



**Guidance Note on the
Application for
Renewal of Specified Process Licence
for Concrete Batching Plant**

Environmental Protection Department

Environmental Compliance Division

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1. Introduction

- 1.1 This guidance note is to provide guidance for the licence holder of an existing specified process to apply for renewal of a specified process (SP) licence to operate an existing concrete batching plant (i.e. the applicant). It also:
- (a) sets out the requirements for proper air quality impact estimation of a concrete batching plant;
 - (b) provides the methodology for the air quality impact estimation; and
 - (c) suggests best environmental management practices for minimizing the air quality impact of the concrete batching process.

2. The Application Submission Requirements

- 2.1 According to the Air Pollution Control (Specified Processes) Regulations, the Authority shall give notice in writing to an SP licence holder not earlier than 130 days and not later than 120 days before the expiry of his licence.
- 2.2 The licensee should apply to the Authority for renewal of the licence within a period not earlier than 120 days and not later than 60 days before the expiry of the licence. Otherwise, the licence will cease to be in force with effect from the date of its expiry such that the licensee may not use his/her premises for the conduct of the said SP after that date.
- 2.3 The following are required for the renewal of an SP licence:
- (a) a duly completed Application form (Form 2 in Second Schedule of Air Pollution Control (Specified Processes) Regulations);
 - (b) Fee (Nil for application under section 16); and
 - (c) supporting information for the authority to consider renewing or refusing to grant an SP licence.

3. Supporting information to be submitted

- 3.1 In granting or refusing to grant an SP licence, the Authority shall-
- (a) have regard to the capability of the applicant to provide and maintain the best practicable means for the prevention of the emission from his premises

- of any air pollutant;
- (b) have as his purpose the attainment and maintenance of any relevant air quality objective; and
 - (c) have regard to whether the emission of noxious or offensive emissions would be, or be likely to be, prejudicial to health.
- 3.2 The applicant shall submit sufficient supporting information to enable the Authority to exercise his discretion to renew or otherwise the SP licence; and determine its terms and conditions as well as the period should renewal be granted.
- 3.3 In particular, the following supporting information should be submitted alongside the application:
- (a) *Description of the Environment* – In general, the study area is the area within 500m from the boundary of the premises. This information should include a description of the topographical and manmade features that may affect the dispersion characteristics of air pollutants within the study area such as terrain heights, locations and dimensions of physical obstructions within the study area. In addition, changes of the environment since the issue of the existing licence and changes of the environment anticipated to happen in the validity period of the renewed licence being sought should be included.
 - (b) *Plant Characteristics and Process Description* – In order to ensure that the requirements stipulated in the “Guidance Note on Technical, Management and Monitoring Requirements for Specified Process – Cement Works (Concrete Batching Plant)” (GN) are met, the concrete batching process and equipment include loading, transportation and storage of raw materials, conveyor systems, elevated storage bins, aggregate weighing hoppers, cement and fly ash silos, cement and fly ash weighing hoppers, etc. which would be used in the facility, should be described and all activities of the production process should be reviewed and checked against the corresponding requirements in the GN and the findings should be in the document. The characteristics of the site, such as the plant layout plan showing the locations of the haul road and plant equipment, are required. The parameters and data such as duration of production cycle, duration of plant operation, number of

vehicles travelling during the plant operation, production capacity, etc. that would affect the emissions of the sources should also be presented. Plan for improving the air pollution control equipment, production process and management practices of the plant to meet the requirements of the GN within the validity period of the renewed licence being sought should be included.

(c) *Identification of Air Pollution Sources* – Potential sources of dust emissions include delivery of raw materials, storage of raw materials in stockpiles and silos, transfer of raw materials by conveyors, hoppers and leakage or spillage of raw materials from silos, inspection covers and duct work. The applicant is required to report on his review of the activities of the plant operation for identifying all emission sources. The emission rates of these emission sources shall be estimated and presented. Some typical parameters for the estimation of dust emission from various sources are given below:

- Fabric filter dust collector
 - i) collection efficiency;
 - ii) exhaust fan design flow rate;
 - iii) air to cloth ratio;
 - iv) location, direction and dimensions of the emission point; and
 - v) operation hours.
- Vehicle traffic
 - i) average vehicle weight;
 - ii) road surface silt loading; and
 - iii) road length.
- Aggregate handling and storage pile
 - i) aggregate moisture content;
 - ii) mean wind speed; and
 - iii) daily aggregate handling capacity.

The particulars of other dust emission sources within 500 metres from the site boundary may also be required.

(d) *Potential Affected Uses* – Through site visits and review of the survey maps within 500m from the boundary of the premises, a location plan showing the locations of the facilities with its surrounding residential buildings, schools, hospitals, medical clinics and other buildings (including those under construction) should be submitted. The

characteristics of the identified affected uses such as their exact locations and elevations shall be provided.

