

HJ

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Technical specifications for wastewater monitoring

污水监测技术规范

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1 Scope of application

This Standard specifies the technical requirements for manual wastewater monitoring such as the development of monitoring scheme, sampling points, monitoring sampling, sample preservation, transportation and handover, monitoring items and analytical methods, monitoring data processing, quality assurance and quality control.

This Standard applies to activities where manual methods are used to monitor wastewater from pollutant discharging organizations.

2 Normative references

This Standard refers to the following documents or provisions therein. For undated references, the valid editions are applicable to this Standard.

GB 15562.1 Graphical signs for environmental protection - Discharge outlet (source)

GB/T 4883 Statistical interpretation of data - Detection and treatment of outliers in the normal sample

GB/T 6682 Water for analytical laboratory use - Specification and test methods

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

HJ 168 Environmental monitoring - Technical guideline on drawing and revising analytical

method standards

HJ 630 Technical guideline on environmental monitoring quality management

HJ/T 92 Technical requirements for monitoring of total amount of pollutants in waste water

HJ/T 372 The technical requirement and test procedures for Water quality automatic sampler

HJ/T 373 Technical specifications of quality assurance and quality control for

A composite water sample in which the amount of water sample taken at the same sampling point within a certain period of time is proportional to time or flow.

3.5 Automatic sampling

The process of automatic continuous or intermittent collection of water samples according to a pre-programmed procedure by instruments and equipment.

3.6 Whole program blank sample

Replace the actual sample with experimental water and place it in the sample container and determine according to the program consistent with the actual sample. Consistent program includes transport to the sampling site, exposure to the on-site environment, loading into sampling bottles, preservation, transportation, and all analytical procedures, etc.

3.7 Laboratory blank sample

Replace the actual sample with experimental water and determine according to the analytical procedures consistent with the actual sample.

4 Development of monitoring scheme

The main contents of monitoring scheme include, but are not limited to monitoring purpose, monitoring points, monitoring items, monitoring methods, sampling frequency, sampling equipment, on-site test instruments, sample preservation, transportation and handover, sampling safety, and monitoring quality assurance and quality control measures, etc.

5.1 Requirements for discharge outlet setting

5.1.1

The discharge outlet shall meet the requirements of on-site sampling and flow measurement. In principle, it shall be located within the plant boundary, or within a range of not more than 10 m outside the plant boundary.

5.1.2

The monitoring section of wastewater discharge pipeline or channel shall be regular shapes such as rectangular, circular, trapezoidal. The flow in the measurement section shall be straight and stable and have a certain water level.

In the case of pollution discharge by closed pipe or channel, an open channel capable of satisfying the sampling conditions and flow measurement shall be provided.

When monitoring the overall treatment efficiency of wastewater treatment facilities, at the inlets of wastewater into the wastewater treatment facilities and the outlets of the wastewater treatment facilities, set monitoring points. When monitoring the treatment efficiency of each wastewater treatment unit, at the inlets of wastewater entering the wastewater treatment unit and the outlets of the wastewater treatment unit, set monitoring points.

5.2.3 Monitoring points for rainwater discharge

Pollutant discharging organizations shall divert rainwater and wastewater.

Rainwater, after collection, is discharged by rainwater pipelines. The monitoring point shall be set at the rainwater discharge outlet. If environmental management requires rainwater to be discharged after treatment, the monitoring points shall be set in accordance with 5.2.1.

6.1.1 Preparation of sampling equipment and on-site test instruments

6.1.1.1

Sampling equipment are mainly sampling apparatus and sample containers. In accordance with the requirements of the analytical methods used in the monitoring items, it shall prepare appropriate sampling equipment. If the requirements are not clear, it may be implemented in accordance with Appendix

A.

6.1.1.2

The material of the sampling equipment shall have good chemical stability. During the sample collection and sample preservation period, no physical and chemical reaction with the water sample will occur, which will cause the concentration of water sample components to change. The sampling apparatus may be made of polyethylene, stainless steel, polytetrafluoroethylene, etc. The sample container may be made of hard glass and polyethylene.

6.1.1.3

The surface of the inner wall of the sampling apparatus shall be smooth and easy to clean and handle. The sampling apparatus shall have sufficient strength, be flexible, convenient,

and reliable in use, have no bends to interfere with the flow velocity. It shall minimize the number of cocks and valves. The sample container shall have appropriate mechanical strength and good sealability. The sample container used for microbiological inspection shall be able to withstand high temperature sterilization; at sterilization temperatures, shall not release or produce any chemicals which can inhibit biological activity or cause biological death or promote biological growth.

intermittent discharge;

- c) It is necessary to investigate the possible pollutants or the pollutant concentration at a specific time;
- d) It is necessary to obtain data on the highest value, lowest value, or changes in pollutants;
- e) It is necessary to get short-term (generally no more than 15 min) data, to determine change rule of water quality;
- f) It is necessary to determine the change characteristics of the pollutants in the water body space, such as the changes of the pollutants in different sections and (or) depths of the water flow;
- g) Situations for which pollutant discharge (control) standards and other related environmental management work stipulate that instantaneous samples can be collected.

When the production process of the pollutant discharging organization is continuous and stable, there are wastewater treatment facilities and they are operating normally, and the wastewater can be discharged stably (the concentration change does not exceed 10%), the instantaneous sample is better representative. The concentration of instantaneous sample may be used to represent the sampling concentration during the sampling period.

6.3.1.3 Composite sampling

The following conditions apply to composite sampling:

- a) Calculate the average pollutant concentration for a certain period of time;
- b) Calculate the mass load of pollutants per unit time;
- c) Large changes in wastewater characteristics;
- d) Situations for which pollutant discharge (control) standards and other related environmental management work stipulate that composite samples can be collected.

Composite sampling includes equal time composite samples and equal proportional composite samples.

When the change of wastewater flow is less than 20% of the average flow and the concentration of pollutants is basically stable, equal time composite samples may be collected.