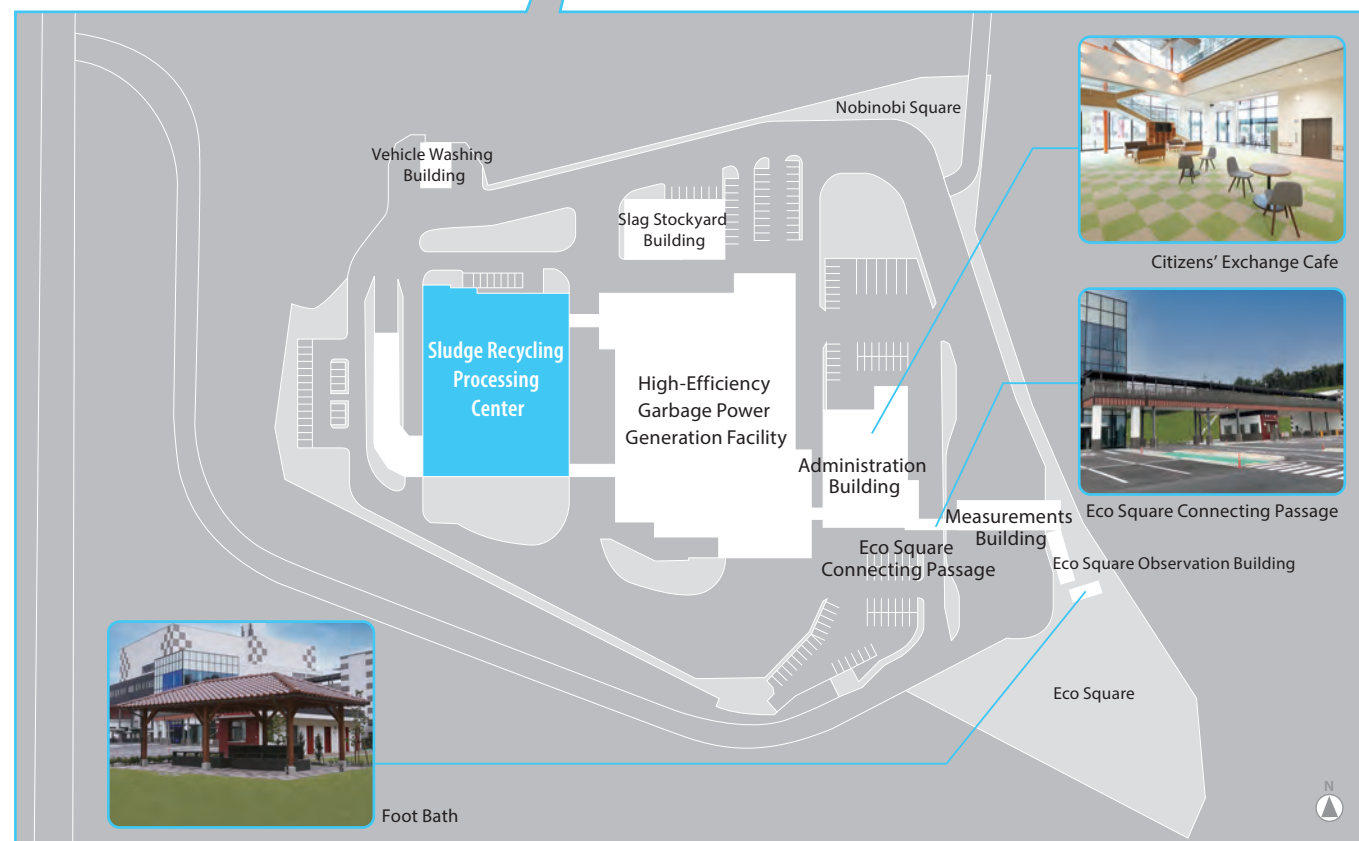
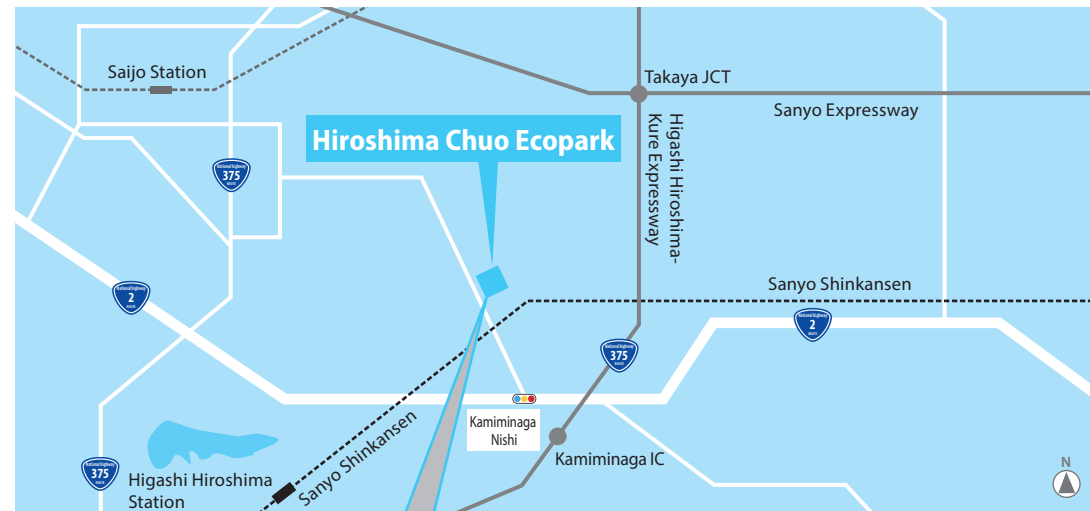


