Responsible Care Report 2016

KUREHA ECOLOGY MANAGEMENT CO., LTD.

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About Responsible Care (RC)

Responsible Care involves continuously conducting self-improvement activities aimed at preserving the environment, safety, and health through all aspects of a chemical's lifecycle—from the development of chemicals to their disposal and recycling following their manufacture, distribution, usage, and final consumption—as well as maintaining an open dialogue with the community.
This is done based on the principle of businesses who manufacture or handle chemicals making decisions and accepting responsibility for themselves.
The Kureha Group publicly announced in 1995 that it would conduct RC activities.
This report has been issued to inform all stakeholders of Kureha Ecology Management's RC activities.

Guidelines Referred To

"Ministry of the Environment"
- Environmental Reporting Guidelines 2012
- EcoAction 21 Guidelines 2009 for Industrial Waste Management Contractors
- Guide to Matters Noted in Environmental Reports (3rd Edition)

"City of Saitama"
- The CSR Checklist: A CSR Primer for SMEs

Report period

April 1, 2015 – March 31, 2016
Also included is information from FY 2016 and about future plans.

Reporting departments

All Kureha Ecology Management departments

Disclaimer

This report includes plans and forecasts. Changes in various conditions could render these forecasts inaccurate. Please note that some of the figures in the tables and graphs presented here have been revised from previous fiscal years in light of changes to calculation methods and other factors.

Responsible Care Policy

(Kureha Group Policy)

1. Observe international rules and laws
2. Respect the environment and work safely
3. Provide society with safe products
4. Manage and put to good use information about the environment and safety
5. Forge a stronger relationship with society

Corporate Philosophy

1. We tirelessly endeavor to achieve a harmonious relationship between people, society and the global environment.
2. We contribute to the enrichment and growth of the society by providing safe products and services.
3. We grow and develop ourselves with the community in which we operate.
4. We comply with laws and regulations, practice high ethical standards and operate in transparent manners as a trusted corporate citizen.
5. We develop and nurture a corporate culture which values the individuality and diversity of our employees, and optimizes creativity and teamwork within.
6. We bring passion to researching and developing technologies that are ahead of the times.

Introduction

Message from the President

President Katsuhiro Natake

Kureha Ecology Management's support for waste processing businesses in Iwaki as part of efforts to clean up debris caused by the Great East Japan Earthquake reminded us of the role we must play for communities and society at large, and renewed our commitment to the kind of corporate management that is expected of us.
For a long time, the Company has worked to preserve and restore the environment through the proper disposal of waste. This includes using technologies for the safe disposal of refractory waste, an area in which we particularly excel. Recent years have seen us move into new fields of environmental business and take further efforts towards environmental preservation. Among these have been a biomass electric power business in Kanagawa and environmental engineering businesses such as emission gas, water treatment , and water quality purification equipment business. Last year (FY 2015), we set out to improve the quality and service we provide to customers, expanding our lineup of products for handling low-concentration PCB waste and forming business partnerships with waste collectors and transporters in the Kanto region.
The RC Department was promoted to the RC Division, and conducted Responsible Care activities with enthusiasm. In addition, the Technology Development Division was set up as a new organization and has begun efforts to strengthen the Company's technical expertise to allow us to make greater contributions to environmental betterment in the future. As we pursue research and development for technologies that are ahead of the times while furthering our Responsible Care activities and establishing them in communities, we continue striving to be a company that cherishes harmony among people, society, and global environment as we work to leave a prosperous future to our children, who carry the future.

Environmental Policy

❶ Basic Philosophy

We aim to become a company that recognizes the preservation of the global environment at the top of the agenda in every aspect of our business activities and places importance on the harmony between people, society and the global environment.

❷ Policy

1. Comply with conventions such as environment-related laws and regulations.
2. Continuously reduce burdens on the environment in relation with air, water quality, odor and etc. and strive to prevent environmental pollution.
3. Safely and properly perform entrusted environment-related businesses including collection, transportation and disposal of wastes.
4. Promote communication with stakeholders, to achieve harmony with society.
5. Define environmental objectives and goals to promote them continuously.
6. Put forward environmental policy, objectives and goals for our employees and people working with us to understand clearly and disclose them to the public at the same time.

Business Overview

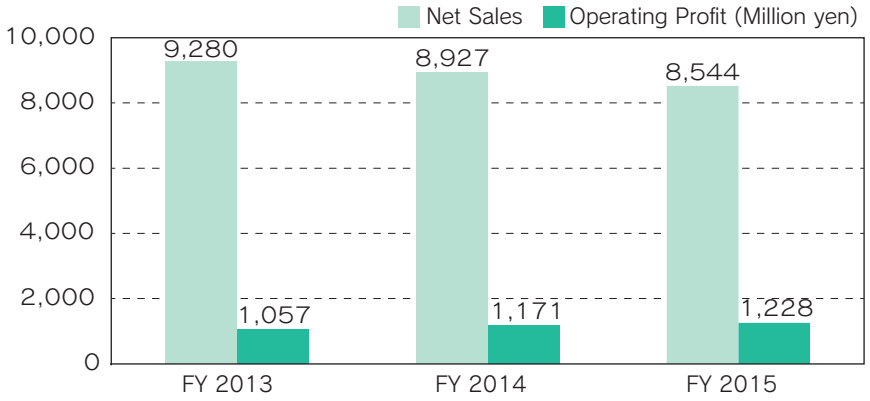
Company Profile

Company Name	Kureha Ecology Management Co., Ltd.
Headquarters	30 Shitanda, Nishiki-machi, Iwaki-shi, Fukushima, 974-8232 Japan
Main Business Sites	Headquarters, WASTECH Iwaki, WASTECH Kanagawa
Established	December 1, 1971
Paid-in Capital	¥240 million
Employees	337 (as of March, 2016)

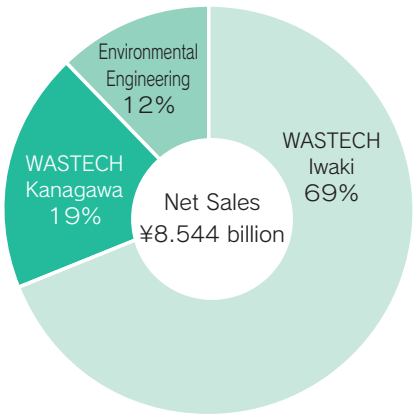
Business Overview and Results

Main Businesses	Primarily the collection, transport, and disposal of industrial waste, construction (environmental engineering), and electrical power generation

Sales and Profits



Sales by Business Sector (FY 2015)



Through businesses such as our waste disposal, environmental engineering, and power generation businesses, Kureha Ecology Management is working to solve a variety of environmental problems and improve communities.

Senior Vice President
General Manager, Management Planning Division
Sunao Kito

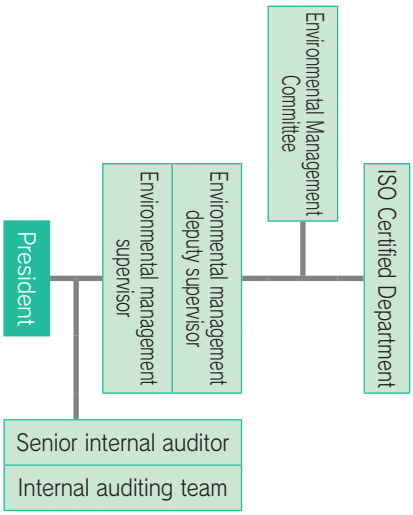
Goals and Objectives of Our Environmental Preservation Activities

Environmental Objectives and Targets

Kureha Ecology Management has achieved or is maintaining and continuing to work on all environmental objectives and targets for FY 2015.

Environmental Objectives	Environmental Targets
1.Reduce environment-related complaints	(1) Build an anterior chamber for the Unit 8 incinerator
2. Reduce smoke contaminant emissions	(1) Keep emission concentrations of dioxins in smoke within 0.05ng-TEQ/㎥ N
3. Reduce drainage contaminant emissions	(1) Aim for a more advanced wastewater treatment system and make continuous improvements
4. Education program for uncompromised waste management system	(1) Educate sales staff at least twice a year to improve skills needed for proper handling of waste disposal contracts (2) Conduct awareness-raising activities for waste producers and waste collection and transport contractors concerning the handling of waste (3) Conduct activities to cut down on waste-related problems caused by drivers working for the Company or waste collection and transport contractors
5. Work to reduce environmental impact through technological development	(1) Develop technologies for treating refractory waste
6. Maintain good communication with local communities	(1) Hold information exchanges with local communities at least 20 times a year and improve quality (2) Conduct community beautification activities at least 10 times a year and improve quality
7. Improve our environmental conservation framework through personnel education	(1) Conduct environmental education for all employees at least five times a year (2) Conduct emergency training at least three times a year

Framework for Initiatives



Creation and Usage of an Environmental Management System (EMS)

WASTECH Iwaki has acquired ISO 14001 certification for its industrial waste treatment business.
The Environmental Management Committee comprises managerial personnel that include those from WASTECH Kanagawa, which is not eligible for ISO 14001 certification.
The Committee meets once a month to check the progress of environmental activities. Weekly meetings of the Environmental Impact Investigative Commission are also held prior to this as a means to discuss issues and check up on progress.

Certificate

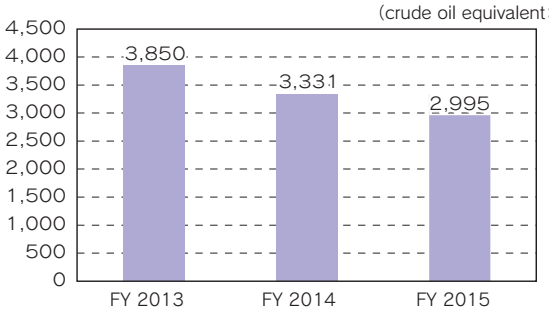
Internal Control Concerning Environmental Reporting Reliability

At Kureha Ecology Management, all departments eligible for ISO certification receive an ISO 14001 internal audit once a year.
Our internal auditors go through internal training as well as classroom and on-the-job training conducted by outside training organizations.
Furthermore, we are audited by an independent organization, and no major or minor issues were indicated in fiscal 2015.

