



Toxics Management

Overview of Environmental Agent Management

Environmental agents are an all-pervasive part of our society. To avoid harm to the environment and human health, the EPA plans to utilize its limited management resources to strengthen oversight of these agents, conduct more public awareness work, and establish an online management system.

Regulations and Systems

Taiwan's location in the subtropical zone means that disease-carrying pests and microbes proliferate readily. The environmental agents needed to control disease vectors are thus important everyday products for Taiwan's population. In spite of their importance, the mis-

use and abuse of these products often harms the environment and may even cause health risks. To give readers a better understanding of our management of environmental agents, for this issue we have interviewed Tung Te-po, director general of the EPA Bureau of Environmental Sanitation and Toxic Chemicals Control, and let him explain the country's environmental agent management system and policies.

Yuan, this act was implemented on November 10, 1997.

So-called environmental agents consist of three classes of substances: (1) environmental sanitation pesticides, (2) agents used for pollution prevention, and (3) microbial preparations used as environmental agents. Types of enterprises managed under the *Environmental Chemical and Biological Agents Control Act* include (1) the environmental agent manufacturing industry, (2) environmental agent vendors, and (3) disease vector control firms.

Environmental agents are regulated in a way similar to that of other chemical agents. The environmental agent management system primarily consists of a registration and permit system, an operation management system, and an oversight and inspection system:

Registration and permit system: Product information must be submitted to the EPA and a registration application made whenever environmental agents are manufactured, processed, or imported. Such agents may be manufactured or imported only after a permit has been issued. For their part, environmental agent vendors and disease vector control firms must also obtain a permit from the local competent authorities before engaging in business.

Director General Tung emphasized that although Taiwan enacted the *Environmental Chemical and Biological Agents Control Act* (環境用藥管理法) on November 10, 1997, the management of environmental agents in fact dates back to the *Regulations Governing Pesticides Used for Environmental Sanitation Purposes* (環境衛生用殺蟲劑管理辦法), which were announced by the Ministry of the Interior in 1967. Rodenticides and fungicides were subsequently regulated with the Department of Health's announcement of the *Regulations Governing the Management of Chemical and Biological Agents Used for Environmental Sanitation Purposes* (環境衛生用藥管理辦法). The EPA proposed the draft *Environmental Chemical and Biological Agents Control Act* (環境用藥管理法) in 1990 in response to legal changes, and after passage by the Legislative

In this Issue

Overview of Environmental Agent Management	1
Assistance for VOC Emissions Reduction Yields Results	4
Restrictions on Plastic Bags and Disposable Dishes Coming	4
Preliminary Assessment Regs for Control Sites Drafted	6
Motor Vehicle Noise Standards to be Tightened	7
Marine Pollution Control Capabilities Upgraded	8
Formosa Plastics Completes Treatment of Mercury Sludge ...	9
Establishment of EPA's Chief Inspection Team	10
GPS to be Installed on Hazardous Waste Transport Vehicles	11
EPA Reiterates Scrap Metal Import Controls to Continue ...	12
Environmental Activities	9, 10
News Briefs	7, 11

Operation management system: After environmental agents have been registered, granted a permit, and gone on sale, the management focus shifts to operations involving the agents, including manufacturing, mixing, packaging, storage, placement, labeling, and advertising, etc.

Oversight and inspection system: Environmental protection units may send personnel bearing verifying documentation to places where environmental agents are used for the purpose of performing necessary checking and inspection of samples.

Effective Management

Although the country's environmental agent management system has gradually attained a state of maturity, Director General Tung noted that the resources the EPA can devote to the management of



To maintain safety, close tabs must be kept on a wide variety of environmental agents

environmental agents are actually extremely limited. As far as manpower is concerned, only one division of the EPA Bureau of Environmental Sanitation and Toxic Chemicals Control is responsible for the overall environmental agent management system and the drafting of policy. Moreover, since management of environmental agents is only one of the many duties of local government, it is difficult for local authorities to accumulate much experience in this area.

Furthermore, funding for environmental agent management is very meager in comparison with other environmental protection services. After the *Environmental Chemical and Biological Agents Control Act* was enacted, the total environmental agent budget was NT\$4.83 million in 1998, and rose to NT\$7.58 million in 1999 due to more research spending and local subsidies. The budget was NT\$10.6 million in the second half of 1999 and all of 2000, NT\$4.56 million in 2001, and will be NT\$6.21 million in 2002 (see table).

As far as the current state of management is concerned (as of April 8, 2002), the EPA has approved a total of 691 permits, including 434 manufacturing permits and 257 import permits. In addition, county and city environmental protection bureaus have issued a total of 225 environmental agent sale licenses and 421 disease vector control licenses.

Recent Annual Budgets for EPA Environmental Agent Management

Fiscal Period	Administrative services (NT\$)	Technology projects (NT\$)	Local Government Subsidies (NT\$)	Total (NT\$)
Jul '97 - Jun '98	4,025,000	0	800,000	4,825,000
Jul '98 - Jun '99	4,025,000	550,000	3,000,000	7,575,000
Jul '99 - Dec '00	5,558,000	1,412,000	3,612,000	10,582,000
Jan '01 - Dec '01	3,120,000	1,440,000	0	4,560,000
Jan '02 - Dec '02	4,210,000	2,000,000	0	6,210,000

Note: The Executive Yuan took over responsibility for allocating all subsidies for local governments in 2001.

