

Strict Safety Management

Safety Initiatives

The Cosmo Oil Group prioritizes strict safety management as part of the CSR Initiative Policy for fiscal 2013–2017. Under the Consolidated Medium-Term Safety Plans (Fiscal 2013–2017), the Refinery Safety Reform Committee concentrates on safety management at refineries, with the Group Safety Promotion Committee advancing safety management at the group-wide level. The committees strive to eliminate work-related accidents and incidents in each division and to secure safe operations and stable supply.

Fiscal 2013 Safety Initiatives

Divisions		Highlights of Main Safety Initiatives
Refining and manufacturing	4 refineries and Cosmo Matsuyama Oil	<ul style="list-style-type: none"> Working group activities of Refinery Safety Reform Committee in four areas Safety and environmental inspections p. 19 Cosmo Oil Small Group Initiatives and Proposals (by safety circles at each refinery) p. 19
	Cosmo Oil Lubricants (manufacturer of lubricating oil)	<ul style="list-style-type: none"> Review of work manuals and securing adherence to manuals Enhancement of safety education to raise safety awareness, increase safety, and eliminate work-related accidents
	Cosmo Petroleum Gas (LPG storage/delivery)	<ul style="list-style-type: none"> Safety inspections, legal compliance inspections Safety training for employees and dealers
Distribution	Crude Oil & Tanker Dept. and Petroleum Product Dept. (product import/export)	Crude Oil & Tanker Dept.: <ul style="list-style-type: none"> Safety meeting Crude oil tanker emergency drills p. 19 Petroleum Product Dept.: <ul style="list-style-type: none"> Contingency plan to transfer functions to Cosmo Oil International
	Cosmo Kaiun (sea shipments)	<ul style="list-style-type: none"> On-board safety inspection (implemented 1,069 times) Campaigns for safe docking and undocking (January–March) and pointing and calling for safety (July–August)
	Cosmo Delivery Service (ground shipments)	<ul style="list-style-type: none"> Biannual on-site audits of delivery companies (for all 75 garages) Various training Collection of 20,000 cases of near-miss accidents and provision of feedback
	Oil depots	<ul style="list-style-type: none"> Emergency drills on leaving the berth Preparation of work manuals for each oil depot
Sales and other operations	Sales & Marketing Coordination Dept. (Service Station)	<ul style="list-style-type: none"> Safety patrols at service station construction sites Forum for construction safety at service stations Group-wide inspection for sign poles at service stations p. 19 Education on preventing leakage of underground tanks at service stations
	Research and Development Center	<ul style="list-style-type: none"> Safety “play catch” initiative Systematic hazard prediction training at monthly workplace safety, sanitation, and environmental meetings
	Cosmo Engineering	<ul style="list-style-type: none"> Effective risk assessment hazard prediction including for business partners Safety expert program

Main Safety Initiatives at Refineries

Refinery Safety Reform Committee Established

In March 2013, the Cosmo Oil Group established a Refinery Safety Reform Committee headed by the president, operationalizing the Group’s strong management emphasis on refinery safety and stable operations. The committee focuses on safety management, maintenance management, operation management and human resources development. In each area, the committee identifies and analyzes issues to improve safety infrastructure, and reviews and verifies initiatives and measures.

In fiscal 2013, the committee established a system for ensuring the implementation of plan-do-check-act (PDCA) cycles, emphasizing the visualization of initiatives. Moving forward, the committee will advance practical safety activities and prepare frameworks for accident prevention. In addition, a Safety Caravan program was launched to carry out dialogue between the committee secretariat and production floor employees at each refinery.

Safety Caravan

Objective	<ul style="list-style-type: none"> Verify effectiveness of safety-related initiatives and measures Further raise safety awareness
Description	Secretariat of Refinery Safety Reform Committee engages in dialog with production floor employees at each refinery



Safety Caravan meeting

Strict Safety Management

Safety and Environmental Inspections at Refineries

The Cosmo Oil Group has established the Group Safety Promotion Committee in the Cosmo Oil Head Office in order to advance safety management across the Group. The committee implements safety and environmental inspections for refineries and for Head Office divisions and Group companies. In fiscal 2013, inspections were conducted at 12 sites and divisions, including four refineries.