## Facility Map



**HIROSHIMA CHUO ECO PARK** 10759-2 Kamiminaga, Saijo-cho, Higashi Hiroshima, Hiroshima 739-0022  
Tel. 082-426-0820 / Fax. 082-426-0674

### Business operator

#### Hiroshima Chuo Environmental Sanitation Association

10759-2 Kamiminaga, Saijo-cho, Higashi Hiroshima, Hiroshima 739-0022  
Tel. 082-426-0820 / Fax. 082-426-0674

### Design/construction administration

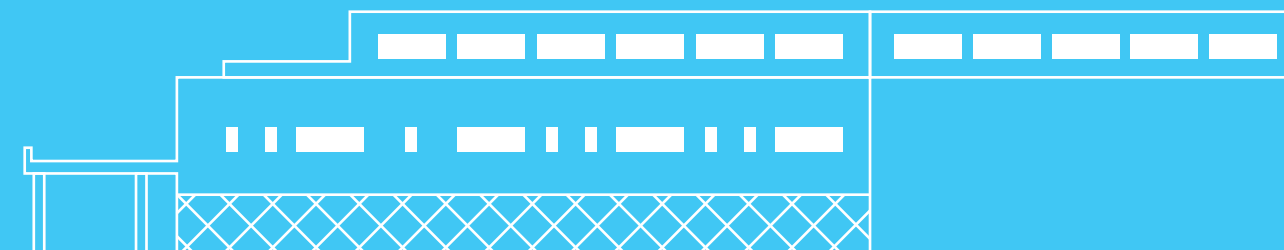
Eight-Japan Engineering Consultants Inc.  
Hiroshima Branch

### Design/construction

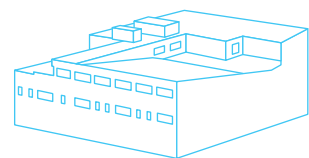
Hitachi Zosen Corporation  
Chugoku Branch

# HIROSHIMA CHUO ECO PARK

## Sludge Recycling Processing Center



 **Hiroshima Chuo Environmental  
Sanitation Association**



## Realizing Towns that Can be Lived in Comfortably: Welcome to Hiroshima Chuo Ecopark

Hiroshima Chuo Ecopark's Sludge Recycling Processing Center is a facility that treats night soil and septic tank sludge from Higashi Hiroshima and Takehara. We strive to be a base for an advanced material-cycle society by building a zero reclamation system.