Environmental protection units are continuing to keep tabs on permit-holding businesses. Taking 2001 as an example, inspections were performed of 665 firms. In addition, 14,660 environmental agent packaging items and container labels were inspected. In the case of the 123 items that failed to meet standards, the original manufacturers were requested to recall the products and make improvements before the given deadline.

The EPA also oversees environmental agent education and awareness work performed by local authorities, and produces environmental agent user handbooks intended to make the public better informed about the use of these chemicals. The EPA's updated environmental agent manufacturing and import permit overview and query CD-ROM serves as a procurement reference for environmental protection units.

Furthermore, as part of the promotion of e-government, the EPA has established a database for the management of environmental agents enabling the effective management of environmental agent permits and licenses; this database can also be used to simplify administrative procedures and streamline management tasks. Finally, the public can use the Environmental Agent License and Disease Vector

Control Industry Online Query System located on the EPA website's to find out about legally-registered agents, disease vector control firms, and environmental agent vendors.

Simplifying Procedures

Keeping pace with Taiwan's WTO membership and the roll-out of e-government, the EPA is in the midst of instituting new measures to make administrative procedures concerning environmental agents simpler and more convenient. The EPA's ultimate goal is to achieve the most effective possible management of these agents.

The new measures are aimed at both the general public and at environmental agent firms. Apart from stepping up public safety awareness concerning environmental agents, the EPA is also using the Internet to provide several relevant online services, and is improving dialogue with environmental agent firms. Specific measures being taken by the EPA include:

- Simplification of the format of environmental agent reporting forms: The EPA has combined four types of reporting forms as a single form, and revised the *Guidelines for the Approval of Environmental Agent Permit Applications* (環境用藥許可證申請核發作業要點), simplifying application materials and strengthening public service.
- In accordance with the toxicity and chemical characteristics of specific environmental agents, the EPA is now requiring warnings and precautions on environmental agent product labels, and requires graphic symbols to illustrate these.
- The establishment of an Environmental Agent License Extension and Application Notification Online Query

System will permit enterprises to search for license validity periods and expiration dates, and will remind firms to quickly apply for extensions. The EPA hopes to avoid the harm to firms and the public interest that may occur if permits are allowed to expire.

- An Environmental Agent Management Information System has already been established and is making the management of environmental agent permits and licenses more efficient. This system, which offers edit, query, statistical analysis, file transfer, and printing functions, will simplify management and administrative procedures.
- The establishment of an Environmental Agent License and Disease Vector Control Industry Online Query System will allow the public and local governments to conveniently query environmental agent permit information as a reference for their purchasing decisions. Members of the public can also go online to find information on approved disease vector control firms and obtain legal and safe pest prevention services. This query system can be found at <http://www.epa.gov.tw/j/envagent/>.
- The EPA is strengthening oversight of environmental agents on the market. The items the EPA checks or investigates include prohibited, phony and substandard environmental agents, labeling on environmental agents, active components of environmental agents, environmental agent manufacturers and vendors, disease vector control firms, and advertisements for environmental agents. The goal of oversight is to safeguard the quality of environmental agents

and ensure that customers use them safely.

- Printed by the EPA, the "Environmental Agent Permit Application Question and Answer Handbook" provides clear explanations of relevant laws, elucidates their practical applications, and helps vendors avoid permit application misunderstandings, reducing the application rejection rate.
- The EPA has performed a general survey of environmental agent manufacturers and established a list of relevant firms. In conjunction with local environmental protection bureaus, the EPA is visiting these firms and providing assistance. A planned "Environmental Agent Electronic Bulletin" will automatically send firms information on environmental agents and increase their knowledge of legal regulations and government orders.

Apart from these new public service and simplification measures, the EPA also plans to perform strict reviews of applications for environmental agent permits to ensure that the agents are being used safely. A careful review of environmental agent labeling will help safeguard consumers. The EPA continues to print a variety of environmental agent safety handbooks for free distribution to the public. The EPA, together with local environmental protection units, also holds public meetings to explain the correct use of environmental agents to improve environmental sanitation and eliminate disease vectors such as mosquitoes and flies. By using environmental agents properly, it will be possible to cut back on their use and achieve better environmental protection.

For more information, please call 02-2311-7722 ext. 2860 and 2865.

Air Quality

Assistance for VOC Emissions Reduction Yields Results

The problem of odor and environmental pollution created by VOC emissions has steadily worsened in recent years. The EPA, having already targeted the semiconductor industry, polyurethane synthetic leather industry, dry cleaners and other industries that release large volumes of VOC, will continue to revise VOC emissions standards and provide pollution control guidance to industry.

The Industrial Technology Research Institute (ITRI), working on behalf of the EPA, continued with its efforts to help industries that generate large volumes of volatile organic compounds (VOC), such as the electronics industry, polyurethane (PU) synthetic leather industry and dry cleaners, reduce their VOC emissions in 2001. In the same vein, the EPA carried on with the formulation of air pollution controls and emissions standards for the electronics industry not including the semiconductor sector, and devised demonstration plans for the establishment of treatment facilities for organic waste gases and continuous emissions monitoring (CEM) facilities for VOC emissions.

In 2001, a total of 215 enterprises were helped through these efforts to assist stationary pollution sources cut their emissions of VOC. Those benefiting from this assistance included semiconductor foundries, PU synthetic leather factories, plastic bag makers, dry cleaners, liquid crystal display (LCD) factories, light emitting di-

ode (LED) manufacturers and CD-ROM plants. It is estimated this work will cut Taiwan's annual VOC emissions by 11,000 kilotons. The EPA also conducted three demonstration workshops regarding treatment technology for organic waste gases which the EPA helped with the development of in 2001. These included demonstrations of ozone scrubbers, CEM facilities and bio-filters.

