

# Soil and Groundwater Contamination Regulations and Issues Thailand

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## About Thailand

The land area of Thailand is 513,120 square kilometers. Population is about 69.9 million and ethnicity is majority Thai. Religion of Thailand is majority Buddhism; The political system is Constitutional Monarchy. Bangkok and Chiang Mai are big cities in Thailand. Gross domestic product (GDP) in Thailand is \$1.428 Trillion and the 22<sup>nd</sup> in purchasing power parity (PPP), \$20,388 per Capita.

## Soil and Groundwater Contamination Regulations

### I. Thailand Environmental Regulation Structure

- 1) Ministry of Natural Resource and Environment: Enhancement and Conservation of National Environmental Quality Act (NEQA 1992)
- 2) Ministry of Industry: Factory Act (FA 1992), Hazardous Substance Act (HSA 1992)
- 3) Ministry of Public Health: Public Health Act (PHA 1992)
- 4) Ministry of Labor: Occupational Safety, Health and Environment Act. (OSHE 2011)

### II. Regulations on Soil and Groundwater Contamination

- 1) National Environmental Committee Announcement on Groundwater Quality Standard 2000 under NEQA 1992
- 2) National Environmental Committee Announcement on Soil Quality Standard 2021 under NEQA 1992.
  - This standard applied to general area other than residential and agricultural uses
- 3) MOI Decree on Soil and Groundwater Contamination Control 2016 under FA 1992
  - Published on April 29th, 2016, and effective on October 2016 (180 Days after publication)
  - Set up an acceptable level of soil and groundwater contamination in factory area.
  - Specify type and size of factory covered by this regulation.
  - Required factory owner to monitor for soil and groundwater contamination and manage such that the level of contamination not exceeding acceptable level.
  - Set up monitoring timing and reporting for new and existing factories.
  - Required that sampling and analysis of soil and groundwater are performed by registered laboratory.
  - This decree set "definition" for important term such as

- A. Soil and groundwater contamination
- B. Monitoring of soil and groundwater
- C. Limit for soil and groundwater contamination
- D. Factory Owner: For worker safety and environmental protection, factory owner must conduct soil and groundwater inspection and manage that contamination is not exceeding the “limit”.
- E. Contaminants:
  - Volatile Organic Compounds (VOCs)
  - Heavy Metals
  - Pesticide and insecticide
  - Any substance specified in MOI decree on disposal of waste or unused material and
  - Any substance specified by Minister of Industry

- Newly Operated Factory must:

- A. collect soil and groundwater sample within factory area and compile a monitoring report as background level before operation
- B. collect soil and groundwater sample on second time within 180 days after begin operation and must submit a report to Ministry of Industry within 120 days after due date of second time inspection with background value.

- Existing Factory must:

- A. collect sample in factory area for the first time within 180 days after this regulation become effective and must compile a monitoring report within 180 days after the due date of first time monitoring.
- B. must collect sample on second time within 180 days after the first inspection and must submit a report within 120 days after due date of second time inspection.

- Long Term Monitoring:

- A. After second sampling, factory must continue soil sampling in every 3 years and groundwater sampling every year.
- B. must submit an inspection report to Ministry of Industry within 120 days after due date of each inspection case.

#### 4) MOI Notification on Contamination limit, Inspection Criteria and Monitoring Report of Soil and Groundwater within Factory area B.E. 2559 (2016) under FA1992

- Signed on October 31st and Published on November 29th, 2016.

- Designation of soil and groundwater contamination limit.

- Format for contaminant list and hazardous identification.

- Used and storage inventory format for hazardous substance.

- Analysis method for soil and groundwater samples.

- Contamination level of soil and groundwater within factory area must not exceeding such risk level and limit provided in the appendix.

- Compiling of chemical list and sampling points: Business must compile its chemical list, hazardous identification, storage and use volume, management, calculate contamination limits and propose (soil and groundwater) sampling points using provided form. Submit to Department of Industrial Works or Provincial Industrial Office within 180 days after beginning operations or after this regulation begin effective. Update this report every times there is a change in chemical usage.
- Soil and groundwater monitoring report: Business must monitor its soil and groundwater contamination and submitting result using provided form. Report should be sent to Department of Industrial Works or Provincial Industrial Office.
- When contamination is found exceeding limit: Business must compile a proposal to control contamination or to reduce contamination such that it is within limit using format given. Proposal should be submitted to Department of Industrial Works or Provincial Industrial Office within 180 days after contamination is found. (PS. for this case, it is required to propose timing for fix the issue.)

### **Problem that Thailand is Facing**

#### 1) Enforcing factories to do sampling

Discussion: Many of provinces are not enforcing so many factories still do not aware of such regulations.

#### 2) Resampling loophole

Discussion: Allowing business to do resampling as much as they want before submitting report and report can be modified before sent.

#### 3) Quality of soil and groundwater sampling

Discussion: Many consulting companies still lack of good sampling and Some of control parameters cannot analyzed by local laboratory.