

Targeting Further Growth

Safe and Stable Refinery Operation

Steady Innovation to

Due to the Great East Japan Earthquake in March 2011 and an asphalt leak accident in June 2012, the Cosmo Oil Group shut down its main refinery, the Chiba Refinery, for an extended period of time. This resulted in deterioration in the Group's financial position, while serving as a reminder that safe refinery operation is the ultimate foundation of profitability. With a focus on the Chiba Refinery, the Group is implementing various changes to ensure safe refinery operation. Through these efforts, the Group intends to improve the profitability of its oil refining and sales business as well as achieve continuous growth.

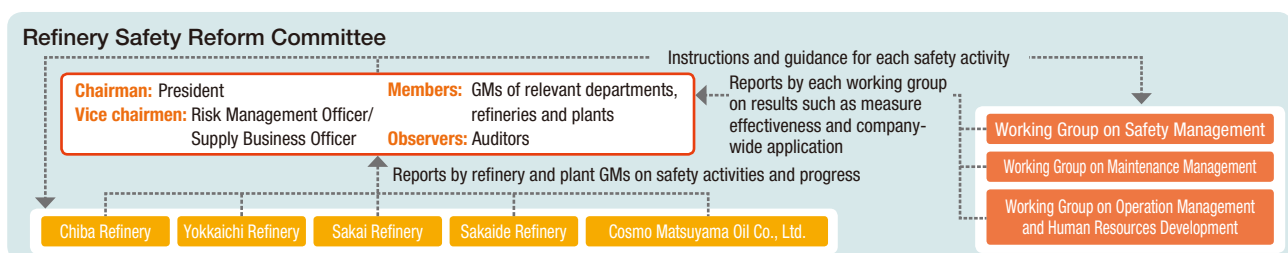
Reforming the Refinery Safety Management System

In order to improve safety management, the refinery safety and environmental administration system was reorganized in fiscal 2012. A Safety & Environment (Control) Office at each refinery was separated into two sections: a Safety Promotion Section which promotes disaster preparedness and safety management within the refinery, and a Safety & Environment (Control) Section which performs environmental management and oversees compliance with laws relating to security and the environment. These two sections are supervised by a new Deputy General Manager at each refinery, thereby strengthening the safety management system.

Creation of a Refinery Safety Reform Committee

The Cosmo Oil Group refineries have been working on the elimination of safety issues through Change 21 Activities since 2006. However, the safety targets were not achieved due to the accident at the Chiba Refinery. Focusing on refinery safety as the Group's most important management issue, the Refinery Safety Reform Committee was established in March 2013 to function as a core organization in tracking, evaluating and revising refinery safety measures through management based on PDCA cycles,¹ aiming to realize safe operations and stable supply.

1. A system for ensuring continual improvement of operation management by implementing four-stage cycles of "plan," "do," "check", and "act."



Road towards Restarting the Chiba Refinery

The Cosmo Oil Chiba Refinery, located in Ichihara City, Chiba Prefecture, was forced to halt operations due to the Great East Japan Earthquake in March 2011 and an asphalt leak in June 2012. Production was increased at the Yokkaichi, Sakai, and Sakaide refineries while operations at the Chiba Refinery were being restored and its safety management system improved.

2011

March 11

Great East Japan Earthquake triggered a fire and explosions at the liquefied petroleum gas (LPG) facilities of the Chiba Refinery. Fire extinguished on March 21 with the assistance of the Ichihara City Fire Department.

April 1

Accident Investigation Committee including outside experts set up.

April 5

Chiba Refinery Recovery Committee launched to ensure the safe and efficient recovery of the LPG facilities, using the findings of the Accident Investigation Committee.

August 2

Accident investigation completed, confirming accident causes and proposing preventive measures: (1) implementation of comprehensive safety inspections; (2) improvement of contingency response; and (3) management of preventive measures and implementation at other refineries.

October/December

Disaster drill conducted on the scenario of a major earthquake followed by a fire, involving 300 people and confirming coordination and communication with nearby companies and the supervisory authorities. Training on providing information to local residents also conducted.



Ensure Sustainable Growth

Renovating the Chiba Refinery and Increasing Long-Term Safety

In order to realize safe refinery operations and stable supply, the Cosmo Oil Group is carrying out various tangible and intangible initiatives. On the tangible side, the Group is strengthening the repair and maintenance of refinery equipment, including a 28-billion-yen investment in the renovation of the Chiba Refinery. Through the repair and updating of an even wider range of equipment, the Group is countering the overall effects of aging and ensuring long-term safety.

As for intangible initiatives, the Group is ensuring safety by using PDCA cycles under the theme of frontline capacity building and legal compliance. With support from outside consulting firms and safety experts, the accidents in fiscal 2011 and fiscal 2012 were thoroughly investigated and operational processes are being redesigned.



Safety Conference on Regular Maintenance

In October 2012, a safety conference was held to reconfirm safety targets for the autumn scheduled maintenance at the Chiba Refinery. It was an opportunity to raise awareness of the goals of safe operations and zero accidents not only within Cosmo Oil, but also at partner companies. (Left: Katsuhisa Ohtaki, General Manager, Chiba Refinery. Right: Safety conference)

Chiba Refinery Safety Management Activities

Equipment initiatives

- Safety patrols indicate equipment hazards and check that corrections are implemented
- Equipment repair and updating carried out according to plan
- Thorough inspection carried out to ensure soundness and reliability of equipment

Safety education and training

- Training on special provisions such as hazard-prevention regulations provided to all employees
- Safety training by outside instructors provided to all employees
- Drill conducted using a large-scale disaster scenario with the Ichihara City Fire Department

Risk assessment

- Risk assessment performed for near-miss accidents and measures taken
- Hazard prediction before the start of operations
- Non-routine work carried out based on thorough awareness of work procedures and risks

2012

January 12

Some refining equipment restarted after safety inspection, backed by united efforts of the entire Group for recovery. Preparation was also carried out for restarting the rest of the facility, based on safety inspections showing thorough safety confirmation.

March 20

No. 2 Crude Distillation Unit (CDU) started up, resuming production of petroleum products from crude oil.

June 28

Asphalt leaked from a tank, some of which spilled into the ocean. The Group took measures including installing an oil fence to prevent further spread, and recovered the leaked asphalt.

July 10

Accident Investigation Committee including outside academic experts and representatives of relevant organizations established.

September 13

Accident investigation completed, confirming accident causes and proposing preventive measures (i.e., enhanced management of maintenance and operation of asphalt tanks).

2013

January 30

No. 2 CDU restarted after it was completely safe, as a step towards full recovery.

May 10

No. 1 CDU restarted for crude oil processing when No. 2 CDU was shut down for regular maintenance.

July 24
Both
CDUs in
operation

Both CDUs in operation after the No. 2 CDU was restarted upon completion of maintenance. This brought crude oil processing back to the level prior to the Great East Japan Earthquake. An increase in revenues is expected due to the elimination of alternative supply costs and the resumption of exports.