- (e) *Air quality impact estimation* – The air quality impacts of the SP plant to the surrounding environment, particularly at the identified affected uses, which are estimated in accordance with the modeling approach and the assessment procedure at Appendix–A, should be provided.
- (f) *Housekeeping* - A good guidelines and standard procedures for operating a Concrete Batching Plant will help promote good practice and behavior that will improve the overall environmental performance of the facility. The licensee is therefore required to prepare a guidance document for the plant operator providing an inspection checklist for minimizing the dust emission arising from these activities. Some typical items in the checklist are given in the following:
- Aggregates and sand are kept damp
 - Pavements and other surfaces are not dust sources
 - Warning devices and alarms systems are properly maintained and working correctly
 - Duct work is airtight
- (g) *Dust Monitoring Programme and Action Plan* - The purpose of the dust monitoring and action plan is to outline the monitoring and audit requirements for the operation of the Concrete Batching Plant. It aims to provide systematic procedures for monitoring, auditing and minimizing of the environmental impacts associated with the plant operation. The licensee is encouraged to make reference to the relevant EM&A manuals adopted by facilities with similar nature, to formulate an appropriate dust monitoring programme and action plan for the plant. The information such as the monitoring locations, monitoring parameters and frequency, monitoring methodology, measurement and analysis, action and limit levels, event and action plan, responsibility of the environmental personnel, should be included in the plan. As a reference, a sample dust monitoring programme and action plan is provided in Appendix-C.

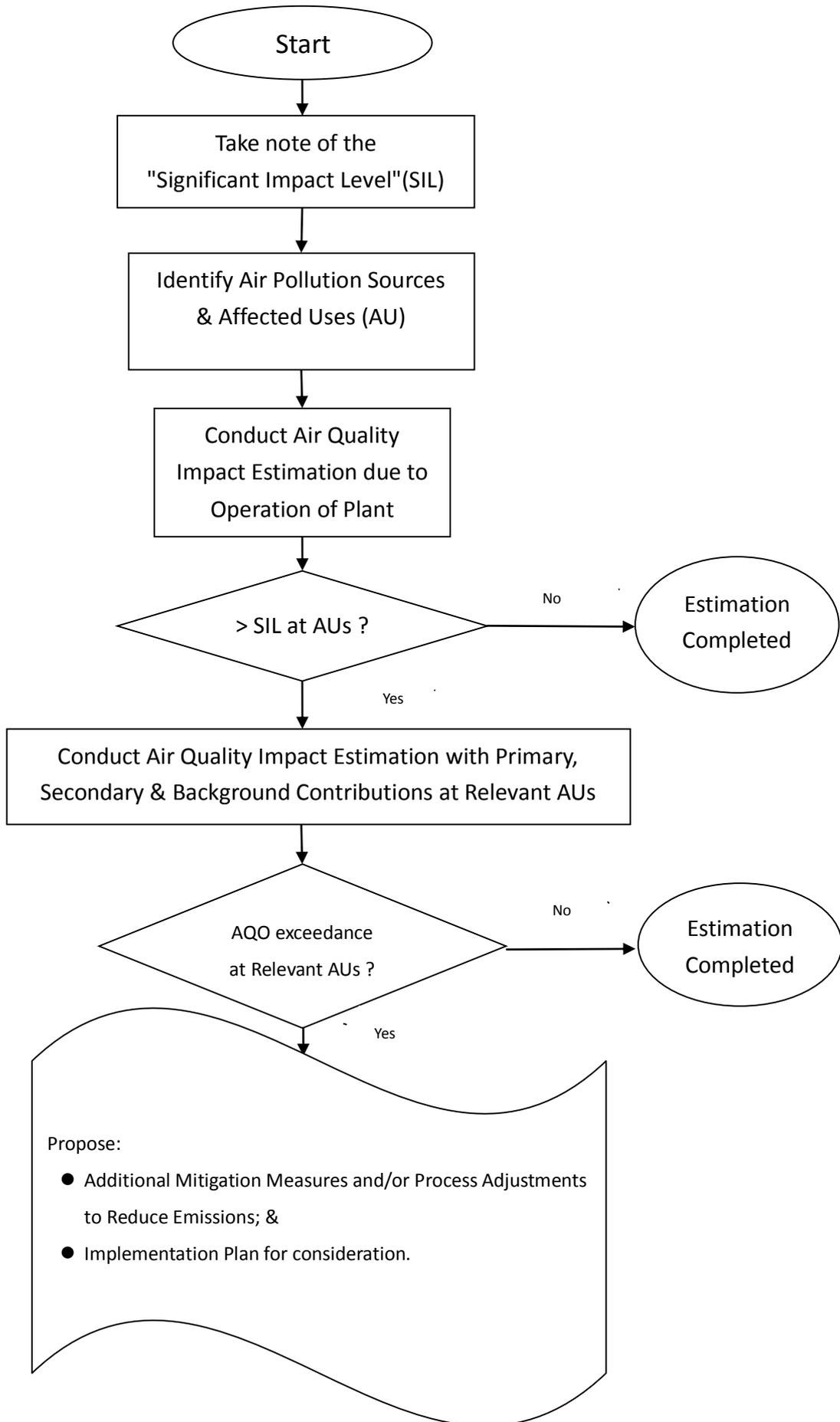
Air Quality Estimation Approach and Procedure