Cosmo Oil Small Group Initiatives and Proposals

Refineries operate small safety circles in every workplace to facilitate improvements, aiming to achieve safer operations, stable supply, and even better competitiveness. Representative groups from each refinery then gather at an annual presentation meeting to share the results of their activities. The fiscal 2013 meeting included a safety group from Qatar Petroleum Development Co., Ltd.

Key Improvements to Safety and Environmental Inspections at Refineries in Fiscal 2013

- A specialist on the Fire Service Act was added to the refinery inspection team, to provide a valuable third-party perspective so that the team can make effective improvements and provide guidance.
- Instead of conducting separate summary meetings on inspection results for each site, employees of four refineries and Cosmo Matsuyama Oil gathered at the Cosmo Oil Head Office to jointly discuss issues and solutions. This will effectively strengthen the safety and environmental management.



Participants in the group-wide meeting for Cosmo Oil Small Group Initiatives

Safety Initiatives in Transport

Crude Oil Tanker Emergency Drills

An emergency drill was conducted under the scenario of a pirate attack on a crude oil tanker traveling from the Middle East to Japan. The drill was triggered by a simulated emergency call from the company that operates Cosmo Oil's private vessels, with staff assembling on short notice to verify the emergency response and information sharing. Issues that arose during the drills were studied and used to strengthen the emergency response framework.



Safety Initiatives at Service Stations

Group-wide Inspection for Sign Poles at Service Stations

In July 2011, the Cosmo Oil Group started inspection of sign poles at all service stations to prevent topple or collapse of signage. The Group inspected 3,000 poles in two years and conducted repairs and replacement of poles as necessary.

The Group also has established response frameworks for typhoons and other major natural disasters in order to rapidly ascertain damage at service stations, prevent secondary damage from occurring, and quickly restore operations.



Photo courtesy of Asahi Eitic Co.

Industry Collaboration on Industrial Safety

Representing the petroleum refining and wholesaling industry, the Petroleum Association of Japan formulates voluntary action plans to secure industrial safety in Japan. Cosmo Oil is committed to implementing these industry action plans, developing and implementing initiatives to fulfill its social responsibility as a petroleum company.

Highlights of Initiatives Implemented by Cosmo Oil

Period: April 1, 2013 to March 31, 2014

Group-wide Voluntary Safety Initiatives

The secretariat of the Refinery Safety Reform Committee conducts "Safety Caravan" dialogs with production floor employees at each refinery, aiming to improve communication between the Head Office and refineries. Refineries also develop safety frameworks driven by group leaders to ensure their voluntary initiatives perform well.

Safety Management by Cosmo Oil Head Office

The Refinery Safety Reform Committee headed by the president was launched in March 2013. The committee is responsible for securing safe operations and stable supply through management involving the execution of Plan-Do-Check-Act (PDCA) cycles for the progress of refinery safety measures, and to evaluate and improve the measures.

Setting Targets for Industrial Safety

- Fiscal 2014 Cosmo Oil Group Safety Policy: Establish "a culture of safety" for compliance in good faith
- Fiscal 2014 Safety Goal for Refineries: Maintain a record of zero fires, explosions, off-site leaks, major leaks, and serious work-related accidents

Survey and Assessment of Target Achievement and Execution of Measures

Based on the revised target framework, which links group-wide safety targets with refinery measures, the Refinery Safety Reform Committee receives regular reports from refineries and conducts assessments.

Management Commitment to Industrial Safety

The Cosmo Oil Group stands united in its mission to ensure the safe operation of refineries and a stable supply of petroleum products. We are working harder than ever on our CSR initiatives with the goal of earning the complete trust of the public.

(The management commitment was communicated through the Cosmo Oil Corporate Report and other avenues.)

Implementation Plan for Industrial Safety Measures

A. Concrete measures to reduce accidents

1. Facility management (corrosion, etc.)

Collection of reference materials to improve maintenance precision.