Research conducted as part of efforts to assist manufacturers of CD-ROM utilize treatment technology for organic waste gases shows that wet chemical scrubber systems can achieve a removal rate of 80%. Incineration following concentration combined with treatment by wet chemical scrubbers can further attain a rate of 90%. However, as this pollution control method costs NT\$ 300 to NT\$ 400 per kilogram, researchers suggests that CD-ROM makers should instead decrease their use of fluorine containing organic chemicals, increase their production efficiency, and adopt clean production technology in order to achieve the goal of limiting VOC emissions.

The EPA has also assisted the petrochemical industry in setting up CEM systems for VOC. Following research and field testing, the EPA has revised the draft of *Management Guidelines for the Continuous Emissions Monitoring Facilities of Stationary Pollution Sources* (固定污染源空氣污染連續自動監測設施管理要點). These revisions, intended to provide reference data for the implementation of VOC CEM regulations, include the addition to Appendix 7 of *Standards for Non-methane Total Hydrocarbons Monitoring Facilities* (非甲烷總碳氫化合物監測設施之規範) and *Quality Assurance Standards for the Volatile Organic Compounds Continuous Emissions Monitoring Facilities of Stationary Pollution*

Sources (固定污染源揮發性有機物連續自動監測設施品質保證作業規範) .

An EPA survey estimates that Taiwan's electronics industry generates total VOC emissions of approximately 3,000 kilotons per year. This survey reveals that the primary sources of this pollution are integrated circuit makers, optical electronics manufacturers and printed circuit board makers. Emissions standards for the semiconductor industry have already been extended to cover integrated circuit makers and a draft of emissions standards for printed circuit board makers has been completed. As optical electronics manufacturers produce VOC emissions of around 1,100 kilotons yearly, the ITRI has devised the *Air Pollution Control and Emissions Standards for the Optical Electronics Industry* (光電製造業空氣污染管制及排放標準草案) within its report. This draft proposes introducing controls on the VOC and inorganic acid emissions of optical electronics makers over two stages. The EPA also plans to revise the *Air Pollution Control and Emissions Standards for the Semiconductor Industry* (半導體製造業空氣污染管制及排放標準) by adding emissions controls on PH₃ and arsenide.

For more information, please call 02-2311-7722 ext. 2770.

Waste Management

Restrictions on Plastic Bags and Disposable Dishes Coming Soon

The EPA is planning the introduction of restrictions on the use of plastic shopping bags and plastic (including polystyrene) disposable

dishes so as to change prevalent throwaway consumer habits and promote the reuse of resources. These bans are expected to reduce trash volume at its source and take Taiwan a step further towards its goal of sustainable development.

The EPA now plans to implement its restrictions on the use of plastic shopping bags and plastic (including polystyrene) disposable dishes over two stages. The first set of regulations, which targets shops at government agencies, schools, state-run enterprises and military installations, will be formally introduced on July 1. The second set of regulations, scheduled for introduction on January 1, 2003, will see the targets of these bans expanded to include department stores, retail mega stores, franchised supermarkets, convenience store chains, fast food franchises, and other food and beverage establishments (not including street vendors).

Regulations detailing these plastic shopping bag restrictions stipulate that targeted retailers will be absolutely prohibited from providing consumers with plastic shopping bags made of PE, PP, PS, or PVC and with a thickness of less than 0.06 mm. These retailers will also not be permitted to offer for free to consumers plastic shopping bags made of PE, PP, PS, or PVC and with a thickness of 0.06 mm or greater. However, the sale or use of plastic bags will not be re-

stricted when these bags are sold as a product (such as trash bags), are used to wrap fresh meat and produce, are used to package products, such as bread, directly produced by a store, or are used as drug prescription bags at medical facilities.

The plastic (including polystyrene) disposable dish restrictions will prohibit targeted food and beverage establishments from providing plastic (including polystyrene) cups (not including cup lids, seals or holders), bowls (not including bowl lids), plates, saucers, and meal boxes and meal box inner trays. However, these regulations will allow retailers to use disposable dishes when they are used to pre-package food to be offered for sale as products on store shelves.

EPA statistics show that Taiwanese consumers use approximately 20 billion plastic shopping bags every year. This translates into about two and a half bags per person per day. In addition, diners in Taiwan purchase about 17.7 million carryout meals per day. Through this carryout lifestyle, approximately 59,000 kilotons of disposable dishes are consumed annually.

Plastic shopping bags and disposable dishes, because they often contain leftover food grease, are not ideal for recycling and, therefore, have a low reuse value. However, if not properly disposed of, these bags and dishes end up as unsightly litter and clog sewer

systems. On the other hand, creating such a massive volume of plastic waste, even the proper disposal of these bags and dishes lowers the efficiency of municipal waste incinerators by pushing incinerator heat values to excessive levels. Faced with this dilemma, the EPA, under the authority of Article 21 of the *Waste Disposal Act* and in line with the resolutions regarding restrictions on the use of plastic bags, Styrofoam and disposable dishes passed by the Legislative Yuan, has adopted the strategy of introducing these use-restriction policies in stages and gradually expanding their scope in order to ensure that they are truly effective in curtailing this excessive consumption at its source.