1. Modelling Approach – In general, contributions from three tiers of emission sources should be considered in evaluating the air quality impacts of a pollution source upon affected user. They are:
 - i) Primary contributions - The project-induced emissions are the major contributor to local air quality impacts.
 - ii) Secondary contributions - Within the immediate neighbourhood of the project site, there are usually pollutant emitting activities contributing further to local air quality impacts. Any emission sources in an area within a 500m radius of the project site with notable impacts should be identified and included in an air quality assessment to cover the short-range contributions.
 - iii) Background contributions - The above two types of emission contributions should account for, to a great extent, the air quality impacts upon local affected uses, which are often amenable to estimation by the 'steady state dispersion' type of models. However, a background air quality level should be prescribed to indicate the baseline air quality in the region of the project site, which would account for any pollution not covered by the two preceding contributions. A set of standard PATH output data for the current base year of 2010 and two future years (2015 and 2020) can be requested from EPD. Should a year other than those provided by EPD be required for assessment, the method to obtaining such data should be agreed with EPD.
2. For the purpose of estimating the air quality impact of an existing concrete batching plant and taking into account of its locality, operation capacity and the environmental concern of its operation, the following procedures for conducting the air quality impact estimation are suggested:
 - i) Determination of the “Significant Impact Level (SIL)” - SIL serves as a screening tool to identify a level of ambient impact that is sufficiently low relative to the Air Quality Objectives (AQO) such that the impact can be considered trivial. The SIL, expressed as an ambient pollutant concentration ($\mu\text{g}/\text{m}^3$), is used to determine whether the ambient impact of a

particular pollutant (once it is determined to be emitted in significant amounts) is significant enough to warrant a complete source impact analysis involving modeling the collective impacts of the proposed project and emissions from other existing sources. For concrete batching plants, respirable suspended particulates (RSP) is the dominant air pollutant. The SIL for RSP in the air quality assessment upon the renewal of a specified process (SP) licence for operation of an existing concrete batching plant or for a new application is set at a value of $3.5 \mu\text{g}/\text{m}^3$ for 24-hour averaging time and $0.5 \mu\text{g}/\text{m}^3$ for annual averaging time.

- ii) To conduct the model run with the source information identified in Section 3.3(c) and present the air quality impact (24-hour and annual RSP concentrations) on the affected uses due to the emission sources of the plant and plot the pollution contours at appropriate levels.
- iii) If it has been confirmed that the contribution of the plant in terms of the maximum pollution concentration is less than the respective SILs, no further air quality estimation is required.
- iv) Should the impacts on any of the affected uses be exceeded the SILs, the secondary and background contribution as mentioned in the Modelling Approach should be included to estimate the overall air quality impacts on these relevant affected uses for a selected assessment year.
- v) The overall cumulative air quality impact at those affected uses identified in part (iv) above shall be calculated and presented in the form of summary table and pollution contours.
- vi) In case of exceedance of relevant AQOs identified at any of the affected uses, the applicant is required to propose additional mitigation measures or process modification to further reduce the emissions of the plant with a reasonable implementation plan for meeting the relevant AQOs for consideration of the Authority.

The flow diagram showing the above procedure is given in Appendix-B.



Sample Dust Monitoring Programme and Action Plan

- Air quality monitoring parameter - 24-hour RSP concentration
- Monitoring locations – The applicant should propose appropriate locations, such as the RSPs identified in Section 3.3(d), for monitoring.
- Monitoring frequency – The frequency of at least once in every six-day at all monitoring locations is usually adopted.

Action Plan

Parameter	Action level
24 hr average RSP	100 µg/m ³ or below
Plant Environmental Personnel	Licensee
<ol style="list-style-type: none"> 1. Identify the source, investigate the causes and propose remedial measures. <i>(Exceedance of action level may be caused by malfunction of sampler and its operation, high level of background concentration, failure of air pollution control equipment, mishandling of materials, etc.)</i> 2. Discuss with the operator for remedial actions required. 3. Carry out corrective actions. 4. Check the effectiveness of actions. 5. Repeat measurement and increase monitoring frequency if necessary. 	<ol style="list-style-type: none"> 1. Notify the Authority for events with concentration equal or above 100 µg/m³. 2. Rectify any unacceptable practice. 3. Amend working methods if appropriate. 4. Report details of the findings (together with the daily inspection records in the past six days before the event) to the Authority.