust control and these additional are intended to close the loop. It should further be noted that we feel that the complaints that are being lodged are primarily due to the fact that we have an ongoing Quarry Expansion application underway, as historically, there has only ever been two complaints, neither involve dust. Those complaints being in 2000 , when local wells suffered due to drought conditions in area as determined by the MOE and in 2014, a noise complaint which was determined invalid by the MNR when it was explained that we were operating as permitted in the ARA License and Site Plan.

The upgraded action plan we suggest and have recently implemented is as follows,

1. We have invested in a water spray truck that will be based out of the Elginburg Quarry site. The entrance/exit, internal haul routes and stockpile areas will be flushed/sprayed as necessary. This could be multiple times a day …. if necessary. This unit will be onsite and operating at Elginburg as of September 10th, 2015. This function has previously been accomplished by external contractors but we feel that by having our own on-site, it affords us quicker response times and unlimited flexibility in utilization.

2. We will have a Sweeping / Vacuum Truck at the Elginburg Quarry site on a weekly basis throughout the busy periods of our operating season. The intent is to manage the dust moved onto the paved surfaces throughout the property and to minimize the cumulative effect from the haul roads regularly.

3. We will maintain a small inventory of bagged calcium chloride at Elginburg to be applied to the internal un paved haul roads as necessary.

Thank you,

CRUICKSHANK
WE DO OUR LEVEL BEST

Ken Bangma, G.S.C, Operations Manager - Properties & Compliance

751 Dalton Ave. Kingston ON. K7M 8N6
Office: 613.542.2874 ext 3061
Fax: 613.549.0817
Cell: 613.572.0555

Website | E-News letter

GOLD SEAL CERTIFICATION SCEAU D'OR
CANADIAN CONSTRUCTION ASSOCIATION
CANADIENNE DE LA CONSTRUCTION