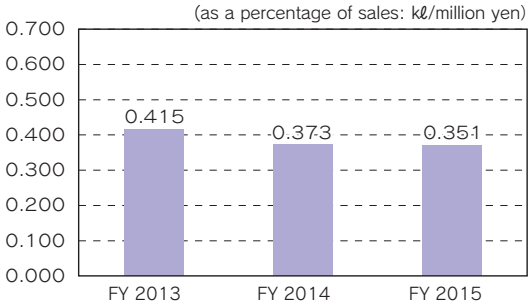
Energy Consumption

Compared to FY 2014, FY 2015 energy consumption fell by about 10% while energy consumption intensity saw a roughly 6% decrease.

Energy input



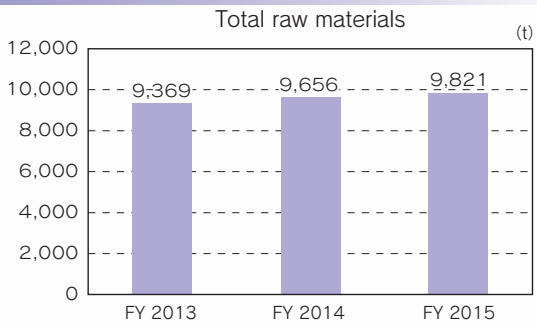
Energy consumption per million yen of sales



Total amount of adsorption and neutralization materials

Adsorption and neutralization materials are used to keep effluent gas following waste treatment, processing residue, etc. within emissions limits.

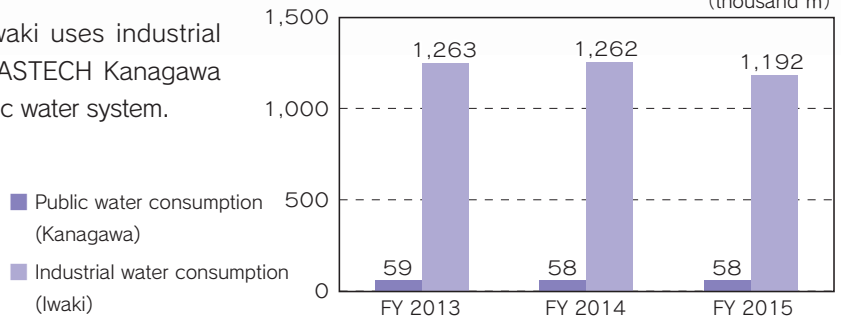
Total raw materials



Water resource consumption

WASTECH Iwaki uses industrial water and WASTECH Kanagawa uses the public water system.

Water resource consumption

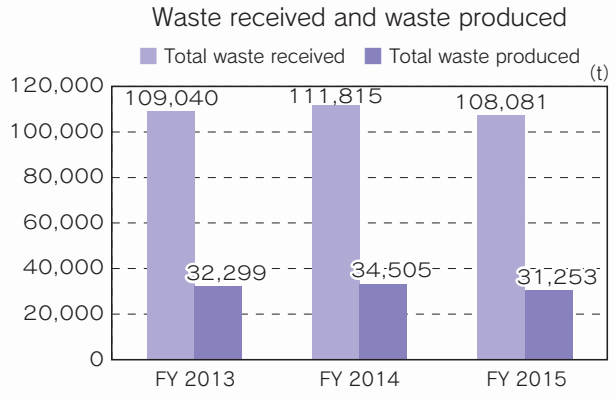


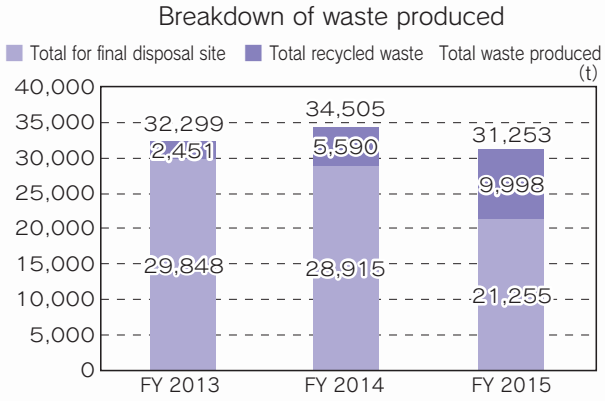
WASTECH Kanagawa produces more generated energy from waste heat recovery than is used across all Kureha Ecology Management businesses, including those in Iwaki, making it a major contributor to reducing our environmental impact.
Kureha Ecology Management was given the rank "S" by the Ministry of Economy, Trade and Industry for being a company of energy-saving excellence pursuing advanced energy-saving efforts.

Executive Vice President General Manager,
Waist-Tec Division (Environmental Management Supervisor) Tsukasa Horiguchi

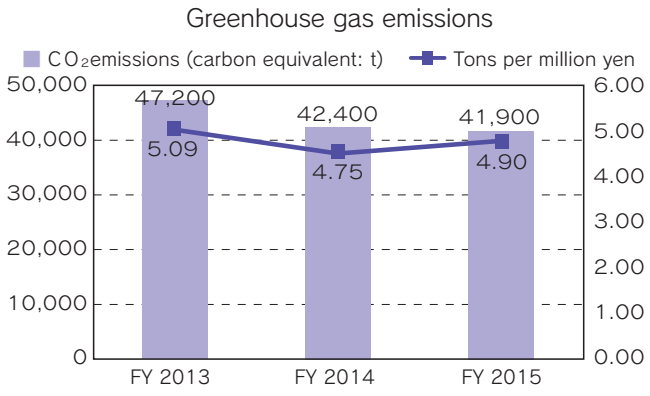
TOTAL

Waste received and waste produced





Greenhouse gas emissions



Overall environmental impact

INPUT

Energy consumption (crude oil equivalent)
2,995kℓ
Purchased raw materials
9,821t
Water resource consumption
1,250 thousand㎥
Waste received
108,081t

WASTECH Iwaki
WASTECH Kanagawa
Headquarters
Sales offices and branch offices

OUTPUT

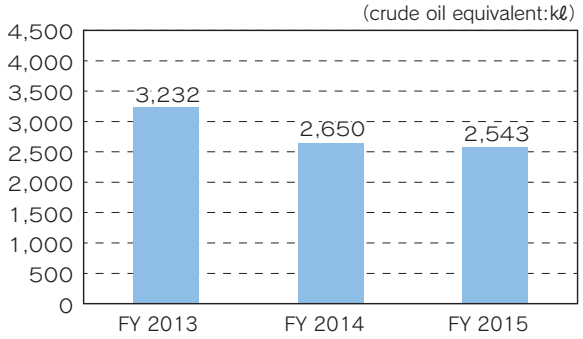
Wastewater produced
1,192 thousand㎥
Waste produced 31,253 t
Waste recycled 9,998 t
Final disposal volume
21,255 t
CO_2 emissions (carbon equivalent)
41,900 t

WASTECH Iwaki

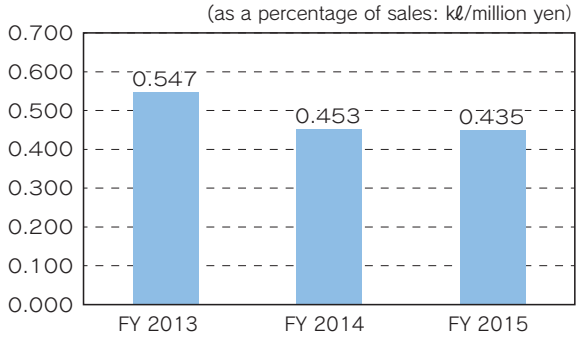
Energy Consumption

We achieved a roughly 4% year-over-year reduction in unit energy consumption in FY 2015.

Energy input



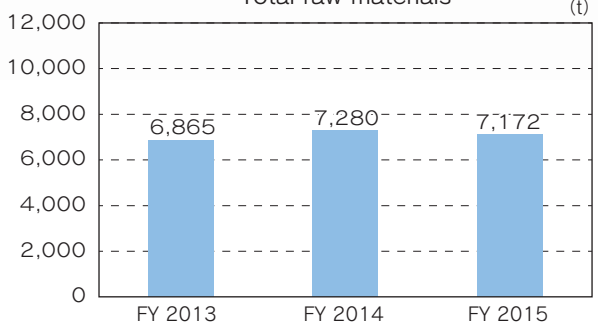
Energy consumption per million yen of sales



Total of adsorption and neutralization materials

Substances such as magnesium hydroxide and caustic soda are used to keep effluent gas following waste treatment, processing residue, etc. within emissions limits.

Total raw materials



I am in charge of managing the fuel used by incinerators. My job involves actively using refuse-derived fuel as part of efforts to cut down on and conserve the precious resource that is fossil fuel.

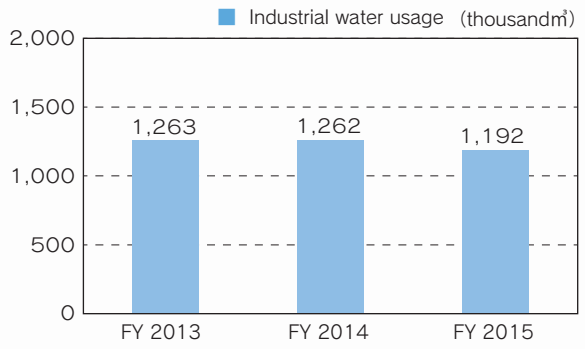
Senior Staff, Pre-Treatment Section
Iwaki Treatment Department Hisatomo Igura

IWAKI
1

Water resource consumption

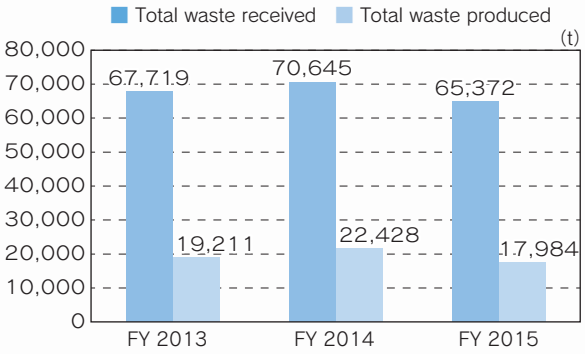
At WASTECH Iwaki, the company is using industrial water.