Clean, processed water

Recycle initiatives

A facility to be a base for environmental study

Environmentally friendly facilities

Operational management through centrally focused observation

### Clean, processed water

After 300kL per day of night soil and septic tank sludge are dehydration separated, treatment to separate organic matter and nitrogen using microorganisms is conducted, and the treated water is discharged into the sewer.



Night soil/septic tank sludge



Separated water



Effluent

#### Effluent quality

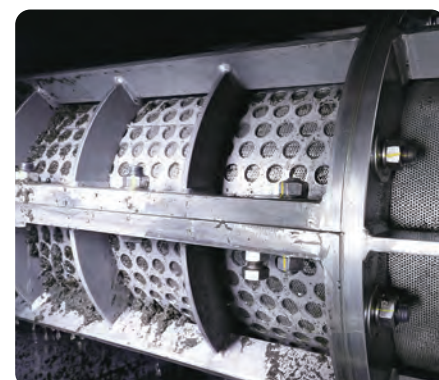
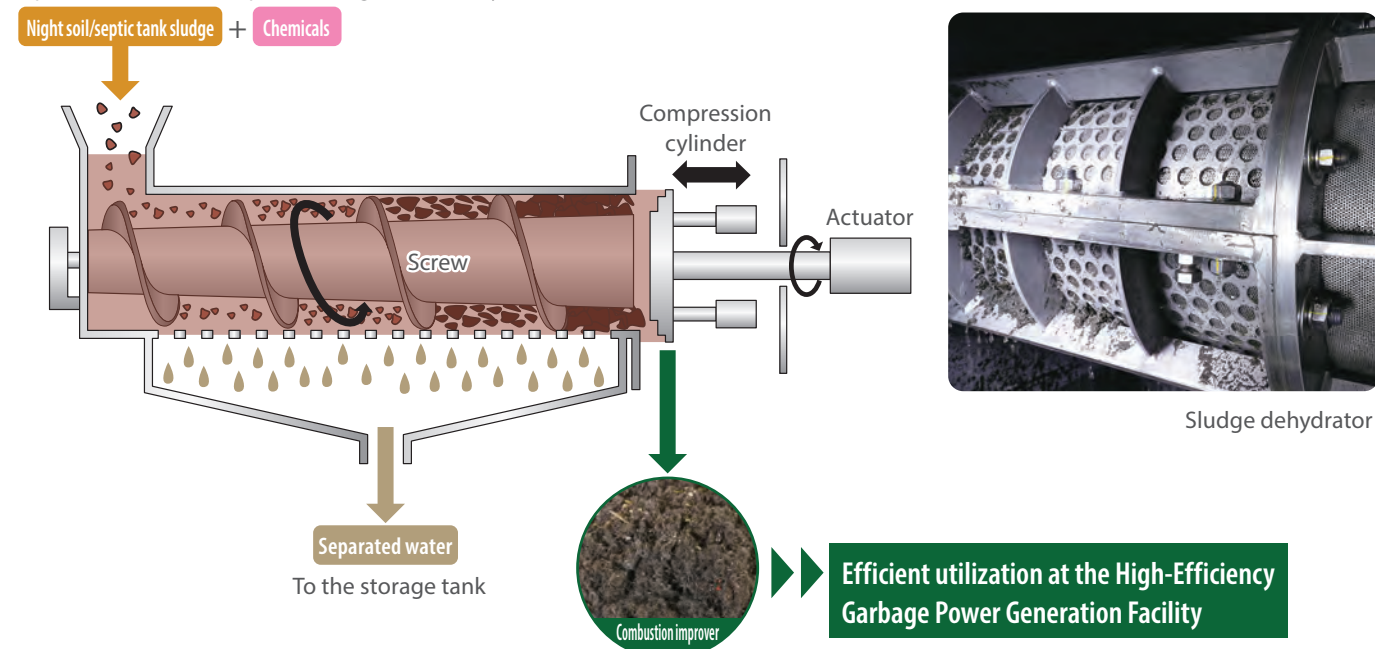
Hydrogen ion concentration (pH)	5.8-8.6
Biochemical oxygen demand (BOD)	20mg/L or less
Chemical oxygen demand (COD)	150mg/L or less
Amount of suspended solids (SS)	70mg/L or less
Total nitrogen (T-N)	30mg/L or less
Total phosphorous (T-P)	5mg/L or less