2. Preventing human errors

Hazard prevention meetings to identify potential risks in irregular operations, and initiatives to increase safety awareness such as calling out before carrying out operations.

3. Preparation of procedures and manuals

Expansion of existing manuals with the addition of diagrams, photographs, and past troubleshooting examples to facilitate technology transfer to younger operators.

B. Training and drills

Hands-on and emergency drills to raise hazard awareness and case-study meetings on internal and external accidents.

Preventing Industrial Accidents Related to Natural Disasters

- Revision of business continuity plan (BCP) manual: The original plan was redesigned to be applied to the entire supply chain including refineries and service stations, in consideration of disaster scenarios involving the possibility of major earthquakes in Tokyo and the Nankai Trough.
- Upgraded seismic standards for high-pressure gas facilities: Facilities were assessed in order of priority, from the standpoint of preventing damage from a major earthquake and based on experiences in the Great East Japan Earthquake. Necessary seismic upgrades are underway.

Highlights 2013

Chiba Refinery: LPG Tanks Rebuilt

LPG tanks at the Chiba Refinery, which were damaged in a fire that occurred in the Great East Japan Earthquake (March 2011), restarted operation in July 2013 after completing reconstruction in May 2013 with modifications to address the causes of the fire. The tanks were originally full at the time of the earthquakes and toppled over, causing piping to break and leaking LPG which caught fire. The eight LPG tanks that were not damaged in the earthquake also received the same modifications.



Modifications to Prevent Future Accidents

- Raised the seismic standards for full tanks
- Redesigned the piping to have greater tolerance for expansion and contraction
- Separated areas where pipes branch off, so that the sections are independent of each other
- Added piping cutoffs for when tanks are full
- Improved the sprinkler piping
- Redesigned emergency shutoff valves to operate independently
- Installed a flammable gas detection and warning panel
- Improved the emergency operation system
- Improved the footing to address liquefaction

Chiba Refinery: Centralized Smokestack Repainted

After accidents in 2011 and 2012, the Chiba Refinery suspended operation for an extended period before recently restarting. To show again the determination to ensure safe and stable operations, the centralized smokestack was repainted for the first time in 20 years. Under the six programs of the Consolidated Medium-Term Management Plan, the Group is investing ¥28 billion in refurbishments of the Chiba Refinery to address overall infrastructure aging.



Photo courtesy of Nippon Paint Co., Ltd.

Sakaide Refinery: Dismantling of Refining Equipment

As part of changes to the Group's supply framework, all refining operations at the Sakaide Refinery were shut down in July 2013 to convert the facility into a distribution terminal. The refining equipment will be dismantled in two years. Very rare in Japan, this is the first such project to be

undertaken by the Cosmo Oil Group. Now called the Sakaide Distribution Terminal, the facility will partner with Cosmo Engineering Co., Ltd. to take every safety precaution in carrying out the project, working closely with administrative agencies and business partners.

Voice

Mitsuharu Matsumoto
Oil Terminal Section, Sakaide Distribution Terminal, Cosmo Oil Co., Ltd.

The dismantling project is already one-third completed as of June 2014. I was involved with operating the refining equipment for some 40 years since joining the company, so it is somewhat sad to be dismantling it.

When we first started the project, the dismantling subcontractors were not familiar with the refining equipment or the rules at our site, causing repeated unexpected actions. We corrected these actions by training and ensuring adherence to our site rules, for everyone from the foremen and supervisors of the general contractor to the workers. We are now working smoothly together with excellent communication, sharing information at daily progress meetings and construction safety meetings for key operations.

The dismantling project requires a lot of cutting using gas burners. Despite our initial concerns about residual hazardous substances such as petroleum and flammable gases, almost none have been detected through residual oil checks and gas detection. The dismantling is going smoothly because our colleagues took great care in shutting down the equipment, knowing the purpose and methods by which we would be dismantling the operations. We will make every effort to see that their efforts do not go to waste and finish the project without accidents.