Water resource consumption

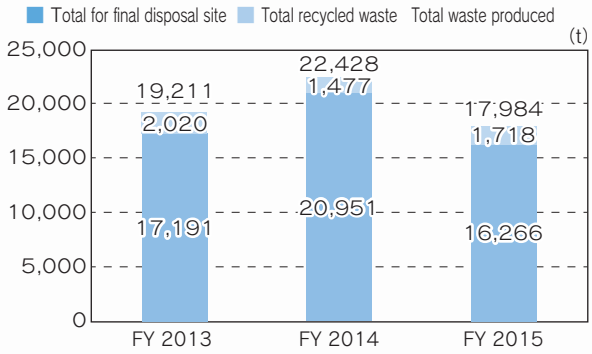


Waste received and waste produced

Waste received and waste produced



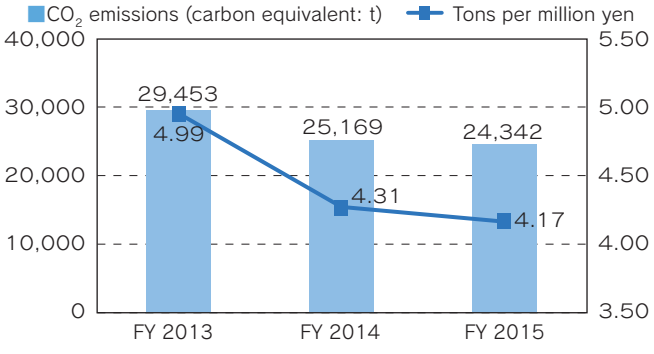
Breakdown of waste produced



Greenhouse gas emissions

FY 2015 CO_2 emissions (carbon equivalent) were 3% lower than the previous year. CO_2 emission intensity also decreased by about 3%.

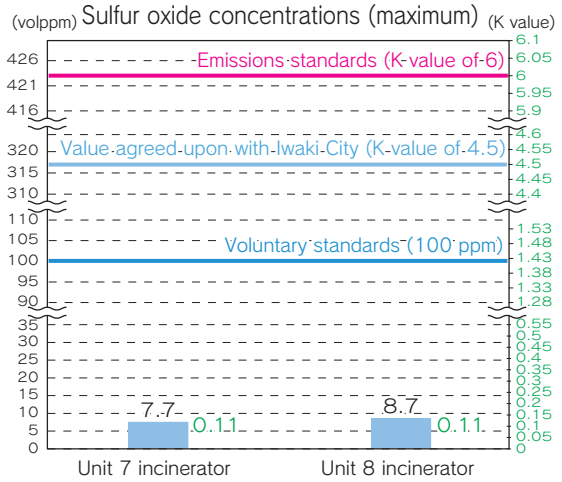
Greenhouse gas emissions



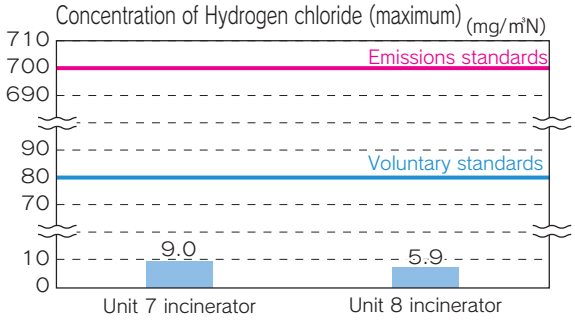
WASTECH Iwaki

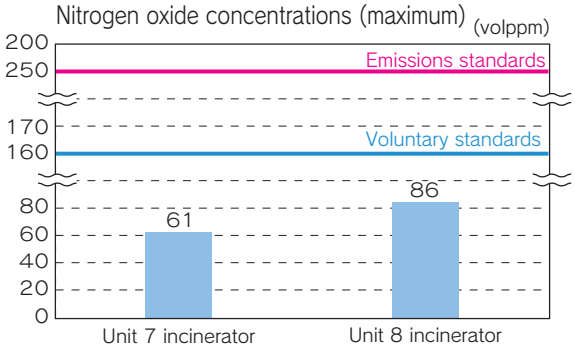
Air pollution and impact on the living environment

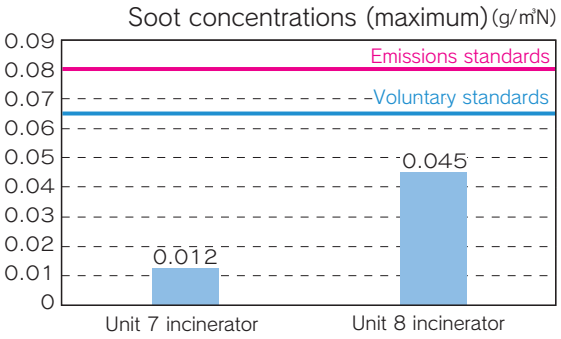
In FY 2015, we stayed within voluntary limits and complied with regulatory emissions standards for concentrations of sulfur oxide, hydrogen chloride, nitrogen oxide, and soot emitted from our incinerators through proper maintenance and management of waste treatment facilities.
*Emissions standards presented here are those indicated in the Air Pollution Control Act.



*A K value of 6 is the standard (under the Air Pollution Control Act) for sulfur oxide concentrations.
Pursuant to the pollution control agreement signed with Iwaki City, a K value of 4. 5 is the standard for WASTECH Iwaki's incinerators.
At WASTECH Iwaki, K values are converted to ppm, and voluntary standards are set to 100 ppm.
When converting K values to ppm, converted values may fluctuate depending on effluent gas volume.
In this table, however, the K value of 4.5 is assumed to be roughly equivalent to 317 ppm in order to facilitate comparisons among emissions standards, agreed upon values with Iwaki City, and voluntary standards.
*Maximum K values for this fiscal year were 0.11 for both the Unit 7 and Unit 8 incinerators.





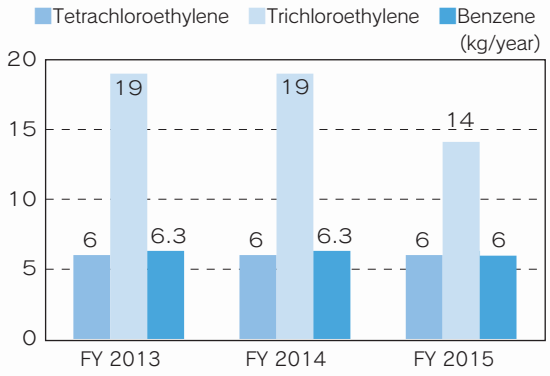


IWAKI 2

Chemical substance emissions and transfers

PRTRs (Pollutant Release and Transfer Registers) are systems wherein companies that emit or transport chemical substances ascertain and publish the volumes of such substances.

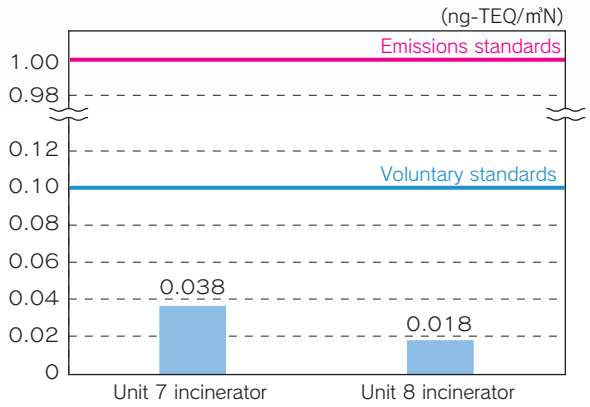
Volume of PRTR-listed substances emitted and transferred



Toxic substance emissions

All dioxins were measured to be within the voluntary limits of 0.1 ng-TEQ/m³ N.

Dioxins (maximum)



Overall environmental impact

INPUT

Energy consumption (crude oil equivalent) 2,543kℓ
Purchased raw materials 7,172t
Water resource consumption 1,192 thousandm³
Waste received 65,372t

WASTECH Iwaki

Incineration Facilities
Unit 7 incinerator
Unit 8 incinerator
Neutralization facilities
Toxic substance decomposition facilities
Crushing facilities
Water treatment facilities

OUTPUT

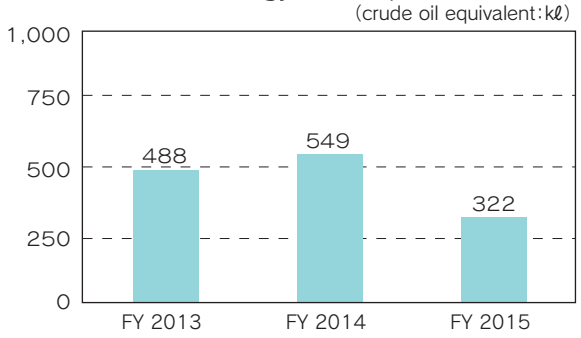
Wastewater 1,192 thousandm³
Waste produced 17,984t
Waste recycled 1,718t
Final disposal volume 16,266t
CO_2 emissions (carbon equivalent) 24,342t

WASTECH Kanagawa

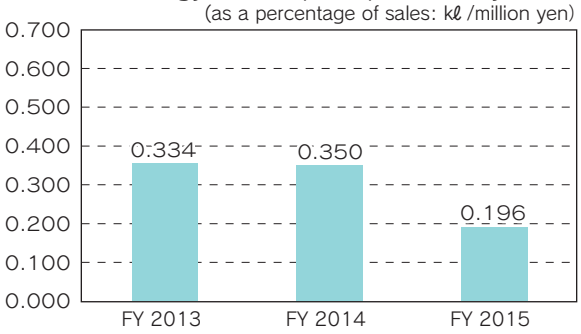
Energy Consumption

FY 2015 energy consumption dropped roughly 40% over FY 2014, and energy intensity decreased by the same 40%.

Energy consumption
(crude oil equivalent:kℓ)



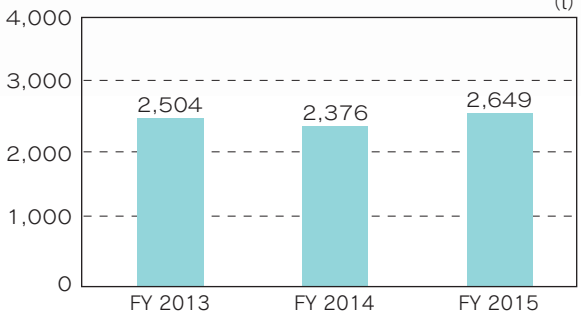
Energy consumption per million yen
(as a percentage of sales: kℓ /million yen)



Total amount of adsorption and neutralization materials

Slaked lime, heavy metal stabilizing agents, and activated carbon, among other substances, are used to keep effluent gas following waste treatment, processing residue, etc. within emissions limits.