### Recycle initiatives

Impure components in night soil and septic tank sludge are dehydrated by the sludge dehydrator to a moisture content of 70 percent or less. Dehydration allows this material to be utilized efficiently as a combustion aid at the High-Efficiency Garbage Power Generation Facility.

#### How the sludge dehydrator works

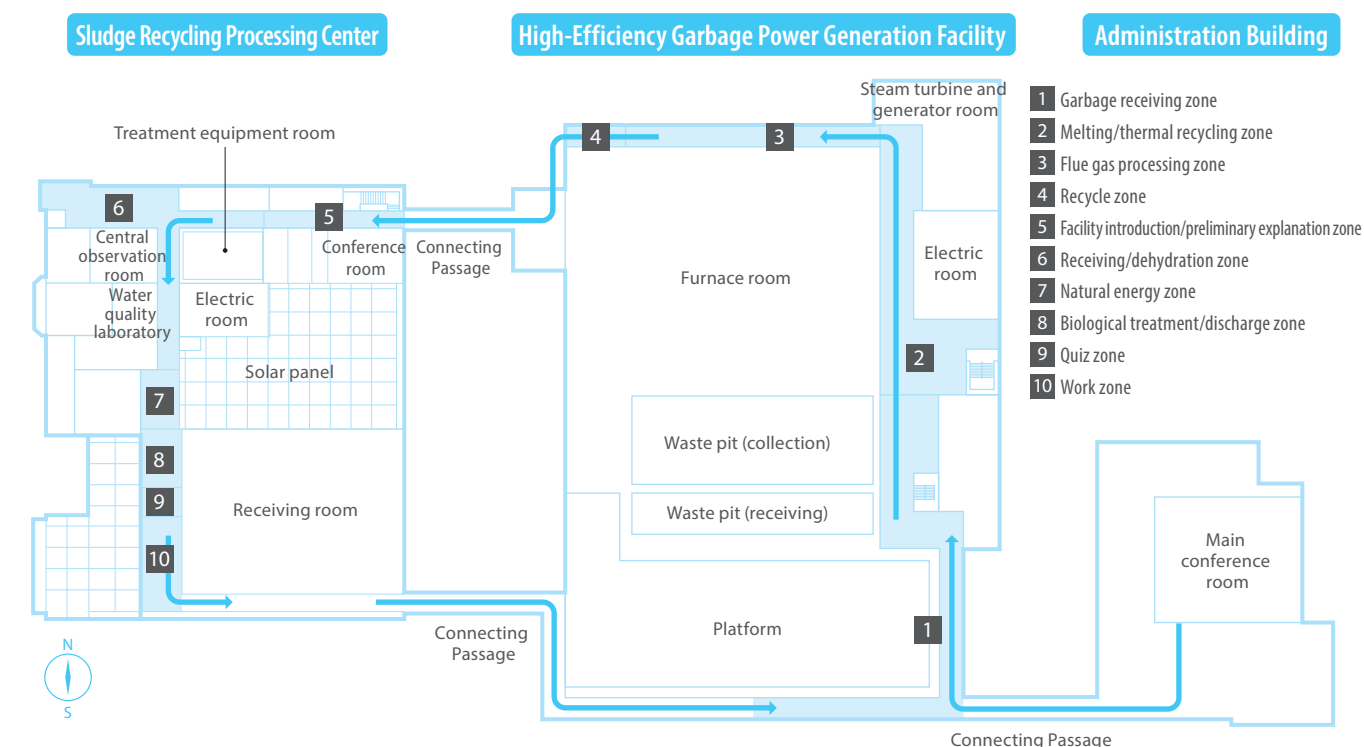
Impure components in night soil and septic tank sludge are compressed and removed with a screw impeller then separated into dehydration-separated liquid and combustion improvers using an external cylinder metal filter.



