OUR ENGINEERING ACTIVITIES CONTRIBUTE TO PRESERVING THE ENVIRONMENT

ENVIRONMENTAL ACTIVITIES

JGC's Engineering & Construction (E&C) business, which provides engineering, procurement and construction (EPC) services for energy-related plants such as those for oil and natural gas, is closely related to environmental protection in and of itself.

Since the 1960s, JGC has worked on environmental issues as an E&C contractor, striving for cleaner petroleum products, making its plants more energy-efficient, and eliminating hazards from waste products. Our understanding that our business activities themselves contribute to environmental protection has not changed today, and this is symbolically expressed in our corporate philosophy.

Activities that contribute to environmental protection are expanding into a wider range outside of our E&C business, as we start up a new clean development mechanism (CDM) business as part of our enterprise investment business.

Activities focused on how to provide our customers with plants that place a minimum burden on the environment are also an important part of JGC's environmental management approach. We engage in testing various techniques and improvements at each stage of our E&C business, and these have won high marks from our customers.

These activities to lessen the burden on the environment at the home office and construction sites involved in EPC activities are the foundation supporting JGC's environmental management efforts. CO_2 reductions at the home office and reduction/recycling of waste products at construction sites are producing improved results every year.

CORPORATE ACTIVITIES RELATED TO ENVIRONMENTAL PROTECTION

JGC's business activities, such as the execution of energy-related plant construction projects for natural gas and oil, the development of new fuels, and the promotion of a global-warming-gas emission credits business, are closely connected to the protection of the global environment. Through these business activities, JGC is actively involved in reducing environmental burdens.

EFFECTIVE USE OF NATURAL GAS

The use of natural gas is rapidly increasing because it is a relatively clean fuel that is environmentally friendlier, not only having higher energy efficiency than oil or coal, and containing no sulfur, nitrogen, or metals, but also producing fewer CO_2 emissions when it burns. JGC is contributing to the expanded use of natural gas as a clean fuel by executing construction projects for liquefied natural gas (LNG) plants around the world and constructing the world's first GTL (Gas to Liquid) plant, which manufactures clean synthetic oil using natural gas as a raw material. In addition, we are developing manufacturing/usage technologies for dimethyl ether (DME) and manufacturing technologies for synthetic gas, aiming to further expand ways to use natural gas.

MAKING FOSSIL FUELS CLEANER

Transforming petroleum, a substance whose use can place a heavy burden on the environment, into a cleaner fuel is a major theme of JGC's business activities, which emphasize environmental protection. We are advancing various activities, such as the construction of plants compatible with moves to make petroleum fuel sulfur-free, and the development of technologies for removing toxic materials from crude oil.

WASTE DISPOSAL

Human activity generates various waste products. Waste products sometimes contain materials that are toxic to living organisms and leaving such toxic materials untreated increases the burden on the environment. JGC collects basic data related to radioactive waste disposal and is developing technologies for carrying out the effective disposal of these materials. We are also engaged in developing technologies for the disposal of sludge generated from sewage treatment in order to reduce the environmental impact of waste products.

CONTRIBUTIONS TO GREENHOUSE GAS REDUCTION

Global warming is a pressing issue that must be tackled by global society. JGC is promoting activities aimed at reducing greenhouse gases based on technologies and know-how accumulated over many years of energy plant construction and technological development.

ENVIRONMENTAL PROTECTION ACTIVITIES DURING PROJECT EXECUTION

JGC's environmental management system takes into account the environmental impact of the project overall, including its construction and operation, and places emphasis on environmental management during project execution. We take particular care in drawing up and applying appropriate management systems in the design stage, when the basic specifications of the plant are determined.

ENVIRONMENTAL PROTECTION AT THE DESIGN STAGE—CREATION AND IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLANS

The objective of the environmental management system at the design stage of project execution is to take up problem areas expected to affect the environment during operation based on the unique environment of each project, and take measures from the design stage to reduce that impact. By doing so, environmental issues are clarified within overall project operations, enabling specialist engineers to take appropriate measures systematically.

The contents of the environmental management system during the design stage are listed in a document called the Environmental Management Plan, summarized to enable environmentally friendly project execution (design, construction, operation), and contain the following items.

1. Project environmental policy
2. Organization, accountability for project environmental operations
3. Contents of operations that impact the environment
4. Audit of environmental operations

The environmental management plan takes into account not only the construction and operation of the plant, but also the dismantling/disposal of the plant 20 to 30 years down the road, and sometimes prohibits the use of materials and substances that impact the environment (such as asbestos and Freon) at the design stage.