Total raw materials
(t)



I am in charge of operation management for waste-to-energy plants. My job is to ensure not missed any abnormality out through daily inspections and regular maintenance in order to stably generate as much power as possible.

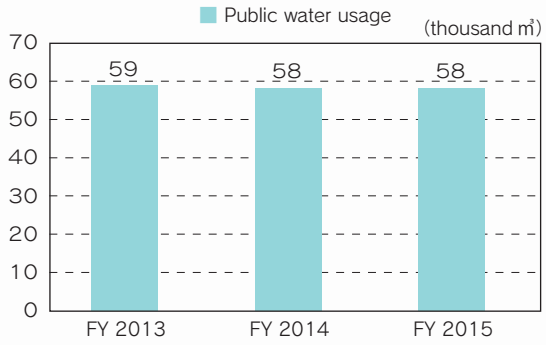
Operating Group Leader, Processing Technologies Section
Kanagawa Treatment Department Kazumoto Minakawa

KANAGAWA
1

Water resource consumption

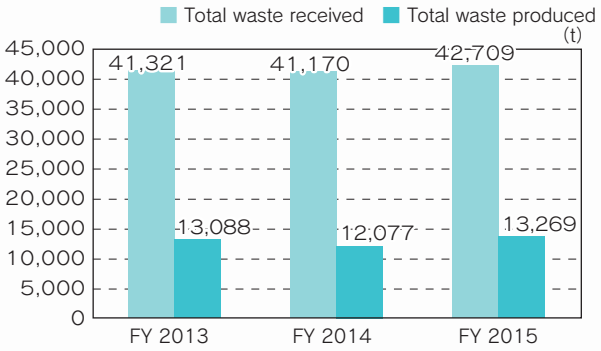
WASTECH Kanagawa utilizes a closed system. The public water system supplies water resources.

Water resource consumption

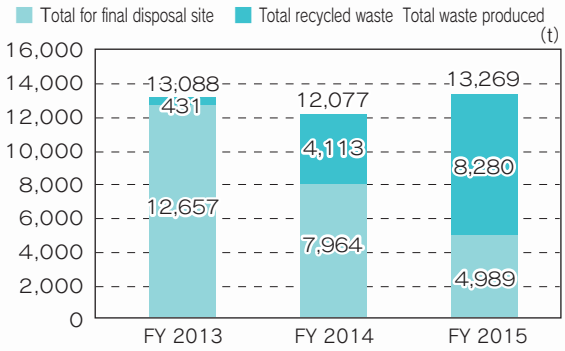


Waste received and waste produced

Waste received and waste produced



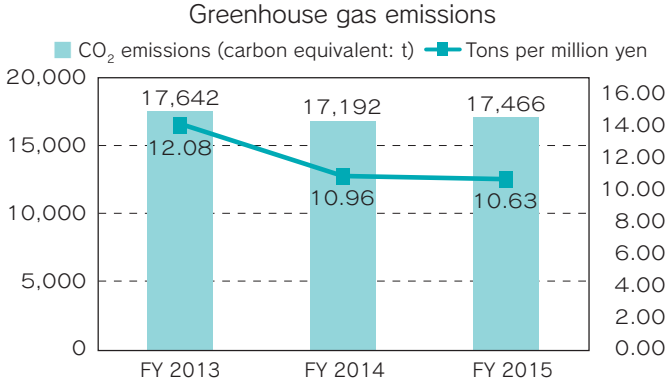
Breakdown of waste produced



Greenhouse gas emissions

Although CO_2 emissions for FY 2015 increased roughly 2% over FY 2014, CO_2 emission intensity dropped by about 3%.

Greenhouse gas emissions

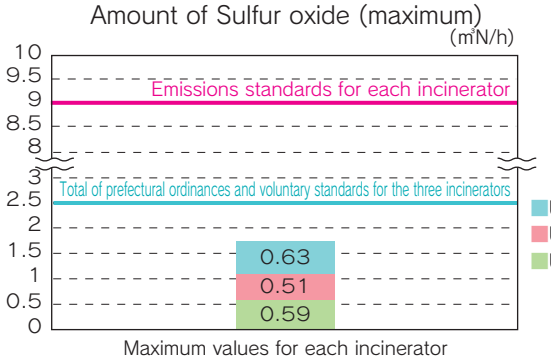


WASTECH Kanagawa

Air pollution and the impact on the living environment

In FY 2015, we stayed within voluntary limits and complied with regulatory emissions standards for concentrations of sulfur oxide, hydrogen chloride, nitrogen oxide, and soot emitted from our incinerators through proper maintenance and management of waste treatment facilities.
*Emissions standards presented here are those indicated in the Air Pollution Control Act.

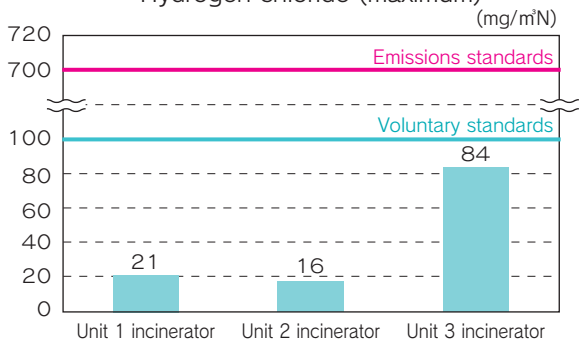
Amount of Sulfur oxide (maximum)



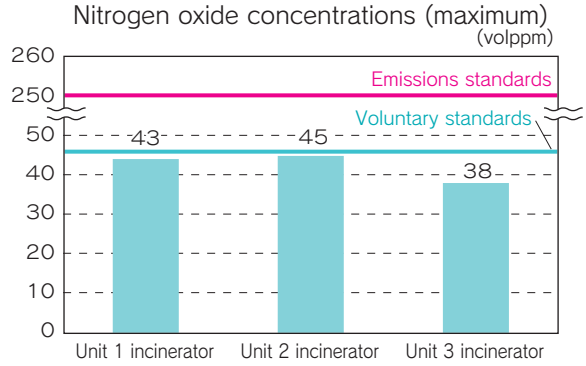
Maximum values for each incinerator

*The K value for sulfur oxide concentrations is limited to 9.07m³N/h under the Air Pollution Control Act. A Kanagawa prefectural ordinance sets the total limit for the three incinerators at WASTECH Kanagawa to 2.52m³N/h. The total limit of 2.52m³N/h at WASTECH Kanagawa is a voluntary standard.

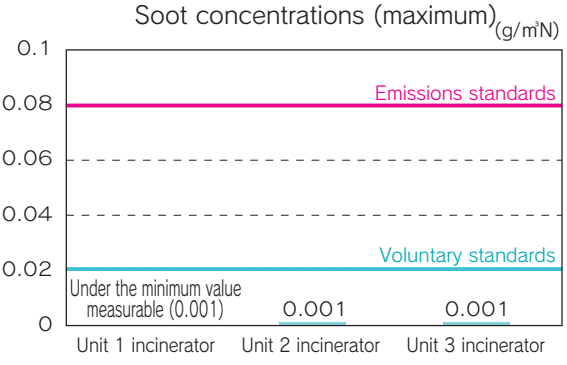
Hydrogen chloride (maximum)



Nitrogen oxide concentrations (maximum)



Soot concentrations (maximum)

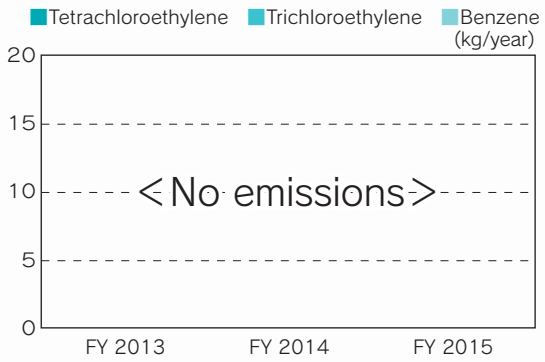


KANAGAWA 2

Chemical substance emissions and transfers

WASTECH Kanagawa does not emit PRTR-listed chemical substances such as benzene, trichloroethylene, or tetrachloroethylene.

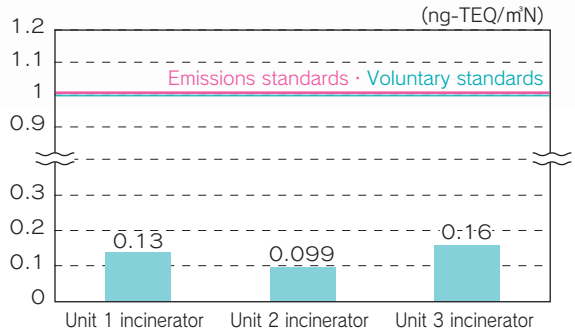
Volume of PRTR-listed substances emitted and transferred



Toxic substance emissions

All dioxins were measured to be within the voluntary limits of 1 ng-TEQ/m³ N.

