

Safety Activities in Fiscal 2007

With the establishment of the Change 21 Activities Promotion Committee, we are striving to reexamine our conventional safety management activities and rebuild our safety management system.

Painstaking Identification of Causes and Lateral Development of Solutions The Refinery Safety Control System

Change 21 Activities are governed by the slogan "Let's build a safe and secure refinery that employees can be proud of and that will enable us to earn the continued trust of society." Guided by the Vision of Goal, "Achieve and maintain zero accidents," we have set a quantitative target to "Achieve over 90% reduction in unsafe and failure incidents by 2010 compared with the base year." During the base year, defined as September 1, 2006 to August 31, 2007, 110 unsafe incidents or malfunctions occurred at the four Cosmo Oil refineries and at Cosmo Matsuyama Oil.

To achieve our goal, we are reviewing maintenance parameters and working to improve the level of maintenance by conducting various inspections. We are also striving to make improvements by reviewing the transition management

framework that governs the implementation of policies to prevent malfunctions when changes in equipment or operations are made.

To reduce malfunctions, it is important to painstakingly identify their causes and remove the seeds of failure. The identification of causes is performed by dedicated inter-workplace teams organized to address specific malfunctions. By assigning designated team members from the refineries and Head Office to undertake this task, the Head Office and refineries work together to identify problem origins.

We believe that the lateral development of solutions is an important way to prevent the recurrence of similar types of malfunctions, and in April 2007, we began to conduct malfunction management using a database accessible to all the refineries. Each refinery can view information on malfunctions reported at other refineries, as well as information on lateral development surveys and countermeasures implemented at each refinery, all in a single database.

Rebuilding the Refinery Safety Management System (Change 21 Activities)

To redevelop our safety management system, we established the Change 21 Activities Promotion Committee, chaired by the director in charge of maintaining safety, reviewed the safety management activities implemented in the past, and added new activities. By establishing working groups and task teams as sub-organizations of this committee, the Head Office and refineries are now able to work in unison toward common goals.

Slogan: "Let's build a safe and secure refinery that employees can be proud of and that will enable us to earn the continued trust of society."

Vision of Goal: "Achieve and maintain zero accidents"—Achieve over 90% reduction in unsafe and failure incidents by 2010 compared with the base year¹

To achieve our goals, we will shift our previous focus from "early detection" to "prevention (zero malfunctions)." In addition, to ensure that these efforts are not limited to top management but extend to the front lines of operations, we are carrying out activities based on the fundamental policy of encouraging individuals to take voluntary actions based on an understanding of the spirit of the measures adopted.

Details of Activities

Improve level of maintenance

- **Improve coverage:** review scope of maintenance, review all regular inspections of machinery, complete early diagnosis of age-related deterioration, review parameters of inspections for any expansion of erosion and corrosion,² among other measures
- **Improve predictability:** review structural changes over the past 10 years, among other measures
- **Improve reliability:** develop equipment with durability to withstand operational variations and disturbances
- **Improve control:** organize basic maintenance materials, among other measures

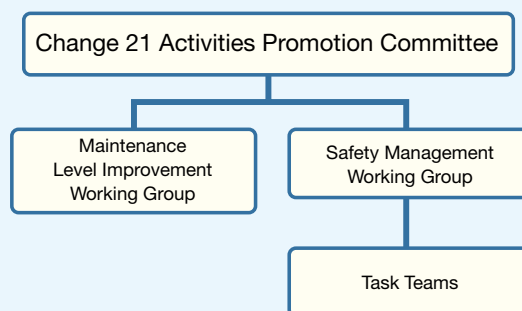
Solid initiatives and operations

- **Optimize regulations and standards:** review control of modifications, etc.
- **Ensure implementation of initiatives:** rebuild framework for the lateral promotion of initiatives
- **Strengthen initiatives:** implement an array of ongoing safety evaluations and other actions

Notes:

1. Base year: September 1, 2006 to August 31, 2007
2. Erosion and corrosion: Repeated collisions of fluid with material results in a thinning effect due to the synergy of erosion, the physical damage caused by the surface being worn down, and corrosion, brought on by acid and other corrosive materials.

