

**DEVELOPMENT CONTROL DEPARTMENT
GUIDELINES FOR POLLUTION CONTROL (PC) STUDY**

1. **SCOPE**

1.1 Anyone intending to carry out any activity, which could cause substantial pollution of the environment or increase the level of such pollution, may be required to conduct a PC Study. This is provided for under Section 36 of the Environmental Protection and Management Act (EPMA).

1.2 The PCS shall:

- i Identify the sources of emission of air pollutants, discharge of trade effluent, generation of wastes and emission of noise.
- ii Quantify and evaluate the impacts of such pollutive emissions.
- iii Recommend the measures to be incorporated in the design and operation of the plant to reduce the pollutive emissions to acceptable levels that would not pose nuisance or harm to the people and the environment.

2. **PCS REPORT**

2.1 The PCS Report shall include the following parts:

(a) **Introduction**

- i Purpose of study.
- ii Description of the approved/proposed industrial activities of the facility and site plan showing the layout of the process units and storage areas.
- iii Description of the processes and the main pollution problems expected, including process flow diagrams.

(b) **Air Pollution Control**

- i Sources of air pollution and sources of odour.
- ii Quality, rates and quantities of air emissions.
- iii Assessment of the impacts of the air emissions, including odorous emissions using dispersion modeling or other acceptable methods.

- iv Measures to control air pollution and ensure compliance with emission standards and requirements in the Code of Practice on Pollution Control.
- v Measures to control and prevent odour nuisance.
- vi Monitoring programme - Air impurities monitored, type of monitoring equipment/test carried out, frequency of monitoring.

(c) **Water Pollution Control**

- i Sources of trade effluent.
- ii Quality, rates and quantities of all wastewater streams and final trade effluent discharges.
- iii Measures to treat all trade effluent and ensure compliance with emission standards and requirements in the Code of Practice on Pollution Control.
- iv For premises storing large quantities of oils and chemicals, measures for containment of spills, leakages and fire-fighting water.
- v Monitoring programme - Parameters monitored, type of monitoring equipment/test carried out, frequency of monitoring.

(d) **Noise Pollution Control**

- i Sources of noise pollution.
- ii Estimates of noise levels emitted.
- iii Impacts of the noise emissions i.e. the noise levels at the receptors surrounding the plant especially residential housing.
- iv Measures to control noise pollution and ensure compliance with noise emission standards and requirements in the Code of Practice on Pollution Control.
- v Monitoring programme - Type of monitoring equipment/test carried out, frequency of monitoring.

(e) **Management of Hazardous Chemicals**

- i Inventory and storage of hazardous chemicals.
- ii Evaluation of the acute and chronic (e.g. carcinogen, endocrine disruptor, etc.) hazardous impacts of each hazardous chemical and/or byproducts to the environment and public health.
- iii Measures for safe storage and handling of hazardous substances to ensure compliance with requirements in the Code of Practice on Pollution Control and EPMA and to safeguard the environment and public health.
- iv Policy and procedure to ensure all necessary measures to prevent accidents involving hazardous chemicals would be adopted.
- v Monitoring programme - Type of monitoring equipment to detect any leakage of hazardous substances, frequency of checks.

(f) **Toxic Wastes Management**

- i Inventory and storage of toxic industrial wastes, including waste oil, solvent and other solid wastes.
- ii Measures for safe storage and handling of toxic industrial wastes to ensure compliance with requirements in the Code of Practice on Pollution Control.
- iii System of checks on the safe storage and handling of toxic industrial wastes.

(g) **Recycling and Resources Conservation**

- i Study the feasibility and recommend measures to reduce, reuse and recycle wastes generated from the plant.
- ii Study the feasibility and recommend measures to conserve energy and water use in the plant.

(h) **Prevention of Land Contamination**

- i Sources of potential land contamination.
- ii Estimates of impacts from such sources on land contamination.
- iii Measures to prevent land contamination.

iv Monitoring programme, if appropriate.

(i) **Conclusion**

- i Whether the proposed measures in parts (b) to (g) are adequate to insure compliance with statutory requirements and the Code of Practice on Pollution Control.
- ii Whether the plant/proposed plant and its operations would pose any significant pollution impact on the environment and on developments in its vicinity, including odour, noise and dust nuisances.

(j) **Annexes**

- i MSDS of each chemical.
- ii All supporting calculations and documentations including detailed results of dispersion/computer modeling/charts.

2.2 For clarification on these guidelines, please contact our officers on Tel. 67319104 or 67319681 or e-mail lee_aik_beng@nea.gov.sg or joseph_foo@nea.gov.sg.

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Note: * - Projects will only be approved by DCD on a case-by-case basis.

(Note: Updated on 1st Sep 2020)