Dioxins (maximum)



Overall environmental impact

INPUT

Energy consumption (crude oil equivalent) 322kℓ
Purchased raw materials 2,649t
Water resource consumption 58 thousandm³
Waste received 42,709t

WASTECH Kanagawa

Incineration facilities
Unit 1 incinerator
Unit 2 incinerator
Unit 3 incinerator

Crushing facilities
Dehydration facilities

OUTPUT

Wastewater 0 thousandm³
Waste produced 13,269t
Waste recycled 8,280t
Final disposal volume 4,989t
CO_2 emissions (carbon equivalent) 17,466t

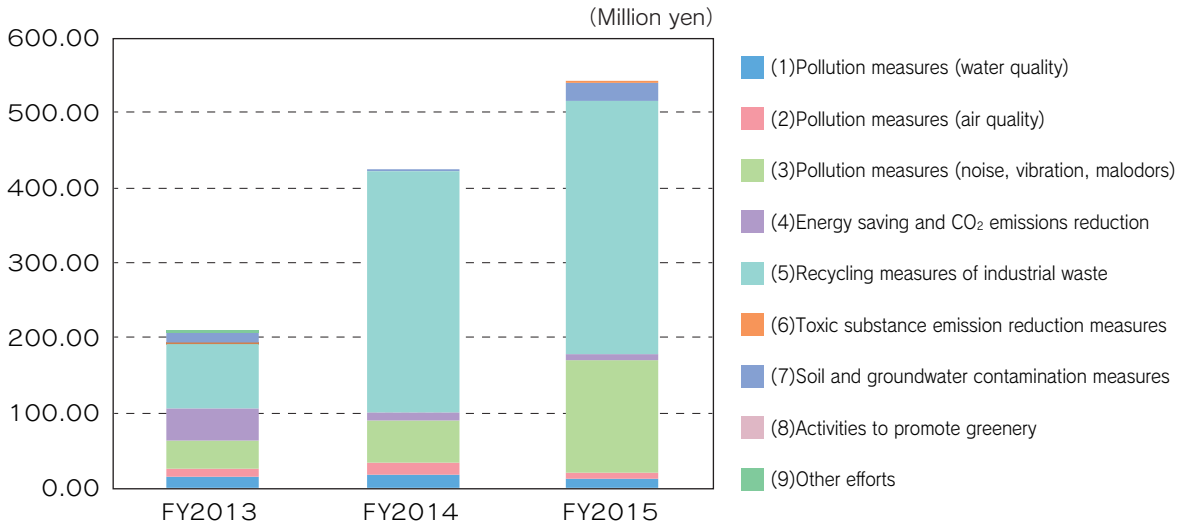
The Economic Aspect of Eco-Conscious Management

As a proportion of environmental resource investment, "(5) Recycling measures of industrial waste" have increased significantly since FY 2014. Low-concentration PCB enclosure processing facilities and the low-concentration PCB enclosure building accounted for large proportions of these measures in FY 2014 and FY 2015, respectively.
Roughly 50% of environmental resource investment for FY 2015 went to the low-concentration PCB enclosure building ((5) Recycling measures of industrial waste). About 20% of investment went to the installation of a sludge pit anterior chamber for the Unit 8 incinerator ((3) Pollution measures (noise, vibration, malodors)) done to prevent odors.
Investment increased over FY2014 for (7) Soil and groundwater contamination measures, with a large portion going to the development of a perimeter and gutters in connection with the installation of a sludge pit anterior chamber for the Unit 8 incinerator.

INVESTMENT IN ENVIRONMENTAL MEASURES (Million yen)

Category	FY 2013	FY 2014	FY 2015
(1) Pollution measures (water quality)	14.33	17.75	12.23
(2) Pollution measures (air quality)	10.25	16.61	8.90
(3) Pollution measures (noise, vibration, malodors)	37.09	54.52	149.56
(4) Energy saving and CO_2 emissions reduction	44.08	12.35	6.84
(5) Recycling measures of industrial waste	85.19	321.48	338.06
(6) Toxic substance emission reduction measures	1.42	0.00	0.00
(7) Soil and groundwater contamination measures	14.00	0.55	23.90
(8) Activities to promote greenery	0.30	0.00	2.76
(9) Other efforts	0.60	0.00	0.00

INVESTMENT IN ENVIRONMENTAL MEASURES



Compliance with Environmental Laws and Regulations

Compliance with environmental laws and regulations in FY 2015

At the beginning of our environmental policy we have “strictly comply with environmental rules such as laws and regulations.” In order to comply with laws and regulations, we use the certification we acquired in 1998 for the International Standard ISO14001 and evaluate the registration and state of compliance of laws and regulations.

As a result of evaluation, We confirm that observance is in a state.

Main environmental laws and regulations and compliance evaluations (FY 2015)

No.	Name of Law	Subject Matter	No.	Name of Law	Subject Matter
1	Pollution control agreement (between Iwaki City and Kureha Ecology Management)	Measures to prevent air pollution	7	Article 12, Section 3, Paragraph7 of the Waste Management and Cleaning Act	Reporting the status of industrial waste management form issuance, etc.
		Measures to prevent vibration, noise, etc.	8	Article 14 and Article 14, Section4 of the Waste Management and Cleaning Act	Standards concerning industrial waste and specially controlled industrial waste collection and transport business permits
		Measures to prevent odors	9	Article 4, Section 4, Paragraph2 of the Waste Management and Cleaning Act	Periodic inspections of industrial waste treatment facilities by local government
		Air pollution measurement	10	Article 16, Section 5 of Fire Services Act	Official on-site inspections of hazardous material sites
		Odorous substance and industrial waste measurement	11	Article 5, Section 2 of the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act)	Requirements related to reporting Class I Designated Chemical Substance emissions and transfers
2	Pollution control agreement (between Kureha Corporation and Kureha Ecology Management)	Wastewater standards	12	Article 15 of the Act on the Rational Use of Energy	Requirements related to the regular reporting of energy consumption by specified business operators
		Wastewater measurement	13	Article 14, Section 5 of the Water Pollution Control Act	Periodic inspections of specified facilities using hazardous substance and specified storage facilities
3	Article 28 of the Act on Special Measures Against Dioxins	Surveys of dioxin pollution in effluent gas and wastewater	14	Article 13 of the Water Supply Act	Water quality measurement prior to the start of water supply by water suppliers
4	Article1, Ministerial Ordinance on Standards for Verification concerning Industrial Wastes containing Metals, etc.	Standards for landfill disposal for cinders and dewatered sludge	15	Guideline concerning the treatment of low-concentration PCBs	Standards for the collection, transport, and treatment of low-concentration PCB waste
5	Article 15, Section 2,Paragraph 3 of the Waste Management and Cleaning Act	Standards for the maintenance and management of waste treatment facilities	16	Act on Rationalized Use and Proper Management of Fluorocarbons	Reporting of fluorocarbon destruction
6	Article 6, Section 3, Paragraph 5 of the Waste Management and Cleaning Act	Standards for the storage of industrial waste and specially controlled industrial waste	17	Tokyo Metropolitan Ordinance on Environmental Preservation Kanagawa Prefecture Ordinance to Preserve the Living Environment Chiba Prefecture Ordinance to Limit Particle Matter Emissions from Diesel Vehicles Saitama Prefecture Ordinance to Preserve the Living Environment	Diesel vehicle operation regulations

Working with Stakeholders

Participation in the 13th CSR Community Dialogue Meeting

On November 26, 2015, the Company took part in the 13th CSR Community Dialogue Meeting, an event organized by Kureha Corporation's Iwaki Factory.
At the event, we gave a presentation on our RC activities to the community members who attended.

Local exchange inspection

The Company regularly holds events such as inspection tours in which neighborhood council directors and residents in areas around Company headquarters participate.

Tour conducted at WASTECH Kanagawa

Every year, WASTECH Kanagawa is visited by many individuals and members of organizations including schools, companies, neighborhood councils, and women's associations. The tour route shows the process by which waste is treated, letting visitors see processes that include waste crushing and incinerators being operated.

Efforts to Preserve Biodiversity and Sustainably Use Biological Resources

Solar panels on the roof of the Head Office building

Products we purchase

We also purchase copy paper and toilet paper that conforms with the Act on Promoting Green Purchasing.

Global Warming Countermeasures

In recognizing the importance of measures to prevent global warming and save energy, the Ministry of the Environment is conducting the Cool Biz and Warm Biz initiatives. This year, Kureha Ecology Management promoted energy saving with May 1 to October 31 Cool Biz period and November 1 to March 31 Warm Biz period.

Cleanup volunteers

More than 100 employees from the company took part in cleanup activities in Iwaki as part of a program to beautify the city every June and October.

Employees took part in Binda River embankment beautification work in this event conducted every fall.

Conducted October 24, 2015

The employees removed waste that had been illegally disposed of as part of illegally dumped waste removal activities conducted during National Illegal Waste Dumping Watch Week.

Conducted June 1, 2015

Environmental preservation activities

Employees took part in local recycling fairs to promote awareness of illegal waste dumping prevention.

Conducted October 18, 2015

Efforts to Reduce Environmental Impact

WASTECH Iwaki's Odor Prevention Measures

The installation of a sludge pit anterior chamber for the Unit 8 incinerator that has begun in February 2015 was completed at the end of 2015. The following measures to control odors led to a dramatic decrease in the number of odor complaints.

Odor control measures

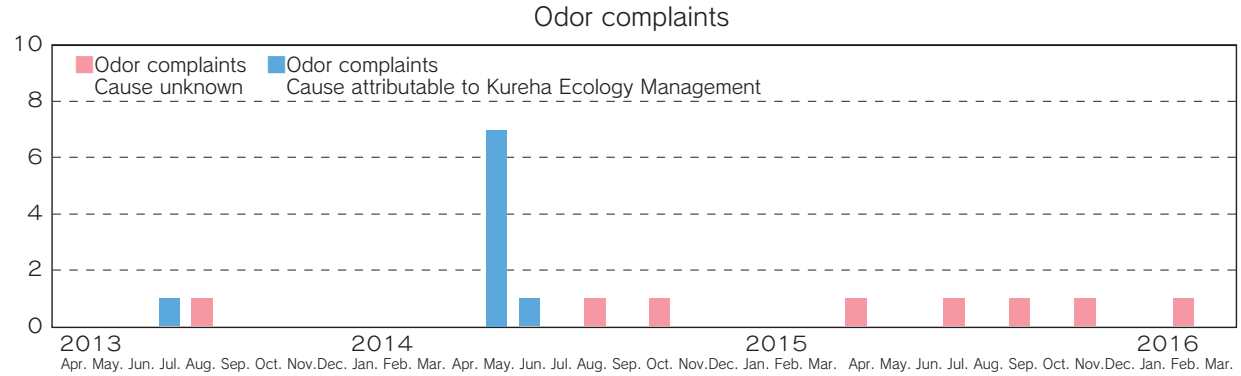
- Created an odor complaint database and analyzed causes
- Added an odor information column to the waste database
- Took measures to improve sludge pit chamber airtightness at the Unit 7 incinerator
- Took measures to improve sludge pit chamber airtightness at the Unit 8 incinerator
- Installed an incinerator sludge pit anterior chamber at the Unit 8 incinerator
- Measures to improve airtightness of mixing and pasting zone
- Re-examined waste handling procedures

Anterior chamber (before installation)

Anterior chamber (after installation)

Measures to improve airtightness (before)
Gap between wall and roof (age-related deterioration and impact from earthquakes)

Measures to improve airtightness (after)
Sealing of all gaps, etc



*"Cause unknown" in the graph refers to complaints for which Company surveys could not determine odor cause.
This includes complaints deemed to not have been caused by the Company as evident from circumstances such as wind direction at the time.

