Technology Verification for Global Use

Japan Sewage Works Agency

Goals and Initiatives

＜Goals＞

- Third-party verification by the official institute ensures the reliability of the proposal for an application of the technology and enhances the quality of the technology.
- Complete verification smooth business plan without poorly-thought-out: organize the results of on-site demonstration experiments, footprint and cost estimation, and points of concern for practical application.

＜Initiatives＞

- Verify treatment performance of the technology a private enterprise applies for technology verification based on results of demonstration experiments and so on.
- The JS technology committee verifies the applicability of the technology for its treatment performance, operationality, maintenability and cost performance.

Verification Procedure

Private enterprises

Request for verification
Data submission

JS

JS verifies the results of experiments, has on-site inspection, joins workshops and so on.

Issue certificate of technology verification

Report verification

MLIT
（Sewerage and wastewater management department）

Private enterprise

Expand business overseas with technologies authorized by MILT and JS

Recommendation letters

Foreign governments


JS technology committee


Verification of treatment status


Workshop in Vietnam on March 7, 2014

Verification Overview

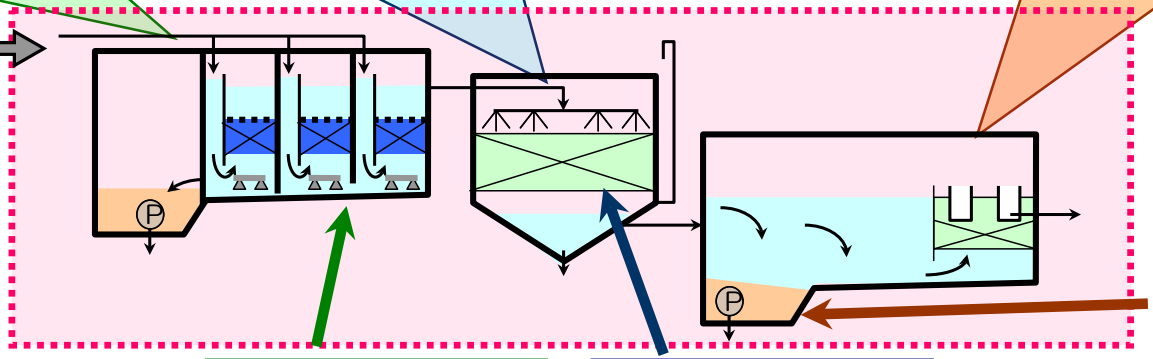
This technology verification is a public authority assessment for an applicability of a technology for its treatment performances. The technology developed by a applicant was verified based on the results of the demonstration experiments the applicant conducted in Da Nang city, Vietnam.

- Applicant ：Metawater Co.,Ltd.
- Technology concerned：Advanced Energy Saving Wastewater Treatment Process (Hereinafter referred to as “ *the Process*”)
- Verified by ：Japan Sewage Works Agency


Test facilities


Presentation of Verification

Demonstration Facilities



The Result of Verification 1

Treatment Performance

It was verified that both BOD and SS concentrations in treated water of *the Process* satisfied the quality target. It was also verified that estimated BOD and SS concentrations from the removal rate of final solid-liquid separator, satisfied the quality target during the final solid-liquid separator was not set up.

＜Maximum value＞

Water quality items		BOD (mg/L)	SS (mg/L)
Treated water	Overflow of final solid-liquid separator (no filter media)	20.5	18.0
		(16.7)	(28.2)
	Overflow of final solid-liquid separator (with filter media)	18.6	14.0
		(14.3)	(22.9)
Target level		≦ 30	≦ 30

＜Average＞

Water quality items		BOD (mg/L)	SS (mg/L)
Treated water	Overflow of final solid-liquid separator (no filter media)	8.7	9.2
		(9.7)	(15.3)
	Overflow of final solid-liquid separator (with filter media)	7.3	7.0
		(8.3)	(12.4)

Note: numbers in brackets are results of estimation. Target levels, which are maximum values, are standards of Vietnam.