The EPA predicts that the implementation of the first set of use-restriction regulations will lead to a 6.56% reduction in the use of plastic shopping bags and a 3.57% decrease in the use of plastic (including polystyrene) disposable dishes. It expects the second set of regulations, after one year of implementation, to further cut the use of plastic shopping bags by 24.3% and the use of plastic disposable dishes by 34.15%. With a cumulative decrease of 30.86% for plastic shopping bags and 37.72% for plastic disposable dishes, these two sets of regulations are forecast to reduce the use of plastic raw materials by 36,000 kilotons annually.

The EPA looks forward to the participation and support of all elements of society, from enterprises to individual citizens, in making sure that these policies are successfully implemented. This will help gradually replace prevalent throwaway consumer habits with an environmental consciousness and take Taiwan one step further towards its goal of sustainable development.

For more information, please call 02-2370-5888 ext. 3603.



Restrictions on plastic shopping bags and disposable dishes are aimed at weaning consumers off their throwaway habits.

Soil and Groundwater

Preliminary Assessment Regulations for Control Sites Drafted

The EPA has completed its draft of *Regulations for the Preliminary Assessment of Control Sites*. These regulations, which layout criteria for evaluating whether pollution sites are required by law to be listed as remediation sites and undergo subsequent cleanup work, are scheduled to be implemented before the end of June.

The EPA has completed its draft of *Regulations for the Preliminary Assessment of Control Sites* (控制場址初步評估方法). Formulated in line with Article 11-3 of the *Soil and Groundwater Pollution Remediation Act (SGPRA)*, these regulations will help assess whether soil and groundwater pollution control sites or groundwater pollution use-restriction areas are required by law to be listed as remediation sites and undergo subsequent cleanup work.

There are three stages of preliminary assessment for control sites. The first stage provides six criteria for conducting preliminary assessments of whether pollution from a control site has affected nearby areas. These criteria are whether soil pollution concentrations within a 50-meter radius of the site exceed standards, whether groundwater pollution concentrations within a one-kilometer radius of the site exceed standards, whether the site is located within either a drinking water source protection area, a reservoir watershed area or a residential area, and whether the site is an area used for the

production of edible agricultural products. If a control site meets any one of these criteria, it will be listed as a remediation site. If a site does not meet any of these criteria, then it will be subjected to the second stage of preliminary assessments.

The second stage requires that a control site be listed as a remediation site if the concentration of any one pollutant at the site exceeds soil and groundwater pollution control standards by 30 times. If the concentrations of pollutants are all within 30 times these standards, the site will be subjected to the third stage of preliminary assessments.

The third stage evaluates a control site's status through a calculation of soil and groundwater pollution

concentrations. In addition, in pollution areas, these regulations also provide a three-stage method similar to the one for soil pollution control sites. These regulations require that a pollution remediation plan be drawn up for any use-restriction area that has been determined through these criteria to present a potential threat to public health and the living environment.

The above T_s values are calculated based on the concentration of heavy metals, hydrocarbons and persistent organic chemicals in the soil at these sites. The T_{gw} values are derived through a calculation of the concentration of heavy metals, hydrocarbons and other designated pollutants in the groundwater at these sites. Finally, a special formula is used to calculate the P value from the T_s value and T_{gw} value.

The EPA has for the most part completed its formulation of regulations related to the *SGPRA* and expects to implement these regulations before the end of June of this year.

concentrations. A special formula is used to calculate a site's total pollution value (P value) based on the degree to which soil pollutant concentrations exceed soil pollution standards (T_s) and the degree to which groundwater pollutant concentrations exceed groundwater pollution standards (T_{gw}). A control site will be listed as a remediation site if its P value meets or exceeds 20 points and will remain a control site if this value falls under 20 points.

A control site that has been determined through these preliminary assessment criteria to pose a potential threat to public health and the living environment must be formally listed as a remediation site.

For the preliminary assessment of groundwater pollution use-restric-

The EPA has also drafted the *Designated Regulated Enterprises under Article 8-1 of the Soil and Groundwater Pollution*



Preliminary assessments of pollution control sites must be carried out in the future.

Remediation Act and Designated Regulated Enterprises under Article 9 of the Soil and Groundwater Pollution Remediation Act. These regulations are intended to accumulate soil pollution historical data and clarify pollution remediation responsibility.

The EPA's draft of Article 8-1 targets 61 types of operations including dyeing enterprises, makers of wood products, printing enterprises, basic chemical material makers, passive component manufacturers, and electricity generation enterprises. Under this draft, these enterprises will be required to provide soil pollution analysis data when they transfer land to another party.

A total of 116 types of operations are designated under the draft of Article 9. These include dyeing enterprises, printing enterprises, basic chemical material makers, petrochemical raw material manufacturers, petrochemical refineries, steel smelters, computer components enterprises, semiconductor foundries, automakers, electricity generation enterprises, and filling stations. Under this draft, these operations will be required to provide local competent authorities with soil pollution analysis data for the land they use when establishing operations, temporarily halting operations, or when permanently shutting down operations. This data will be kept on record by local competent authorities.

The EPA has for the most part completed its formulation of regulations related to the *SGPRA* and expects to implement these regulations before the end of June of this year. This will allow the EPA's soil and groundwater pollution remediation work to advance to a higher level.

For more information, please call 02-2311-7722 ext. 2277.

Noise Control

Motor Vehicle Noise Standards to be Tightened

The EPA plans to implement stage 3 motor vehicle noise control standards in July 2003, putting Taiwan's standards on the same level as those in the US, Europe, and Japan. Even stricter than the stage 2 standards currently in force, the stage 3 noise standards promise to significantly lower vehicle noise. Noise testing methods are also being revised to put them in line with those used in the EU.