Odor prevention measures taken prior to FY 2013

High-speed shutters (1989–)

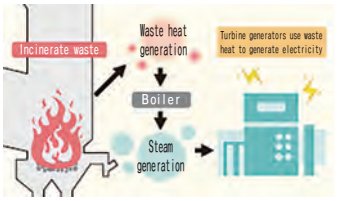
Odor sensors (2005–)

Movable activated carbon deodorization units (2011–)

Thermal recovery efforts at WASTECH Kanagawa

WASTECH Kanagawa is capable of generating up to 4,800 kWh of electricity with a thermal recovery system that recovers combustion heat from three incinerators. The company uses the generated electricity to power its own facilities and sells the surplus to a power utility. In this way, surplus energy is returned to society in the form of electrical power and we reduce our impact on the environment.

Boiler



Capacity to generate enough energy to power 6,000 ordinary households

Turbine generator

Low-Concentration and Trace-Level PCB Waste Treatment

Detoxification overview

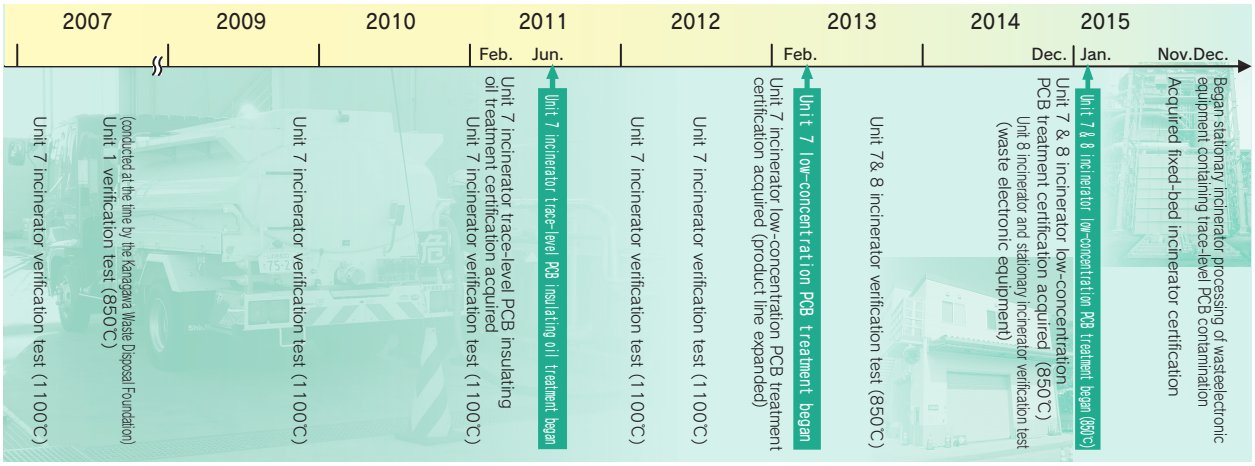
The following facilities have acquired detoxification certification and operate in a safe and reliable manner.

Topic	Details
Facility name	Unit 7 incinerator(rotary kiln incinerator) Unit 8 incinerator(rotary kiln incinerator, fixed bed incinerator)
Facility types	Facilities that incinerate waste polychlorinated biphenyl or other polychlorinated biphenyl contaminants or material processed from polychlorinated biphenyl
Facility location	WASTECH Iwaki, 136-1 Ochiai, Nishiki-machi, Iwaki-shi Fukushima
Waste collection and transport	Yes (in Japan)

Kureha Ecology Management can treat all of the below low-concentration PCB waste.

	Low-concentration PCB waste	
	Waste electronic equipment, etc. with trace-level PCB contamination	Waste containing low-concentration PCBs
Low concentration PCB waste oil	Insulation oil with trace-level PCB contamination Electrical equipment or insulating oil (used in OF cables) with PCB micro contamination	Waste oil containing low-concentration PCBs (waste oil, etc. with a PCB concentration of 5,000 mg/kg or less)
Low concentration PCB contaminants	Trace-level PCB contaminants Objects contaminated through insulation oil with trace-level PCB contamination	Contaminants containing low-concentration PCBs Objects with PCB concentrations of 5,000 mg/kg or less deposited on sludge, paper waste, wood waste, textile waste, plastic waste, scrap metal, ceramic waste, and unwanted substances such as concrete chunks (which is included in scrap metal)
Low concentration PCB-treated materials	Trace-level PCB treated materials Objects treated in order to dispose of trace-level PCB waste oil or low-concentration PCB contaminants	Treated materials containing low-concentration PCBs These are treated to dispose of PCB waste, and have a PCB concentration of 5,000 mg/kg or less (for scrap metal, etc., the PCB concentration of deposits is considered)

The evolution of treatment methods for trace-level PCB and low concentration PCB waste



Trace-level PCB and low concentration PCB waste treated to date

FY	Amount treated (t)*
FY 2013	2, 470
FY 2014	2, 769
FY 2015	3, 104

*Total of insulating/waste oil, contaminants/treated materials

We thank for our customers for the wait,but are happy to announce that we acquired certification for and began operations processing transistors, capacitors, and other waste electronics instruments on November 26, 2015. This continues our commitment to offering safe means of waste processing that are good for the environment. Please let us know how we can help.

Manager, Low-Concentration PCB Sales Section
Low-Concentration PCB Sales Department Kenichi Midorikawa

Safety and Health Activities

Highlighted Activities in FY 2015

(1) Establish action goals for eliminating accidents within each section

(2) Enforce "touch and call" act throughout the company

(3) The president and directors conduct special patrols.

(4) Managers make operators aware of certain issues

(5) Check operation plans for business vehicles

(6) Ensure all vehicles stop at the barrier line

(7) Conduct broadcasts to raise safety awareness

Touch and call act

Make safety broadcasts in rotation among all employees

October 1, 2015
President patrol at WASTECH Iwaki

October 9, 2015
President patrol at WASTECH Kanagawa

Risk assessment

RISK ASSESSMENTS CONDUCTED

(AS OF MARCH 24, 2016)

Risk levels	Risks initially assessed	Risks addressed	Risks remaining
IV Major safety/health risk	28	28	0
III Moderate safety/ health risk	287	287	122
II Minor safety/health risk	338	213	243
I Negligible safety/ health risk	151	45	377
_ Eliminate risks by re-examining or eliminating job processes	–	–	62

*There are times by the effect of measures taken, risk levels do not change even if evaluation scores decline.

Risk assessments are being done throughout the Kureha Group.
Kureha Ecology Management follows the procedure below and takes countermeasures with priority given to higher risks.

(1) Identify all dangers and hazards
(2) Assume and evaluate risks arising from identified dangers and hazards
(3) Clarify what measures should be taken giving priority to worker protection

We've already addressed all level IV and III risks—the most serious risks—and have been focusing on level II and I risks successively. We also conduct additional risk assessments whenever new operations arise or there are changes to working environments or conditions.

Pointing and calling

Pointing and calling involves physically pointing to work that is to be done and calling out the name of the operation or action to be performed.
Employees are instructed to point and call in many different situations, including when they are working, operating a vehicle, or walking through a plant. Contractor personnel are also encouraged to point and call when performing work inside a plant. As a result of efforts to raise awareness for and educate employees about pointing and calling, the FY 2015 point and call rate came close to 100%. We continue to enforce this policy going forward.

POINT AND CALL RATES

(%)

Action	2015			2016	FY 2015 average
	Jun.	Sep.	Dec.	Mar.	
Workers	96.9	98.4	100	97.3	96.9
Forklift drivers	97.4	100	99.2	100	98.8
Large vehicle drivers	100	98.6	100	100	98.6
Passenger vehicle drivers	93.8	100	100	100	98.9
2 and 4 ton vehicles	100	95.3	96.3	100	97.8

*Surveys are conducted every month, and the FY 2015 figures above indicate the average for the year.

Emergency drills and safety patrols

Kureha Ecology Management handles hazardous or toxic substances regulated by the Fire Services Act.
Every year, we conduct emergency drills to prepare for situations that ought never to occur, changing the locations and conditions of the situation every time to ready employees for a wide range of scenarios. The Nakoso Fire Department provides support and supervision for comprehensive emergency drills conducted at WASTECH Iwaki.
The Company invited representatives of local residents to observe efforts made by our employees to prepare for emergencies.

WASTECH Iwaki patrol

WASTECH Kanagawa patrol

July 14, 2015
Comprehensive emergency drills at WASTECH Iwaki

February 13 , 2016
Comprehensive emergency drills at WASTECH Kanagawa

Managers conduct monthly patrols. Patrol members from multiple departments find problematic areas and potential risks from a variety of viewpoints, then measures are taken to address them.

FY 2015 in Review

Lost Time Incident in FY 2015 is decreasing 1 from FY2014, and total accidents decrease in number 11.
Kureha Ecology Management aims to achieve zero accidents through a range of training and methods that include analyzing and applying the lessons learned from near misses, as well as pointing and calling and risk assessments.

Four people are in charge of operations concerning safety and health.
There was one Lost Time Incident in FY 2015, and we are aiming to have zero accidents in FY 2016 by reminding employees of safety during routine patrols.
This was the first year we did employee stress checks, so we conduct employees for educating metal health also.

Manager, Safety and Health Section
Safety and Health Department Yasuhiro Iijima

FY2015 ACCIDENT OCCURRENCE

		Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	FY2015	FY2014	FY2013
Personnel disaster	Lost time accident		1											1	2	0
	Non-lost time accident			1										1	0	0
	Minor injury			2									1	3	8	4
	Major Near-Miss									1				1	0	0
Property damage accident		1	1	1		1	1	1	1			2	1	10	6	7
Traffic accident		1	4	1		1		1	2	2		1	2	15	25	28
Other														0	1	2
Total		2	6	5	0	2	1	2	3	3	0	3	4	31	42	41

*Traffic accidents are those that occur on roads or other places outside Company premises. This includes rocks flying up and hitting windshields and other such accidents where the driver is not at fault and only minor damage is incurred (about half of all accidents annually)
*Property damage is included as damage to the equipment by vehicles at waste producers
*Does not include accidents caused by external workers.