Sludge dehydrator

### A facility to be a base for environmental study

This is the visitors' passage circling from the High-Efficiency Garbage Power Generation Facility to the Sludge Recycling Processing Center. We provide plenty of hands-on study and tour programs for visitors to understand energy made from waste and the mechanisms that create combustion aids from night soil.



### Environmentally friendly facilities

The water testing laboratory analyzes water quality for each piece of equipment and checks whether water is being treated stably. Odor countermeasures are also thorough, such as the adoption of a deodorization system combining high-performance methods for biological deodorization, chemical cleaning, and activated charcoal absorption.



Water testing laboratory

### Operational management through centrally focused observation

The central observation room conducts focused observation of all facilities. The status of all equipment is indicated on the monitoring screen, and conditions such as operation of all equipment can be monitored.



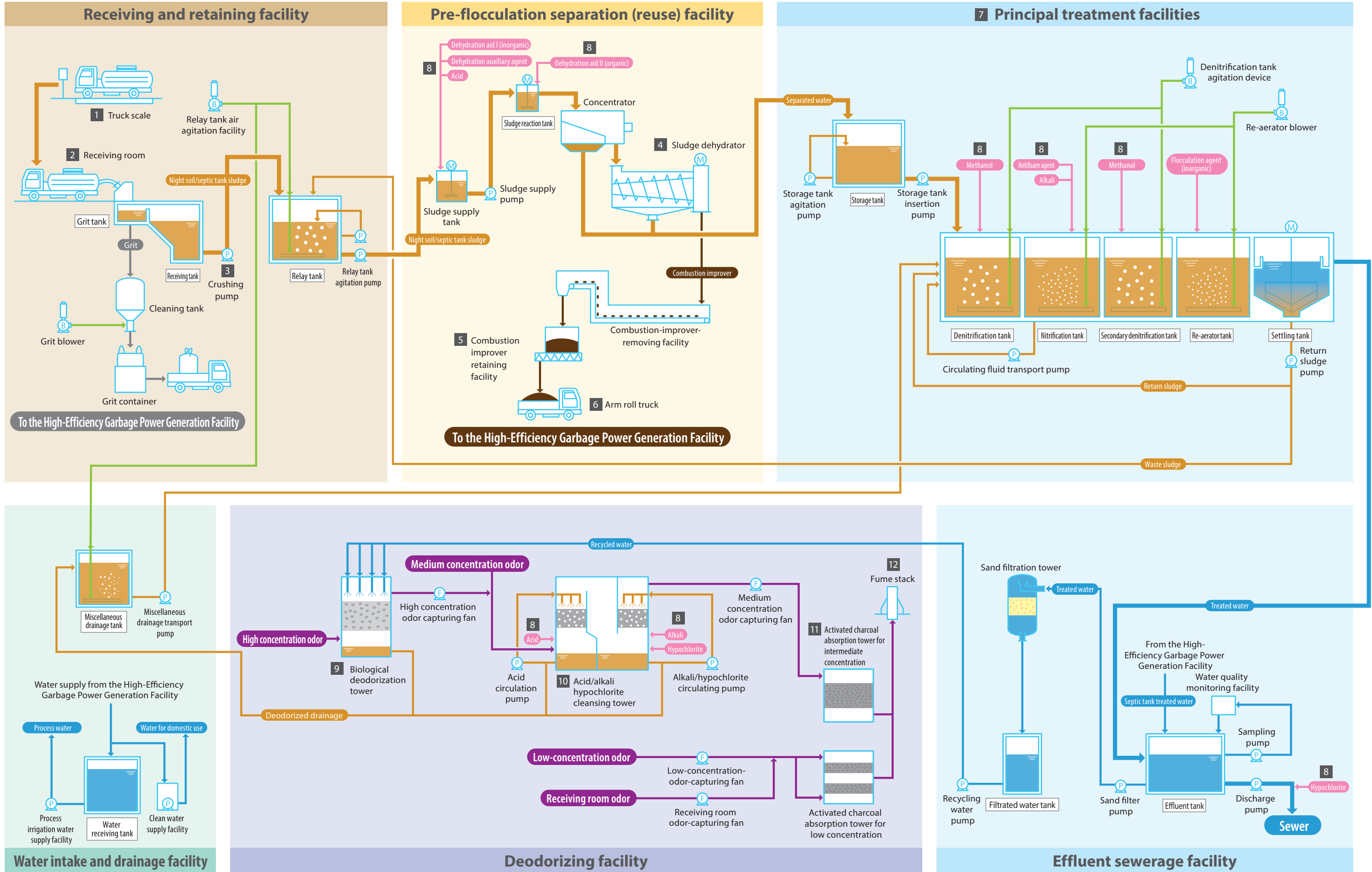
Central observation room

#### Facility Outline

Business operator	Hiroshima Chuo Environmental Sanitation Association
Consisting cities and towns	Higashi Hiroshima/Takehara/Osakikamijima
Facility name	Sludge Recycling Processing Center, Hiroshima Chuo Ecopark
Location	10759-2 Kamiminaga, Saijo-cho, Higashi Hiroshima, Hiroshima
Materials processed	Night soil/septic tank sludge/agricultural community waste water sludge
Processing capacity	300kL/day Night soil: 53kL/day, septic tank sludge: 247kL/day
Processing method	Water-treatment facilities: denitrification treatment method with a high mixture ratio of septic tank sludge + effluent sewerage Reuse facilities: sludge combustion-improving method
Lot size	191,993.70m <sup>2</sup>
Total floor space	21,891.07m <sup>2</sup>
Design/construction	March 30, 2017-September 30, 2021



Treatment Procedure





Main Facilities

Receiving and retaining facility