Taiwan promised to accept auto and motorcycle noise test reports from the EU within two years when it gained accession to the WTO. The EPA has studied existing European, American, and Japanese noise control laws as a basis for revising Taiwan's current vehicle noise control standards and drafting the *Stage III Motor Vehicle Noise Control Standards* (機動車輛噪音管制第三期標準), which will be implemented starting in July 2003.

Taiwan's stage 2 noise control standards were first implemented nearly a decade ago in 1993. In comparison with the noise standards of the EU and Japan, Taiwan's standards are excessively loose and clearly behind the times. In addition, the country's current CNS auto and motorcycle noise testing methods are inconsistent with those used in the EU. It will surely be necessary to perform a full-scale review and revision of noise control standards and testing methods if Taiwan is to accept EU auto and motorcycle noise testing reports, as it has promised to do. Apart from the new noise control standards to be

implemented in July 2003, the Bureau of Standards, Metrology and Inspection, MOEA, is currently revising the country's existing auto and motorcycle noise testing methods in order to harmonize CNS testing standards with those employed in the EU.

The EPA explained that because both noise standards and testing methods are stricter in Europe, America, and Japan, the majority of imported vehicles will meet the stage 3 noise control standards currently being formulated. Domestic motor vehicle manufacturers will need to upgrade their manufacturing technology to meet the new standards if they wish to maintain their competitiveness now that Taiwan has gained accession to the WTO. Hoping to ease the impact of WTO, the EPA will listen to the views of these domestic manufacturers, formulate an appropriate time frame for implementation, and may allow a transition period in which firms can adopt the new testing methods.

For more information, please call 02-2311-7722 ext. 2790.

EPA Recommends 18 SULEV Vehicles

The EPA recently released statistics revealing which automobile models passed its 2001 emissions inspections. Among those that passed, eighteen models even met the world's most stringent auto emissions standards: California's SULEV (Super-Ultra-Low-Emission Vehicle) standards. SULEV standards require NOx emissions of 95% less than Taiwan's current stage 3 standards. Domestically-made cars made the SULEV list for the first time this year—namely the Yulon NS16 ES Sentra 1.8 and the Ford Tierra C206-2X 1.6—which shows that the domestic auto industry is paying greater attention to environmental protection. The EPA emphasizes that it intends to keep raising the environmental protection standards of domestic vehicles by drafting even stricter stage 4 emission standards in the future. The stage 4 standards will parallel those in the leading industrialized nations.

Water Quality

Marine Pollution Control Capabilities Upgraded

The EPA gained abundant practical experience in the aftermath of the Amorgos oil spill, and it has applied this experience in enhancing Taiwan's marine pollution emergency response capabilities. These capability upgrades include the training of 95 "seed officials" and the acquisition of necessary emergency response equipment. The EPA has also promulgated the *Marine Environment Pollution Clearance and Disposal Regulations*. These regulations put in place clearance and disposal techniques to be applied in the case of a marine pollution incident.



A marine pollution emergency response exercise underway in Taipei Harbor.

requirements, Taiwan's first mission is to establish basic response capabilities.

As a vital part of these upgrading efforts, the EPA has trained 95 "seed officials" over the course of the last year. This team of officials, made up of 25 on-site officials and 70 first-line response coordinators, is responsible for the training of other personnel and the management of emergency response efforts. They have been

field exercise overseas. These events were intended to expand emergency response capabilities to local government agencies. The frequent exchange of experience and the enactment of exercises will lead to the development of models for cooperation and coordination between different agencies.

The results of the first year of this emergency response upgrading plan have been excellent. For instance, Coast Guard Administration personnel, based on their training experience, conducted four marine pollution exercises, one each in northern, central, southern and eastern Taiwan, in December 2001. These drills have led to significant improvements in the Coast Guard's immediate response capabilities. In addition to these drills, local environmental protection bureaus have also scheduled over ten exercises this year. All of this work is intended to prevent the recurrence of a disaster such as the Amorgos oil spill.

Apart from the above endeavors, the EPA also implemented the *Marine Environment Pollution Clearance and Disposal Regulations* (海洋環境污染清除處理辦法) on March 6. These regulations explicitly state that the methods with the lowest possible environmental impact should be adopted when engaging in marine pollution clearance and disposal

Taiwan's first mission is to establish basic response capabilities.

Soon after Taiwan's *Marine Pollution Control Act* (海洋污染防治法) was promulgated in November 2000, the freighter Amorgos accidentally ran aground in the waters of the Kenting National Park in January 2001. The severe marine pollution caused by this accident highlighted the urgent need to enhance the marine pollution emergency response capabilities of related personnel.

EPA reviews show that all of the training courses provided by international maritime organizations take as a precondition the complete establishment of basic response organizations and basic infrastructure, making them inappropriate for use in Taiwan. Therefore, lacking these basic

drawn from the Coast Guard Administration, the various harbor bureaus under the Ministry of Transportation and Communications, the Ministry of the Interior's Kenting National Park Headquarters, the EPA, local environmental protection bureaus and the state-run Chinese Petroleum Corp. The EPA has also allocated funds for the procurement of necessary emergency response equipment. Equipment for the handling of small-scale spills has been placed at transport and storage bases for petroleum products and chemicals and major harbors.

