APPENDIX 15

Extracts from "Guidance Document on Fugitive Emission Control" issued by DOE Malaysia under Environmental Quality (Clean Air) Regulations 2014

1.2 Dust

Suitable requirements shall be made to emissions reduction with regard to facilities at which solid substances are loaded or unloaded, hoisted, transported, worked, prepared or stored if these substances may cause dust emissions due to their density, grain size distribution, grain shape, surface condition, abrasion resistance, shearing resistance, resistance to fracture, composition or due to their low humidity content.

While taking into account the principle of proportionally,

i. the type and properties of solid substances and of their components (e.g. hazardousness and toxicity, possible effects on soil and water, possible development of explosible mixtures of dust/air, dusting propensity, humidity),
ii. the loading equipment or the loading method,
iii. the mass flow and the period during which emissions occur,
iv. the meteorological conditions,
v. the location of the loading site (e.g. distance to residential areas)

shall be taken into account in particular while establishing such requirements. The measures shall be established while also taking into account their possible effects on water and soil.

Fugitive dust emissions control shall be achieved via good housekeeping and appropriate equipment. Relevant measures include:

a. *Loading and unloading*:

i. minimizing the falling distance when discharging (e.g. with chutes involving guiding panels or reeds),
ii. automated discharging height adjustment with changing bulk heights,
iii. equipment adjustable to the respective bulk material (e.g. avoiding excess loads and missed discharging points with grippers),
iv. empty start of loaded grippers,
v. empty grippers are closed while re-set,
vi. minimized trimming and cleaning operations,
vii. automated loading operations;
viii. increased materials humidity, if necessary, by applying surface tension relaxation agents, insofar as humidity does not conflict with subsequent further processing, storage properties or the product quality of the materials loaded,
ix. applying dust bonding agents,
x. pelletisation,
xi. standardized grain size (finest-grain separation),
xii. avoiding blockages,
xiii. reducing the amount of loading processes.

b. *Shipment or transport*:

If vehicles are used for transport, closed receptacles (silo vehicles, containers, tarpaulin) shall be applied. Moreover, when materials are shipped or transported on the premises of the enterprise, closed facilities (e.g. cased conveyor belts, bucket conveyors, worm conveyors, feed screws or pneumatic conveyors) shall be applied.

If closed transportation receptacles are loaded with solid substances, the displaced air shall be collected and fed to a dedusting system.

If dust emissions may develop due to the use of roadways, such roadways shall be enhanced with a cover of asphalt concrete, concrete or similar materials and they shall be kept in good condition.

c. *Working or preparation*:

Machines, equipment or other systems used to work solid substances (e.g. by breaking, grinding. Sifting, screening, mixing, briquetting, heating, drying cooling) shall be encapsulated or fitted with emission-reducing technologies of similar effect.

d. *Storage*

When establishing the requirements for storage, enclosed construction systems (e.g. silos, bunkers, magazines, warehouses, containers) shall be preferred as an option. Insofar as storage facilities are not completely enclosed, the development of dust shall be minimized. Waste gases from charging or discharging units and displaced air from receptacles shall be collected and fed to a deducting system.

When establishing requirements to be made for setting up or extracting piles or to operate open-air homogenization facilities, the following measures may be considered:

- covering the surface (e.g. with mats),
- surface grassing
- spraying the pile with dust-bonding agents while the pile is set up,
- surface solidification,
- piles, charging points and discharging points shall be humidified sufficiently, insofar as such humidifying does not conflict with subsequent further processing.
- charging or extraction protected by earth banks,
- conveyor belts with adjustable height,
- plants as windbreakers,
- aligning the longitudinal axis of the pile with the main wind direction,
- limiting piles in height.