Framework of Activities



Numerous Safety Efforts

Safety inspections

The Comprehensive Safety Action Headquarters Committee conducts annual safety inspections of the Cosmo Oil Group workplaces and the departments at the Head Office that manage those workplaces. It directly verifies the safety management status at each workplace and provides guidance and advice for making improvements as necessary. It also strives to ensure good communication with employees on the factory floor. In fiscal 2007, safety inspections were conducted at 12 workplaces and departments, including the four refineries.

During the refinery inspections, we bolstered the verification of the practical implementation of safety measures. The inspection teams included Head Office representatives as in the past, and also members from other refineries, thus allowing the teams to provide more practical guidance and advice for making improvements based on hands-on knowledge. We are also spending more time engaging in practical discussions of the challenges facing the refineries, and will treat these as company-wide challenges that require broad-based solutions.

Zero Accidents Awards

Cosmo Oil grants annual awards to refineries that have achieved zero occupational accidents and zero operational accidents. In 2007, the Chiba Refinery and the Research and Development Center received Zero Occupational Accidents awards.

Message

Utilizing the ideas of young people:
Bottom-up management is the key to revitalization

Yoshihiro Takagi

Manager, Maintenance and Engineering Section, Yokkaichi Refinery



I am a member of the Maintenance Level Improvement Working Group of the Change 21 Activities Promotion Committee, which implements maintenance improvement measures and reports to the Committee on the progress made. The measures taken include the development of policies to prevent the recurrence of the Chiba Refinery accident and early diagnoses of age-related deterioration through inspection reviews of all equipment and investigations of structural changes made over the past 10 years. The age-related deterioration diagnosis consisted of a physical assessment of tens of thousands of pieces of equipment in 83 categories, and was completed last October. We are now in the implementation phase of the process. Because the planning and implementation are being conducted simultaneously, we are following the PDCA cycle on a large scale while also paying attention to smaller scale items. To ensure that maintenance improvement measures are implemented smoothly and effectively, it is important to review and improve routine tasks, and ensure that the personnel who are actually involved in maintenance take a central role in discussions and investigations. Incorporating their feedback ensures that we achieve a bottom-up flow of information—a factor that has helped revitalize the Company's maintenance efforts.

◆ Sites and Companies where Safety Inspections Were Performed in Fiscal 2007

Cosmo Oil	Chiba Refinery
	Yokkaichi Refinery
	Sakai Refinery
	Sakaide Refinery
	Research and Development Center
	Retail Sales Department
	Distribution Department
Subsidiaries and Affiliates	Project Development Department
	Cosmo Matsuyama Oil Co., Ltd.
	Cosmo Engineering Co., Ltd.
	Cosmo Oil Lubricants Co., Ltd.
	Cosmo Petroleum Gas Co., Ltd.

Executives Visit Workplaces

Because the key to our safety management activities is the team of employees working on the front lines, top executives make visits to workplaces around the Group. In fiscal 2007, the president and director in charge of maintaining safety visited workplaces, toured equipment rooms, and spoke with about 500 employees. The director in charge of maintaining safety spoke directly with employees on the factory floor about safety issues while sharing views on safety awareness.



Top executives visit the Chiba Refinery.

Crisis Management

In addition to conducting annual company-wide drills based on large-scale disaster scenarios, we are taking actions to minimize the potential damage from an earthquake epicentered in the Tokyo area or the Tonankai/Nankai region. We are conducting seismic examinations on all buildings regularly used by people, including the Cosmo Oil Group offices and equipment rooms, and are developing and moving forward on plans to upgrade buildings that are currently below seismic resistance standards. We also have conducted drills at the refineries based on hypothetical scenarios involving large-scale disasters and ring fires.¹



Holding a large-scale disaster drill

Note:

1. A ring fire occurs around the inner walls of a tank and is caused by oil leaking from the gap between the floating lid and tank interior of a floating-lid tank, which is used for highly volatile liquids such as oil and gasoline.