The EPA has also conducted two seminars for domestic and overseas professionals, one simulation exercise in Taiwan, and one in-the-

work. They further stipulate that, for pollutants that have a serious impact on marine water quality, emergency response personnel should grant priority to handling methods which allow for the recovery of these pollutants, and that they should move with the utmost haste in controlling the pollution source and containing the pollution in order to prevent the scale of the disaster from spreading. Also, handling methods that meet the requirements of the *Waste Disposal Act* must be adopted for pollutants that are regulated as waste materials.

Oil dispersants that are permitted under regulations for environmental agents may be used to break up oil pollutants that pose a threat to the marine ecology or coastal facilities. Also, the burning of pollution slicks, as long as it does not violate air pollution control regulations, is permitted when major oil spills occur in non-turbulent waters and it is impossible to immediately recover the pollution.

These regulations require that special care be taken when handling pollution within tidal zones and that ecological rehabilitation also be considered. Tidal zones have been divided into five categories—sand beaches, pebble beaches, wetlands, lagoons and coral reefs—and manual or mechanical clearance methods have been designated for each of these categories. These methods should avoid impacting biological organisms in the area and the creation of secondary pollution.

The EPA stresses that all organizations, whether governmental or private, must follow the *Marine Environment Pollution Clearance and Disposal Regulations* when carrying out marine pollution clearance and disposal work.

For more information, please call 02-2311-7722 ext. 2840.

Waste Management

Formosa Plastics Completes Treatment of Mercury Sludge

Formosa Plastics Corp. has finally completed the treatment of this waste which has drawn so much international attention. This demonstrates Taiwan's determination to properly treat hazardous industrial waste.

Having been a controversial issue for some time now, Formosa Plastics Corp. (FPC) has recently completed the final treatment of its mercury-laced sludge cake. An oversight task force assembled by the EPA and comprised of scholars, professionals, representatives of related organizations and other relevant personnel was briefed by FPC on the entire treatment process at its third meeting. This task force also examined the storage conditions of the post-treatment residue.

The discovery that this mercury-laced industrial waste was shipped to Cambodia at the end of 1998 brought it into the international spotlight. As a result, FPC transported the waste back to its Jenwu plant in Kaohsiung County, Taiwan, in June 2000. Following the importation of three sets of thermal treatment equipment, FPC began treating this waste in September 2001. It took a total of six months to complete the treatment of this waste. Nearly 400 kilograms of mercury were extracted from the 4,701 kilotons of sludge cake that underwent treatment. Approximately 2,640 kilotons of post-treatment residue has been temporarily stored at FPC's Jenwu plant. FPC reports that

TCLP test results show that the residue's mercury level is around 0.12ppm, lower than the mercury content of normal soil.

The EPA states that, due to the supervision and guidance provided by all parties involved, these thousands of tons of mercury-tainted industrial waste have finally undergone proper treatment and no longer present a threat to the environment. It adds that this will allow the international community to fully understand the responsible attitude with which Taiwan has handled this issue, and notes that it provides FPC and Taiwan with a model for the proper treatment of hazardous industrial waste.

Activity

Trial Recycling of CDs Begins

The EPA has commissioned a private organization to begin recycling of CDs on a trial basis starting on March 1. This program, which is intended to assess the feasibility of recycling and volume of CDs received, is being conducted in the Greater Taichung area. Seventy recycling points have been established, and it is planned to eventually establish roughly 200 recycling points at schools, convenience stores, computer stores, and shopping centers. While the initial volume of CDs has been light, the Taichung City and Taichung County environmental protection bureaus and environmental volunteer groups are working hard to increase awareness of this program.

Taiwan is one of the world's major CD producing nations, and had an output of approximately 5.7 billion disks last year, roughly 830 million of which were sold on the domestic market. Because of CDs' long usable life, it is hard to judge the quantity discarded from the quantity sold. It is hoped that the results of the current trial recycling program will allow the amount of waste CDs to be estimated, and help the EPA determine the feasibility of large-scale recycling.

EPA Organization

Establishment of EPA's Chief Inspection Team

In conjunction with the announcement and implementation of the revised *Environmental Protection Administration Organic Statutes*, the EPA has formally established a Chief Inspection Team, which will have control over northern, central, and southern inspection teams. The Chief Inspection Team will be responsible for overseeing the implementation of environmental protection work by local governments.

In conjunction with the announcement and implementation of the revised *Environmental Protection Administration Organic Statutes* (行政院環境保護署組織條例), the EPA formally established its Chief Inspection Team on March 1. The team is headed by Inspector General Chang Hoang-jang (張晃彰), formerly director general of the EPA's Central Taiwan Division, and is responsible for overseeing local governments' environmental protection work, including such specific tasks as the follow-up inspection of inspected pollution sources, coordination and supervision of pollution prevention work, implementation of pollution source and environmental pollution surveys, general notification of pollution incidents, and resolution of emergencies. The team is also responsible for the coordination and supervision of national waste disposal plans, pollution surveys and cleanup of illegal industrial waste dumps, monitoring of compliance with EIAs, and supervision of major river and waterway pollution remediation projects.

The northern, central, and southern inspection teams under the Chief Inspection Team have a total of 272 regular personnel. It is expected that this beefed-up enforcement presence will have a positive effect on the prevention of major environmental crimes, implementation of inter-county/city pollution investigations, and coordination and oversight of local governments' environmental protection work.

The Chief Inspection Team was established through a reorganization of the EPA's Central Taiwan Division and the northern, central, and southern inspection teams, and has absorbed all environmental protection personnel formally under the provincial government. The team's establishment is the final step in the process of reorganizing and streamlining the country's environmental protection system.

