

GUIDELINES FOR POLLUTION CONTROL STUDY
[AS AT JAN 2023]

1. **SCOPE**

1.1 The guidelines serve to provide a general reference for trained personnel to conduct pollution control study. Under Section 36 of the Environmental Protection and Management Act (EPMA) 1999, 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 Pollution Control Study (PCS).

1.2 The PCS shall:

- (a) Identify the sources of emission of air pollutants, discharge of trade effluent, generation of wastes and emission of noise.
- (b) Quantify and evaluate the impacts of such pollutive emissions.
- (c) 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 (if applicable).
- ii Quality, rates and quantities of air and odour emissions.

- iii Assessment of the impacts of the air and odour emissions by using dispersion modelling. For odour emissions, the report shall include assessment of the impact from odorous gases or volatile organic compounds (VOCs) that may be emitted from the plant operations.
- iv Measures to control air pollution and ensure compliance with emission standards and requirements in the Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013), the EPMA 1999 and its Regulations.
- v Measures, including the use of best available technologies referenced from similar projects in other countries, to be put in place at the plant to control and prevent air emissions and odour nuisance.
- vi Management plans to ensure effectiveness of control measures for air and odour emissions and to manage contingencies such as when plant facilities are not able to treat the air and odour emissions.
- vii Monitoring programme – Air / odour impurities monitored, type of monitoring equipment/test carried out (e.g. United States (US) Environmental Protection Agency (EPA) approved or designated reference and equivalent methods), and 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 Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013), the EPMA 1999, the Sewerage and Drainage Act (SDA) 1999 and their Regulations.
- 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 Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013), the EPMA 1999 and its Regulations.
- 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 Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013), EPMA 1999 and its Regulations 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 Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013), the EPMA 1999 and its Regulations.

- 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 (h) are adequate to ensure compliance with statutory requirements and the Singapore Standard on Code of Practice for Pollution Control (i.e. SS593:2013).
- 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 Safety Data Sheet (SDS) of each chemical.
- ii All supporting calculations and documentations including detailed results of dispersion/computer modelling/charts.

2.2 For clarification on these guidelines, please contact our relevant officers listed on our website available at: www.nea.gov.sg/our-services/development-control/consultation.

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