FY 2015 NEAR MISSES (POTENTIAL ACCIDENTS)

Type	Cases	Ratio
Crush accidents	21	1.7%
Caught-in injuries	3	0.2%
Fall injuries	308	24.8%
Falls from height	34	2.7%
Puncture wounds or lacerations	50	4.0%
Contusions	94	7.6%
Falling/flying objects	52	4.2%

Type	Cases	Ratio
Eye injuries	11	0.9%
Chemical burns	126	10.1%
Electric shocks	1	0.1%
Traffic accidents	476	38.3%
Equipment damage	8	0.6%
Other accidents	60	4.8%
Total	1,244	100.0%

Work-related accidents	1
Total hours worked	676,000hours
Lost time accident frequency rate	1.48
Lost time accident severity rate	0.11

*Lost time accident frequency rate: people involved in work-related accidents÷total hours worked×1million
*Lost time accident severity rate: lost work time in days÷total hours worked×1,000

About WASTECH Iwaki

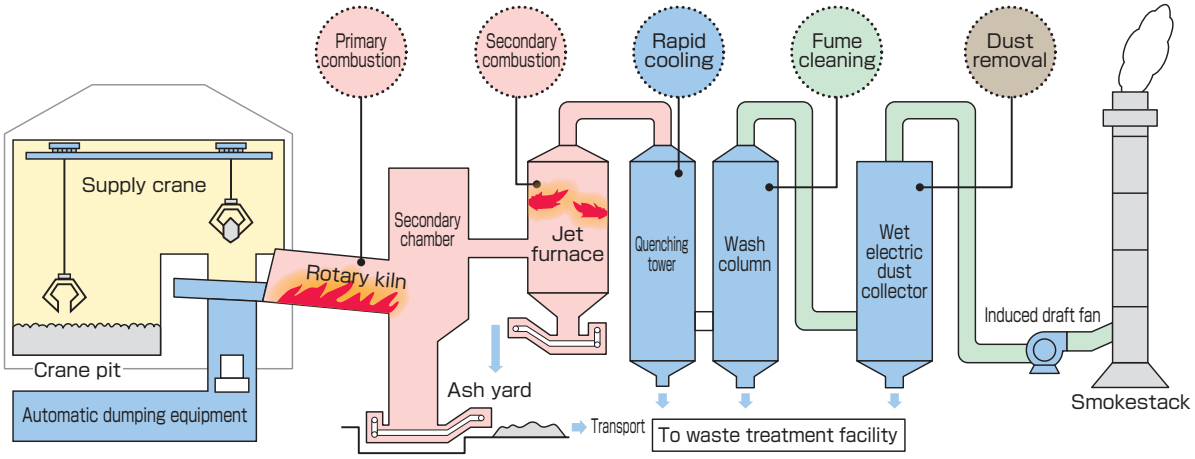
WASTECH Iwaki's unit 7 and 8 incinerators process a variety of waste consisting mainly of waste plastics, waste acid, waste alkali, and sludge containing chlorine or silicon, as well as medical waste.

Under the slogan "safe, secure, and stable operation", entire company as one is working to prevent accidents and disasters. Conducting operations safely and properly is our mission.

Vice President / Participation, Deputy General Manager,
Waist-Tec Division(General Manager, Iwaki Treatment Department)
Hideki Kojima

Unit 7 & 8 incinerators

Rotary kiln system



Unit 7 incinerator

Sludge incineration facilities 182㎥/day
Waste oil incineration facilities 110㎥/day
Waste plastic incineration facilities 104 t/day
Cyanide decomposition facilities 202㎥/day
Industrial waste incineration facilities 238 t/day

Unit 8 incinerator

Sludge incineration facilities 182㎥/day
Waste oil incineration facilities 118㎥/day
Waste plastic incineration facilities 104 t/day
Cyanide decomposition facilities 266㎥/day
Industrial waste incineration facilities 238 t/day

WASTECH Iwaki

Unit 7 incinerator

Unit 8 incinerator

Measuring equipment The yellow pillars next to the weighing equipment are radiation measuring instruments. They measure the radiation level of waste brought into the facility

Unit 7 rotary kiln exchange

Unit 8 low-concentration PCB enclosure processing facility

About WASTECH Kanagawa

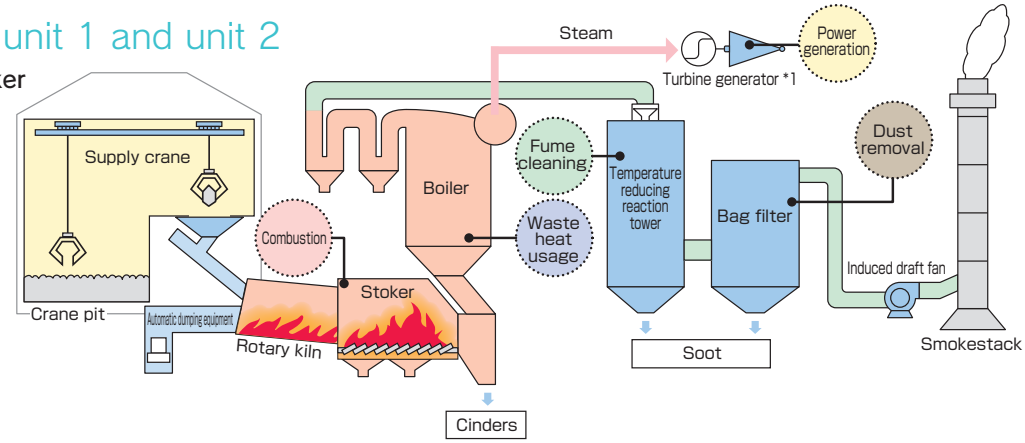
WASTECH Kanagawa has thermal recovery equipment that produces energy from waste heat, and acquired heat recovery equipment installer certification in accordance with the Waste Disposal Act on February 7, 2012. The company has deployed automated sorting systems for iron and aluminum as pre-processing stages and installed both a kiln stoker incinerator and fluidized bed incinerator, which allow it to process a variety of waste types.

Through its waste processing and power generation operations, the company provides services with high environmental value to its customers. The company's efforts also continue to focus on making even greater contributions to communities.

Participation, Deputy General Manager, Waist-Tec Division
(General Manager, Kanagawa Treatment Department)
Yuji Ichikawa

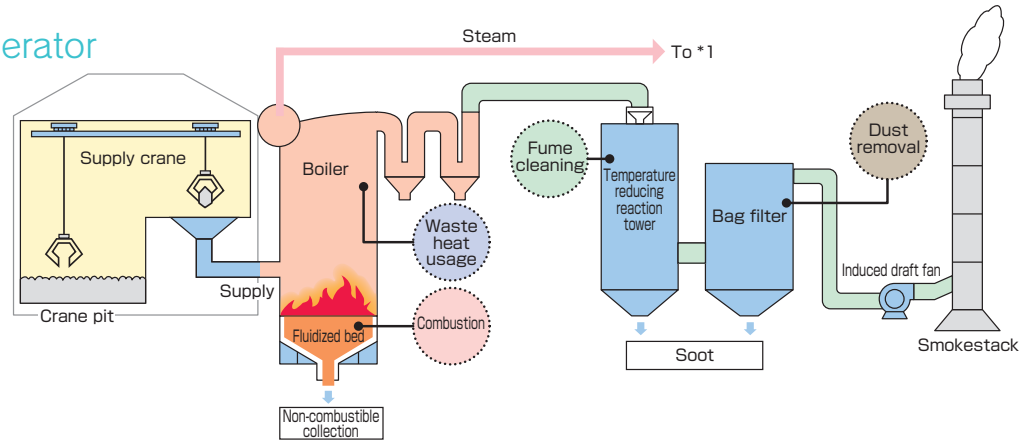
Incinerator unit 1 and unit 2

Rotary kiln stoker system



Unit 3 incinerator

Fluidized bed system



Incinerator units 1 and 2 totals

Mixed combustion 140 t/day
Sludge incineration equipment 112m³/day
Waste oil incineration equipment 150m³/day
Waste plastic incineration equipment 80 t/day
Other industrial waste incineration facilities 230 t/day

Unit 3 incinerator

Mixed combustion 70 t/day
Sludge incineration equipment 48m³/day
Waste oil incineration equipment 75 m³/day
Waste plastic incineration equipment 40 t/day
Other industrial waste incineration facilities 115t/day

WASTECH Kanagawa

The Kawasaki Logistics Center is a transshipment storage facility located adjacent to WASTECH Kanagawa. A physical distribution base in the Keihin area, the facility provides services that meet a wide range of customer needs.

Measuring equipment

In front of a lecture room open to tours

Environmental Engineering Business

As the department handling kinds of customer service of the Company's Environmental Engineering Business, the Environmental Sales Department seeks to preserve and protect the global environment through operations conducted in Japan and overseas, working to drive further adoption of environmentally-friendly equipment that uses our proprietary technologies.

General Manager Environmental Sales Department Akihiro Shirato

VOC effluent gas treatment equipment

"GASTAK" solvent recovery, deodorization, and effluent gas treatment system

We contribute to global environmental preservation by manufacturing and supplying environmental equipment & facility.

Our GASTAK product is a ground breaking effluent gas treatment system designed to recover organic solvents within, and remove toxins and odors from, effluent gas.

Units supplied
FY 2014 4 units
Treated gas
400 ～ 1300 m³/min
FY 2015 –

GASTAK®

Data from Converting Technical Institute's Convertech Vol.5,2002

Water treatment equipment

The " HONESTLIMER", a calcium hydroxide solution injection device

Calcium hydroxide solution injection devices ("HONESTLIMER") for water suppliers have been deployed at water purification plants throughout the country. These machines prevent the corrosion of and dramatically extend the service life of water facilities (water purification and distribution equipment), improving water quality and creating safe and delicious water.