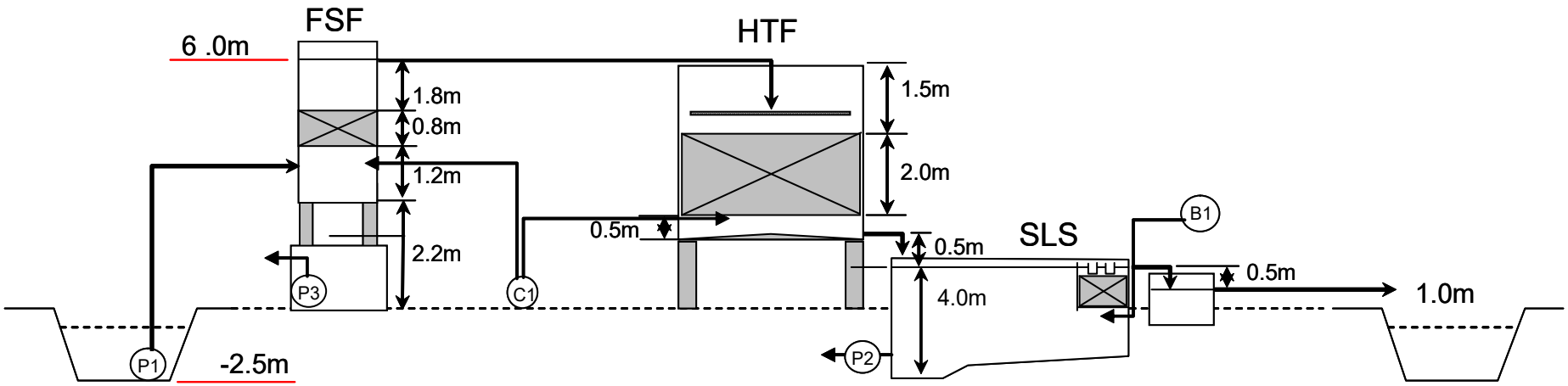
The Result of Verification 2

Electric power consumption rate

It was verified that the electric power consumption rate (electric consumption per unit of influent quantity) of *the Process* was less than 0.1 kWh/m^3 based on the design of the model plant of 20,000m^3/d treatment capacity determined by the result of demonstration experiments.

Requirement: Required hydraulic head pressure shall only be created by the lift pump which provides influent to FSF(P1 in the figure below).

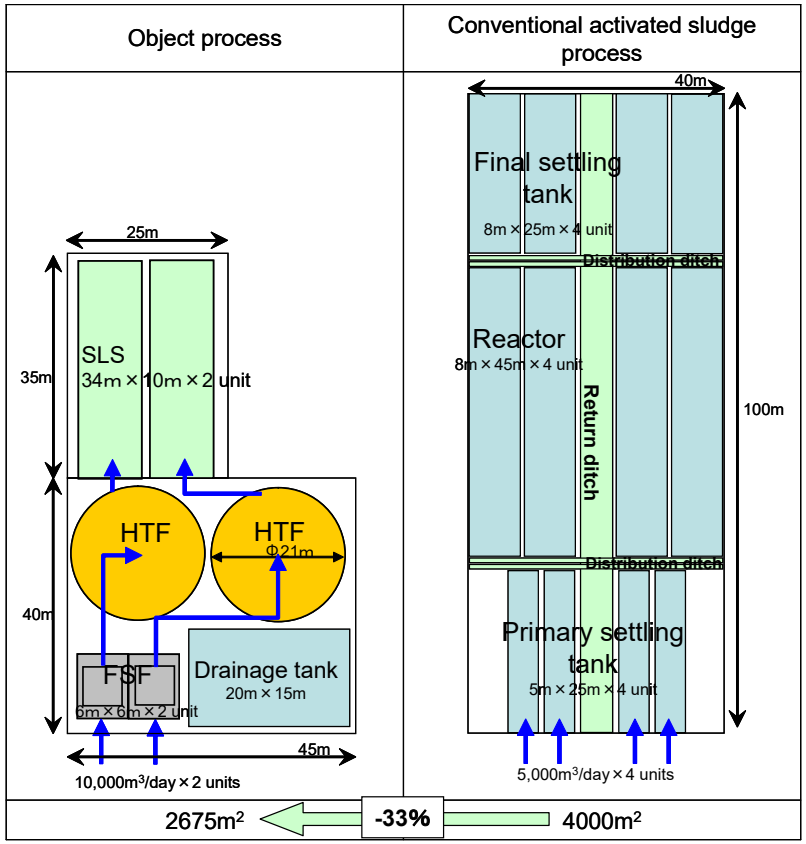
Electric power consumption rate: 0.045kWh/m^3



The Result of Verification 3

Footprint

It was verified that *the Process* required smaller footprint of about 0.13m^2/ (m^3/d) than the conventional activated sludge process based on the design of the model plant of 20,000m^3/d treatment capacity determined by the result of demonstration experiments.



The Result of Verification 4

Maintenability

The Process has the only two major facilities that are pumps and automatic valves, which are fewer than the conventional activated sludge process has. In addition, *the Process* has fewer items which require operation and maintenance than the conventional activated sludge process has. It was also verified that technical measures were taken for the issues that conventional trickling filters with pebbles have, such as clogging of sprinkler, odor, and filter flies.

Points of Concern

It was verified that the following items need to be paid attention for planning, design, and operation and maintenance for practical application.

(1) Factors related to planning and design
- 1) Air and water temperature
- 2) Influent quality
- 3) Flow fluctuations
- 4) Establishment of trains and scales
- 5) Sewage sludge treatment

(2) Factors related to operation and maintenance
- 1) Pests and odors
- 2) Developing solutions for breakdown
- 3) Protection for filter media

Conclusions

＜The characteristics of Advanced Energy Saving Wastewater Treatment Process＞

- Stable treatment performance
- Energy-saving and space-saving
- Easy maintenance

＜Our future activity＞

- Report technology verifications
- Propose solutions for each phase of plan, design, construction and O&M in cooperation with Ministry of Land, Infrastructure, Transport and Tourism of Japan.

Certificate of
Technology Verification

Technology: *Advanced Energy Saving Wastewater Treatment Process*

Applicant: *Metawater Co., Ltd.*

Japan Sewage Works Agency verifies the performance of *Advanced Energy Saving Wastewater Treatment Process* *Metawater Co., Ltd.* developed and experimented in Da Nang City, Socialist Republic of Vietnam from November 2012 to January 2014.

Date of Certification: March 20, 2014

Yoshihiko Yato

Yoshihiko Yato
President, Japan Sewage Works Agency