The Chief Inspection Team received its first test on March 7, soon after its establishment. On that day EPA Administrator Hau and two deputy administrators led three groups of team members on separate investigations of sources of heavy metal pollution near major polluted areas in Taoyuan County, Changhua County, and Kaohsiung County respectively.

Led by Deputy Administrator Chang Juu-en, the northern group began the removal of plants in Taoyuan County that had been illegally constructed, and also followed up on the efforts of United Water Treatment Company in Taoyuan to upgrade its pollution treatment facilities. Led personally by Administrator Hau, the group of investigators and environmental police in central Taiwan cut off water and power to two illegally operating companies. The team in southern Taiwan was led by Deputy Administrator Lin Tahsiung. This group, which performed a large-scale investigation

of firms suspected of causing heavy metal pollution, found eight violators, imposed on-the-spot fines on four firms, and pressed charges against one firm caught in the act of polluting.

Because many heavy metal pollution incidents occurred last year, including the pollution of rivers and the discovery of cadmium-contaminated rice fields, the EPA began an enforcement campaign last November to stamp out sources of heavy metal pollution. Repeatedly emphasizing the EPA's determination to eliminate heavy metal pollution, Administrator Hau has sternly warned illicit operators not to try their luck by testing the EPA's resolve. The EPA is fully confident that it can eradicate sources of heavy metal pollution.

For more information, please call 04-2252-1718.

Activity

Government Green Procurement Seminar

To better implement the *Program for the Promotion of Green Procurement by Government Organizations* (機關採購綠色產品推動方案), the EPA held the "Government Green Procurement Seminar" on March 18. Most of the participants were purchasing personnel at various government agencies. Apart from an overview of government green procurement, the seminar also included an introduction to products that have received Green Mark certification, an explanation of the requirements of the Government Procurement Act, and various wide-ranging discussions.

The EPA states that apart from holding more green procurement seminars, it will speed up the promotion of green procurement by assisting with similar training activities in conjunction with county and city environmental protection bureaus. The government's green procurement target for this year is 50%, which is to say that at least 50% of the government's procurement budget must be spent on designated environmentally-friendly products.

Waste Management

GPS to be Installed on Hazardous Waste Transport Vehicles

The EPA has drafted regulations requiring industry to install GPS tracking systems on hazardous waste transport vehicles in order to more effectively manage the movement of hazardous waste. The first set of regulations specifically targets vehicles handling liquid hazardous waste.

The EPA has drafted the *First Set of Regulated Hazardous Waste Transport Vehicles Required to Install Real-time Tracking Systems* (公告第一批應裝置即時追蹤系統之事業廢棄物清運機具) and *Specifications and Operation and Maintenance Guidelines for Real-time Tracking Systems on Regulated Hazardous Waste Transport Vehicles* (公告事業廢棄物清運機具即

時追蹤系統規格及操作維護要點). These regulations, drafted in line with Article 31-1-3 of the *Waste Disposal Act*, will permit the EPA to more effectively manage the movement of hazardous waste. In the future, industry will be required to install Global Positioning Systems (GPS) on hazardous waste transport vehicles so that the EPA can track and maintain records of their routes.

In this first set of regulations, the EPA has targeted vehicles transporting liquid hazardous waste because many instances of illegal dumping in recent years have involved liquid hazardous waste and because liquid hazardous waste, in particular, is easy to secretly dump and easily seeps into soil. These regulations require industry to fit liquid hazardous waste vehicles with tracking systems that utilize GPS, Global System for Mobile communications (GSM) modules, and navigation recording systems. These wireless telecommunications systems will permit the EPA to monitor the movements of these vehicles in real time and to share related information with environ-

mental protection investigators and industry over the Internet.

The EPA plans to equip 305 vehicles with tracking systems in the first stage of implementation. Industry will be required to pay for the installation of these tracking systems, which will cost from NT\$ 20,000 to NT\$ 40,000 per vehicle, and basic monthly telecom account fees. The EPA will cover telecom fees for downloading data from these tracking systems. Considering the development, modification, and manufacture of marketable GPS products and the time it will require industry to modify vehicles for these systems, the EPA has allowed an adjustment period of seven months from the time these regulations are announced. The EPA points out that Australia, which has implemented similar hazardous waste tracking measures, has also targeted liquid hazardous waste vehicles. The implementation of these new EPA regulations will place Taiwan among the nations that use GPS to track the movement of hazardous waste.

For more information, please call 02-2311-7722 ext. 2980.

News Briefs

Sandstorms Affect Taiwan

Following last year's implementation of the *Chinese Sandstorm Intensive Observation Plan* (大陸沙塵暴密集觀測計畫), the EPA observed three sandstorms affecting Taiwan in March. The EPA's monitoring stations throughout Taiwan are carefully observing to what degree the air quality is affected by sandstorms. March's three sandstorms, which struck on March 6, 18, and 23, mainly affected the northern, central, and northeastern parts of the island. Particulate matter concentration in the air reached approximately $150\mu\text{g}/\text{m}^3$ during each of these storms. In addition to issuing alerts before the forecast arrival of sandstorms, the EPA is also appealing to persons suffering from respiratory and cardiovascular ailments to limit their outdoor activity at times when sandstorms are affecting Taiwan.