Units supplied
FY 2014 –
FY 2015 1 unit (planned)
Treated water
9,500㎥/day

Calcium hydroxide solution injection devices (courtesy of the Tokyo Metropolitan Government Bureau of Waterworks, Nagasawa Purification Plant)

The Engineering Technology Department continually provides engineering solutions from the customer's standpoint through a comprehensive and responsible system that handles everything from the basic planning of environment-related equipment to equipment design, construction, trial operation, and delivery.

General Manager Environmental Technical Department Masahiro Hiruta

Carbon dioxide gas injection equipment

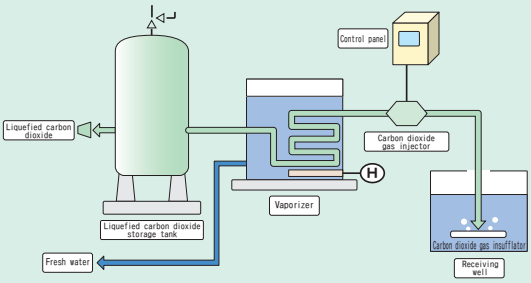
When purifying raw water with a high pH, it is necessary to properly control the raw water's pH during performing coagulation. There are many types of chemicals used to lower pH values, but our injection equipment uses carbon dioxide gas for its superiority in terms of safety and handling.

Units supplied

FY 2014 2 units Water treated 38,000 ~ 177,000m³/day

FY 2015 3 units Water treated 544 ~ 88,000m³/day

Carbon dioxide gas injection equipment



Dry powdered activated carbon injection equipment

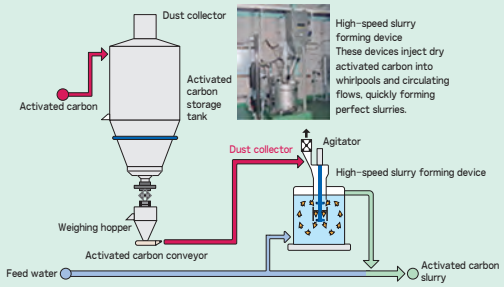
Dry powdered activated carbon injection equipment stores and injects dry powdered activated carbon useful for removing oils and taste and odor causing substances such as mold smells in raw water.

Units supplied

FY 2014 1 unit Water treated 99,000m³/day

FY 2015—

Dry powdered activated carbon injection equipment



SHALLOW CLEAN

Algal bloom, which is caused by cyanobacteria in lakes, marshes, and reservoirs as a result of the eutrophication of rivers, lakes, and marshes, is becoming a problem. "SHALLOW CLEAN" focuses on light as an essential element of algal bloom, and blocks out all but the necessary minimum of light on a section of a water surface to control abnormal growth of algae without destroying the water's ecosystem.

Units supplied

FY 2014 4 units Areas shaded 12 ~ 620㎡

FY 2015 5 units Area shaded 4 ~ 150㎡

Before installation of SHALLOW CLEAN equipment

84 days after installing SHALLOW CLEAN

Various Initiatives

Activities to build awareness for overloaded vehicle prevention

In the interest of maintaining conformance with laws as part of Responsible Care activities, Kureha Ecology Management conducted activities to improve awareness for overloaded vehicle prevention over November 2, 4, and 5 in honor of Metrology Day on November 1.
On the day of the activities, employees from WASTECH Iwaki and WASTECH Kanagawa called for an end to overloaded vehicles, putting up a banner reading "Never do, never allow—never overload a vehicle" and handing out leaflets to truck drivers.

Employees conducting activities at WASTECH Iwaki

Awarded the "2015 Best Achievement Award"
(Japan Association of Engineering Management for Waste Treatment Facility)

On October 22, Kureha Ecology Management received the Best Achievement Award for a paper entitled *Waste Processing Facility Management Systems —Vol.3 Chapter 1: Maintenance Inspections for Industrial Waste Processing Facilities*, a special feature that appeared in a journal published by the Japan Association of Engineering Management for Waste Treatment Facility. The association presents this award every year for outstanding research papers.

Executive Officer Miyata and Foreman Shimada, receiving the award

5S workplace organization activities

With the goal of creating comfortable workplaces where all employees can work together, Kureha Ecology Management conducts 5S (seiri (orderliness), seiton (neatness & tidiness), seiso (cleaning), Seiketsu (cleanliness), and shukan (habits)) activities.

A team of new employees hired during FY 2015

Activities in FY 2015 were carried out by nine teams.
This year we put together a team made up of new employees, who bring fresh eyes to checking the company's workplaces.

5S Workplace Organization Activities and Reporting Sessions conducted (9 sessions)
5S Workplace Organization Activities Contest (1 event)

Lecture from a lawyer

On November 6, 2015, a lecture by our corporate lawyer was held entitled “Manifest described trouble and recent cases of overloaded.” In addition to past cases and precedents in Japan, the talk focused on such subjects as the responsibilities of waste producers and the mistakes they often make. This event was started in 2014, and 82 people involved in waste management were present for this latest talk.
The company continue to work with all those involved in waste management to provide information aimed at encouraging a better understanding of related laws and of raising awareness regarding the importance of ensuring compliance.

Talk given by Mari Shibata, lawyer

Quality control training

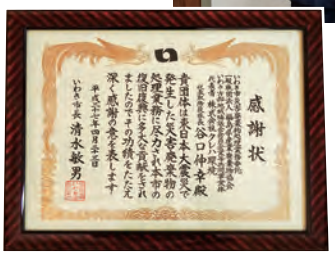
FY 2015 saw 12 people attend the Problem Solving Skills Applied Course, a training course that uses seven QC tools. Participants in the course look to find and resolve problems in their workplaces.
The attendees were encouraged to acquire Grade 3 certification on the Quality Management and Quality Control Examination (QC/QM Exam). Six attendees acquired certification.

*QC seven tools
Techniques for quantitatively analyzing phenomena when conducting quality control.
*The Quality Management and Quality Control Examination
An examination that objectively assesses participants' knowledge of topics concerning quality control.

FY 2013 training topics	FY 2014 training topics	FY 2015 research themes
· Reducing the number of leaks from front burners · Reducing the risk of leaks when collecting and transporting waste	· Preventing recurrence of chemical burn near misses · Reducing clogs in calcined magnesite supply equipment · Ensure that we do not fail to win orders from company A, which we recently began targeting	· Establish methods for document creation and storage management · Establish inventory management methods for consumption · Reduce the number of record account receivables and discrepancy for payment received caused by the Sales Division

Recovering from the Great East Japan Earthquake

The treatment of disaster waste in Iwaki City that resulted from the Great East Japan Earthquake was completed in March, 2015 and a ceremony was held on April 23 at Iwaki City Hall to receive letters of appreciation.
Letters of appreciation were presented to Iwaki Regional Council of the Fukushima Industrial Waste Association, the consortium of council member companies, etc. of the same association, and the Iwaki City Construction Business Cooperative. Kureha Ecology Management received the letters on behalf of these three groups.
We continuously make efforts for earthquake reconstruction support and for contribution to society through processing disaster waste treatment and other waste as well.



Former president Nobuyuki Taniguchi (right), receiving letters of appreciation from Iwaki City mayor Toshio Shimizu

December 2016, Kureha Ecology Management celebrates the 45th anniversary of its founding.
As a company that values harmonious relationships between people, society, and the global environment, we continue to tirelessly pursue achieving such relationships through our business activities.

History

December 1971 Establishment of Kureha Kompo Co., Ltd.
October 1975 Name is changed to Kureha Gyomu Co., Ltd.
March 1977 Permission is acquired to conduct operations to collect, transport, and dispose of industrial waste in Fukushima Prefecture
July 1984 Name is changed to Kureha Kankyo Co., Ltd.
October 1986 Unit 7 incinerator is developed, installed, and operated in-house
July 1992 The Kashima Sales Office is opened
October 1992 The Chiba Sales Office is opened
April 1993 The Kawasaki Sales Office is opened
May 1993 The Unit 8 incinerator is developed, installed, and operated in-house
June 1995 The Kashima and Chiba sales offices are merged to form the East Kanto Sales Office
March 1998 ISO14001 certification is acquired
April 1998 Unit 7 incinerator is renovated in-house
March 2001 ISO14001 certification is renewed
April 2002 Establishment of Kureha Staff Service Co., Ltd.
March 2004 ISO14001 certification is renewed
July 2004 The head office is relocated to 30 Shitanda, Nishiki-machi, Iwaki-shi
April 2005 The Kawasaki and Kanto sales offices are merged to form the Tokyo Sales Office
April 2005 The Tokyo Logistics Center is opened
April 2005 The East Kanto Sales Office becomes the Ibaraki Sales Office
April 2006 The company name is changed to Kureha Ecology Management Co., Ltd.
June 2006 Paid-in capital is increased to ¥240 million
March 2007 ISO14001 certification is renewed
April 2008 The Tokyo Logistics Center is relocated
April 2008 The Tokyo Sales Office is relocated
April 2008 The Ibaraki Sales Office is relocated
July 2008 The Sendai Sales Office is opened
March 2010 ISO14001 certification is renewed
April 2010 The Kanagawa Plant is opened
April 2010 The Sendai Sales Office is relocated
January 2011 The Nagoya Branch Office is opened
March 2011 The Tokyo Logistics Center is closed (functions are transferred to the Kawasaki Logistics Center)
April 2011 The Kawasaki Logistics Center is opened
April 2012 The Environmental Solutions Unit is opened
April 2012 The Osaka Branch Office is opened
May 2012 The Osaka Branch Office is relocated
March 2013 ISO14001 certification is renewed
October 2013 The Tokyo Sales Office is relocated
April 2014 WASTECH Park becomes WASTECH Iwaki and the Kanagawa Plant becomes WASTECH Kanagawa
March 2016 ISO14001 certification is renewed

Sales / Branch Offices

Sales Offices
Sendai Sales Office, Tokyo Sales Office, Ibaraki Sales Office
Branch Offices
Nagoya Branch Office, Osaka Branch Office

For waste-related inquiries
Sales Division +81(0)246-63-1331
For engineering-related inquiries
Environmental Sales Department
+81(0)246-63-1358

This 2016 RC Report is also published on our website:
http://www.kurekan.co.jp/en/

MEMO

Ikoi Plaza

Exhibition area

Regional Exchange Hall

Head Office

Address: 30 Shitanda, Nishiki-machi, Iwaki-shi, Fukushima

WASTECH Iwaki

WASTECH Kanagawa

Address: 6-1 Chidori-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa

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