Once the environmental management plan for the design stage is proposed, a meeting is held of project managers from the various design divisions to convey to them the contents of the plan and project-specific areas warranting caution. The project managers are then responsible for communicating this information to all members of the project team, and environmentally friendly project execution is implemented.

Chairman Takeuchi patrols a construction site

ENVIRONMENTAL PROTECTION AT CONSTRUCTION SITES

JGC has long taken the environment into consideration during construction, based on customer requests. Since the environmental management system is a structured method that covers all aspects equally, and is not influenced by differences in the level of customer demands or personal experience and hunches, we are currently introducing the environmental management system into construction work to strengthen our consideration of the environment.

We are placing emphasis on the following.

1. Tightening legal compliance by specifying environmental regulations related to construction work.
2. Improving customer satisfaction and strengthening communication among interested parties.
3. Minimizing environmental disasters and managing environmental risks by anticipating, preparing for, and dealing effectively with emergencies.

At construction sites within Japan and abroad, we are advancing environmental management activities for construction work through the following steps.

1. Specifying of environmental aspects
2. Setting of environmental objectives/targets
3. Creation of environmental management plans for construction work
4. Environmental education/training
5. Implementation of regular tests for emergency response procedures
6. Monitoring the measurement of environment-related factors
7. Monthly reports

ACTIVITIES TO LESSEN THE BURDEN ON THE ENVIRONMENT

By employing environmental management systems for both office activities and project execution activities, we have reduced greenhouse gas emissions from office activities by more than 3,000 tons compared to fiscal 1998, when we moved our offices to Minato Mirai 21. In addition, we have steadily reduced the burden we place on the environment, turning close to 80% of waste products at medium-sized plant construction sites into resources.

INITIATIVES FOR OFFICE ACTIVITIES

JGC's Yokohama World Operations Center is located in Queen's Square Yokohama, a multi-use complex in the Minato Mirai 21 district of Nishi-ku, Yokohama. In the Minato Mirai 21 district, urban management is conducted based on the Basic Agreement on Town Development under the Minato Mirai 21 agreement, with emphasis placed on urban planning that takes into account energy conservation, measures toward a recycling society, urban disaster prevention and the effects on surrounding areas. JGC's initiatives to reduce the burden on the environment from office activities are being implemented on top of the basic foundation of environmental protection provided by these facilities.

CONTRIBUTION TO SOCIETY

Since fiscal 2004, JGC has been involved in a training program called "Job Shadow" promoted by Junior Achievement Japan, a non-profit organization working to educate and inspire young people to value free enterprise, business, and economic activity to improve the quality of their lives. As part of its efforts in this area, in fiscal 2008 JGC hosted visits by 40 students from the Yokohama Seiryo Sogo High School to the JGC Yokohama World Operations Center during which the individual participants were given the opportunity to accompany and directly observe JGC staff members as they carried out their duties. In the U.S., more than 2 million high school students participate annually in similar Junior Achievement programs which help them to make career decisions and plan their future by deepening their understanding of different jobs through actual workplace visits.

In addition, taking advantage of the 80th anniversary of JGC's founding, since September 2008 we have also been participating in a program underway in Kanagawa Prefecture to create forests in water source areas. This program is working to protect and create forests in the water-source region of Kanagawa in order to pass them on to the next generation in a vigorously healthy state. As a "water-source forest partner," JGC is both donating toward the costs of looking after forests and participating in the activities needed to create forests.

Furthermore, as part of other social contribution activities, JGC has also established the JGC-S Scholarship Foundation and the JGC Social Welfare Foundation, and provides support to them.

The JGC-S Scholarship Foundation was originally created from an endowment by the late Masao Saneyoshi, JGC founder and president. The foundation's main operations are offering educational loans to Japanese science and engineering students at undergraduate and graduate levels, providing grants to overseas students studying in Japan, and offering research assistantships to young science and engineering researchers. Up to fiscal 2008, the JGC-S Scholarship Foundation has disbursed educational loans to 12,585 students, grants to 4,376 students, and research assistantships to 1,897 researchers. Currently, the foundation is disbursing a total of approximately ¥285 million each year.

The JGC Social Welfare Foundation develops and provides social welfare equipment for physically disabled people, and also provides funding assistance to support groups and volunteer organizations in Japan's Kanagawa Prefecture involved in social welfare services for the mentally and physically disabled and the elderly. Through these activities, the foundation strives to make a positive contribution to the local community. In fiscal 2008, the foundation logged 24 cases of assistance to support groups, and 14 cases for volunteer organizations.

Volunteers who are creating forests with water sources