Night soil and septic tank sludge are inserted from an outlet in the receiving room and transported to the relay tank via the crushing pump after sand and gravel are sedimented and separated.



1 Truck scale



2 Receiving room



3 Crushing pump

Pre-flocculation separation (reuse) facility

Post-crushing-treatment night soil and septic tank sludge pass from the relay tank through the sludge supply tank to be sent to the sludge reaction tank, where they are mixed with chemicals. After that, sludge quantity is reduced and turned into a combustion improver by being dehydrated to the required combustion-improver moisture content of 70 percent or less in the sludge dehydrator. Dehydration-separated liquids are sent to the principal treatment facilities, and the combustion aid is utilized efficiently at the High-Efficiency Garbage Power Generation Facility.



4 Sludge dehydrator



5 Combustion improver retaining facility



6 Arm roll truck

Principal treatment facilities

Dehydration-separated liquids are treated using microorganisms until contaminants such as BOD and nitrogen-containing substances in the dehydrated filtrate are of effluent quality.



7 Treatment equipment room

Microorganisms

Chemical injection facility

Chemicals used in the facility are sent to all equipment via an injection pump.



8 Chemical injection facility

Deodorizing facility

Biological deodorization using microorganisms is conducted for highly concentrated odors generated by equipment including the receiving tank, relay tank, and sludge dehydrator. These are then merged with intermediately concentrated odors generated by the principal treatment facilities and treated using chemicals in the acid/alkali hypochlorite cleansing tower. Finally, deodorization is carried out in the activated charcoal absorption tower for intermediate concentration. These odors are captured as low-concentration odors in rooms such as the receiving room and deodorized by the activated charcoal absorption tower for low concentration.



9 Biological deodorization tower



10 Acid/alkali hypochlorite cleansing tower



11 Activated charcoal absorption tower for intermediate concentration



12 Fume stack