# Aiming to Meet Higher Targets: Implementing the PDCA Cycle at Each Division Including Oil Refineries

## Action Plan and Results for FY 2001

The action plan and the results up to the end of FY 2001 are shown in the table below. As to the environmental management system, we will establish a system to implement the PDCA (Plan-Do-Check-Action) cycle*1 from FY 2002, not only at oil refineries but also at other departments including the headquarters, oil storage depots and Research and Development Center. We drew up "Blue Earth 21"*2, a medium-term environmental plan for the period FY 2002-2004, and set targets for nine principal themes.

*1 See page 6.
*2 See page 7.

| Action Plan | | Results | Related theme of Blue Earth 21 |
|---|---|---|---|
| Theme | Target | FY 2001 Results (Related page) | |
| Promotion of energy conservation | To control emissions of $CO_2$, a cause of global warming, energy conservation will be promoted, with a target of reducing crude oil energy consumption units at oil refineries by FY 2010 to 10% below FY 1990 levels. | Reduction in FY 2001 to levels 9.1% below FY 1990 levels. Investment for energy conservation purposes is being made to meet the target. (Page 19) | (日) |
| | To reduce the amount of fuel used for the land and domestic ocean transport of petroleum by FY 2010 to 9% below FY 1990 levels. | By the continued move toward larger, more efficient vehicles and vessels, FY 2001 figures for land vehicles were 17% below FY 1990 levels, while ocean transport fuel use was 15% below FY 1990. (Page 33) | (日) |
| Promotion of environmental protection | Reduction of the final disposal of industrial wastes generated from oil refineries to 67% of FY 1990 levels by FY 2010. | Successful reduction in FY 2001 to 78.4% of FY 1990 levels. (Page 21) | (月) |
| | To not simply meet regional emissions standards for the emissions of pollutants such as SOx, NOx and COD, but to strive for a higher level of reduction. | Pollutant emissions are already far below the regulatory standards. Continued efforts will be made to reduce emissions. (Page 20) | (月) |
| Promotion of environmental protection activities at service stations | Promotion of resource and energy conservation at service stations. | Environmentally friendly uniforms made from recycled PET plastics were developed (certified as an Eco Mark product). The uniform will be introduced to service stations from FY 2002. Solar panels were installed at ten service stations in order to save energy. (Page 34) | (水) (日) |
| | Fostering of environmental awareness in service stations. | "Service Station Facilities Operation Manual" which features approaches to environmental issues (PRTR Law, Industrial Waste Disposal Law, etc.) was prepared and distributed to special agencies, service stations, and dealers. (Page 34) | (祝) |
| Promotion of green activities in the offices | Promotion of resource saving and recycling through the implementation of a paperless office. | Paperless operations through positive use of office automation equipment, green purchase of office supplies, and waste paper recycling are being promoted. (Page 35) | (水) |
| Research and development<br>• Technological development in the primary petroleum business | Promotion of the development of high-performance desulfurization catalysts. | High-performance catalyst with the potential for the production of diesel fuel with sulfur levels of 50 ppm has been developed and is undergoing performance evaluation at the Sakaide Oil Refinery. Further efforts will be made in the development of higher-performance catalysts. (Page 12) | (土) |
| • New energy | Promotion of the development of new energy technologies. | High-performance catalyst for the efficient production of liquid fuel from natural gas has been successfully developed for industrial use. (Page 14) Steady progress has been made in the testing of fuel cell systems using petroleum-based fuel. (Page 13) | (土) |
| • Development of environmental technologies for industries | Promotion of the development of wastewater treatment technologies. | At Sakaide Oil Refinery, preparation for a performance evaluation of a technology to reduce the volume of excess sludge generated during the wastewater treatment process has been completed. (Page 10) | (土) |
| | Promotion of the development of soil remediation technologies. | A new method to evaluate the applicability of soil remediation technology using microorganisms has been developed and demonstration tests have been carried out. (Page 10) | (土) |
| | Promotion of the development of hydrocarbon vapor recovery technologies. | An adsorbent for the recovery of hydrocarbon vapor that can be used with non-petroleum solvents such as organic solvents has been developed. (Page 15) | (土) |
| Social action and public relations activities | Active promotion of social action programs and transmission of information about Cosmo Oil's environmental activities both internally and to the public. | A variety of social action programs including support activities for traffic-accident orphans and physically handicapped people were implemented. (Page 39) Information has been disclosed on the company website and various periodicals. (Page 42) | (祭) |
| International cooperation | Efforts for environmental protection, energy conservation, and promotion of safety management technology for pollution prevention overseas, taking advantage of the company's personnel and technology. | In 2001, 53 interns from six countries, which were mainly Asian and Central American, were invited and four specialists were dispatched overseas. (Page 41) | (祭) |
| Emergency countermeasures | Implementation of countermeasures to ensure minimal environmental impact in emergencies. | Maintenance of emergency facilities has been carried out; accident prevention training and education is being made on a regular basis; and preparations have been made for the rapid deployment of appropriate measures in case of emergencies. (Page 32) | (祝) |