Plan to Build Four BOO/BOT Incinerators Cancelled

Responding to successful waste reduction results of the last few years and acceding to the local governments requests, the EPA has cancelled construction of the four BOO/BOT incinerators originally to be built at Lukang in Changhua County (彰化鹿港), the Northern District of Taoyuan (桃園北區), Taan in Taichung County (台中大安), and Chiku in Tainan County (台南七股). In addition, the EPA also reduced the capacity of the Nantou and Penghu incinerators by 100 tons each, and the incinerator at Hualien by 50 tons. The EPA's decision to cancel the incinerator projects and reduce incineration capacity came after the local governments assessed their needs and found that the extra capacity was unneeded. After the decision, the final total capacity of the BOO/BOT incinerator plan will be reduced from 8,500 tons/day to 5,250 tons/day.

Results of Biodegradable Plastic Tests

The EPA recently sampled and tested biodegradable plastic films made by three firms that have already received Green Mark certification or are in the midst of the certification process. The results showed that only the certified firm Wei Meng Company offered a product meeting the Green Mark standard of 50% decomposition (the Wei Meng product had 51.9% decomposition). The plastic made by the other two enterprises did not meet standards. The plastic film of one of these companies has received Green Mark certification. Therefore, the EPA has imposed a deadline before which this company must improve the decomposition rate of its product. Failure to make improvements will result in the termination of this company's contract and rejection of its new application.

Waste Management

Scrap Metal Import Controls to Continue

Replying to the appeals of the scrap metal disposal industry, which had hoped that some scrap metal import controls would be eased, the EPA has declared that it will not ease restrictions on scrap metal imports until there is time to perform a careful assessment and devise accompanying measures.

Under Article 38 of the newly revised *Waste Disposal Act* (廢棄物清理法), authorizing documentation must be applied for and obtained from local environmental protection bureaus before industrial waste may be imported, exported, transported across the national borders, or transshipped. These requirements do not apply, however, when the central competent authorities have announced, following consultation with the authorities in charge of the target industry, that the industrial waste is a needed industrial material. Because of this, some domestic mixed scrap metal disposal firms have recommended to the EPA and Industrial Development Bureau, MOEA, that mixed

scrap metal "waste wire and cable not containing oil or grease" be listed as "a needed industrial material" in accordance with Article 38 of the *Waste Disposal Act*, and exempted from import controls. These firms reason that the current domestic output of mixed scrap metal does not meet the usage demands of the disposal industry, making it difficult for some firms to survive, and that disposal technology and pollution control equipment have been improved to such an extent that the disposal process would not pollute the environment.

Addressing this request to re-open imports of this waste wire and cable, the EPA has noted that domestic industry does not yet need to depend on imported waste wire and for its supply of copper. In addition, over the past two years there have continued to be pollution incidents in which illegal operators burned waste wire and cable outdoors, and also instances of legal firms selling scrap metal to illegal operators for improper disposal in violation of law. In the past, scrap metal operators left several tens of thousands of tons of hazardous industrial waste in the Tafa Industrial Park (大發專業區), and the remaining waste is still having a harmful effect on the environment. Furthermore, there are 58 sets of mixed scrap metal

specifications; if the import of one type is allowed, other firms will want equal treatment. If the import of many types of scrap metal is allowed, the potential repercussions will be endless. In view of these considerations, the EPA has declared it will not consider easing scrap metal import controls until there is time to perform a detailed assessment of the effects on industry and the environment, and until accompanying measures have been formulated.

While Taiwan once imported large amounts of scrap metal, the industry failed to implement appropriate disposal measures, leading to such problems as dioxin emission from open-air burning and pollution from acid washing operations. The air and water of southern Taiwan suffered from severe pollution, and an unbroken stream of public health problems resulted. This situation led the government to impose scrap metal import controls in 1984. The import of scrap metal was totally prohibited in 1993, and the enactment of the *Regulations Governing the Permitting of Hazardous Industrial Waste Import and Export* (有害事業廢棄物輸入輸出許可辦法) set the stage for the full-scale regulation of the import and export of hazardous waste.

For more information, please call 02-2311-7722 ext. 2850.

Environmental Policy Monthly, Taiwan, R.O.C.

Publisher

Dr. Hau Lung-bin, Administrator

Publishing Directors

Chang Juu-en, Lin Ta-hsiung,
Chen Yeong-ren

Advisors

Lu Chiao-song; Chen Chau-teh; Fu Shu-chiang; Chen Shis-how; Yueh Chang-shya; Chang Hoang-jang; Ni Shih-piao; Chen Shean-rong; Chen Lian-ping; Leu Horng-guang; Tung Te-po; Huang Wan-chu; Young Chea-yuan; Chen Hsiung-wen; Wang Lung-chic; Chang Shen-ho; Horng Yuh-fen; Pong Sheng-ming; Wang Pih

Editor-in-Chief

Roam Gwo-dong

Executive Editors

Y.F. Liang, Chang Shiu-an-wu,
Hsiao Lee-kuo, Lin Char-hung,
Stan Blewett

Editorial and translation support provided by:

Hui-kuo Consulting, Ltd.,
Pristine Communications

The EPM has been published monthly since July 1997. The EPM is available in electronic form free of charge on the EPA website (www.epa.gov.tw).

For inquiries or subscriptions to the printed version, please contact:

Environmental Policy Monthly
Environmental Protection Administration
Office of Science and Technology
Advisors

41, Sec. 1, Chung-Hwa Rd.,
Taipei, Taiwan, R.O.C.
tel: 886-2-2311-7722, ext. 2207,
fax: 886-2-2311-5486
e-mail: umail@sun.epa.gov.tw

GPN: 2008600068

Contents Copyright 2002.



printed on recycled paper

行政院新聞局出版登記證局版北市誌
字第壹陸壹號

中華郵政北台字第6128號執照登記為
雜誌交寄