



Feature Column

Pollution Fingerprint Database Project Launched

Environmental management policy has evolved from end-of-pipe treatment to aggressive source control. Among the advanced control tools now in use in this area is environmental forensics. With the establishment of the world's first integrated environmental pollution fingerprint recognition database, Taiwan's environmental protection agencies will have strong evidence when tracking down pollution sources.

An Integrated Sector-Based Pollution Fingerprint Database

To effectively integrate environmental pollution fingerprint identification data, in October 2002 former EPA Administrator Hau Lung-bin (郝龍斌) instructed

the Environmental Analysis Laboratory (EAL) to identify industries that produce pollutants or are major sources of pollution, and prioritize the setup of a pollution fingerprint database. The fingerprint analysis and identification database provides useful information to facilitate the prompt investigation of pollution sources soon after a pollution incident occurs.

There are huge volumes of sophisticated data on environmental pollution sources due to the fact that they come from various different industries, have different basic qualities and undergo changes in composition after exposure to the environment. Fin-

gerprint databases are found in some advanced countries but so far only for businesses that handle petroleum products. Thus the EPA lacks a model to follow in its ambitious plan to set up a database of such broad scope. The first step to realize this project was to draw up the "Guidelines for Establishing the Environmental Pollution Fingerprint Database" in May 2003. The guidelines outline a 3-year plan from 2004 to 2006 to complete the database. A taskforce was formed for this purpose on June 19, 2003, chaired by the deputy administrator of the EPA.

The taskforce defines the "Environmental Pollution Fingerprint

In This Issue

Feature Column: Pollution Fingerprint Database Project Launched.....	1
Waste Disposal Act Amended to Complement Resource Recycling Act.....	3
First Stage of Mandatory Garbage Sorting Starts Next Year.....	4
Inter-Ministerial Mobilization to Control Red Fire Ants.....	5
Low Frequency Noise to be Controlled Next Year.....	5
Biodegradable Plastics Eligible to Apply for Green Mark.....	6
Tightened Control of Ash from Casting and Copper Melting.....	7
First Drill for Toxic Disaster Response Team.....	8
New Policy Calls for One River Monitoring Station Per City/County.....	9
Intensified Enforcement of Plastics Restricted Use Policy.....	9
EPA Suggests Gas Filling Tips to Reduce Vapor.....	10
News Brief.....	10
Activities.....	7



Framework of Guidelines for Establishing the Environmental Pollution Fingerprint Database

Database" as a search database of fingerprint data collected from major pollution cases, potential pollution sources or particular sectors that have characteristic traits of environmental pollution or related indicators. The purpose of the database is to facilitate identification and inquiry into pollution sources.

Environmental Forensics Improve Source Management

The ultimate goal of environmental policy is to plan for the wisest use of environmental resources and reduce the burden of environmental pollution so that humans can achieve sustainable use of the Earth's resources. Looking at the development of environmental management in the USA, trends show that the focus since the 1990s has shifted from end-of-pipe waste treatment and pollution control to risk management. As a result, more importance is being placed on the development of environmental forensic investigation technology.

Conventional environmental analysis work includes: conducting sample testing according to pollution control standards to be used as evidence for initiating inspections and reporting violations; evaluating effects of pollution control facilities; monitoring environmental quality; and providing reference for establishing control standards. In a democratic society where law enforcement has to be evidence-based, a sample analysis report is not always sufficient to confirm the link to pollution or ascertain liability; thus there is an urgent need for environmental forensic identification technology.

Unlike conventional analytical techniques, environmental forensics covers a wider range from

chemical fingerprint analysis, isotope analysis, biomarkers to remote sensing and aerial photography. It applies scientific methods and skills to study the nature of pollution, transport and destination of pollutants, as well as links to potential sources of pollution in order to assess environmental liabilities.

Successfully investigate pollution sources relies on sufficient capability to locate distinctive fingerprints in waste, and an adequate fingerprint database for searching and matching. These two assets quickly narrow the scope of investigation and allow investigators to proceed to onsite examination and cross-checking.

This exceptional problem of careless dumping of industrial waste necessitates research and development of industrial waste related environmental forensics technology to investigate the properties of waste from raw materials and manufacture processes.

Pollution Source Indicators Aid Polluter Identification

Of all environmental problems in Taiwan, the reckless dumping of industrial waste has the most serious consequences, and in recent years has resulted in case after case of contaminated soil, groundwater and rivers. This exceptional problem of careless dumping of industrial waste necessitates research and development of industrial waste related environmental forensics technology to investigate the properties of waste from raw materials and manufacture processes. There is often a noticeable difference in the material components used in different fields of industry or manufacture processes, and even for industries with similar manufacture processes, there may be variations between work operations of different factories.

While investigations into the source of industrial waste dumping incidents in Taiwan are not numerous, most have a considerably high success rate. Utilizing fingerprinting technology to suc-

When carrying out fingerprint comparisons of crime suspects in corresponding criminal cases, the "Environmental Pollution Fingerprint Database" can be used to search for characteristics of waste material such as appearance, characteristic traits, hazardous properties, chemical composition and its FTIR spectrum. Appearance and characteristic traits can also be established after searching and confirming against the existing database.

The EPA has entrusted the Industrial Technology Research Institute to assist with investigations since 1993. Environmental protection agencies handle administrative affairs and other responsibilities required to rapidly locate the pollution source or manufacture source. As for division of tasks, each county and city environmental protection bureau (EPB), the Bureau of Environmental Inspection (BEI) and administrative affairs offices already have considerable experience and capacity in onsite data collection and verifying manufacture source. Each department of the EPA has already established a control database on characteristic indicators of certain manufacture

source pollution. Laboratories of the local EPBs, the BEI and the Environmental Analysis Laboratory are capable of doing some of the analysis and appraisal work.

Sector-Based Fingerprint Database Prioritized

The EPA has completed the "Guidelines for Establishing the Environmental Pollution Fingerprint Database," which complies with the request of each department's administrative affairs office by listing out tasks in the following three plans: the "Plan to Construct Source Environment in Fingerprint Investigations," the "Recognition Technology Establishment Plan", and the "Pollution Case Manufacture Source Investigation and Demonstration Verification Plan." These plans will all be carried out over a period of three years with yearly budgets of NT\$21.70 million for 2004, NT\$21.48 million for 2005 and NT\$25.70 million for 2006, for a total budget of NT\$68.88 million.

Based on years of management experience, the EPA's fingerprint investigation plans have prioritized the following industries for investigation and installation of fingerprint databases: petrochemical

industry, steel industry, electronics industry, metal surface treating industry, chemical material or product manufacturers, basic metal industry, pesticide and environmental agent industry, plastic and rubber industry, leatherware and textiles industries. The total volume of waste produced by these industries currently accounts for 67% of all hazardous industrial waste. Heeding the request of each department's office of administrative affairs, the first year of the fingerprint investigation plan has already successfully established data for differentiating the fingerprints of the optoelectronics and petrochemical industries, and distinguishing the dust and ash of the steel making industry as well as general chemical composition of waste.

As for follow-up work, the Environmental Analysis Laboratory indicated that whether or not the environmental pollution fingerprint database can become a tool for environmental management investigation work, apart from following the guidelines to incrementally carry out related work over the next three years, it is also important that all related administration affairs offices within the EPA cooperate with related plans

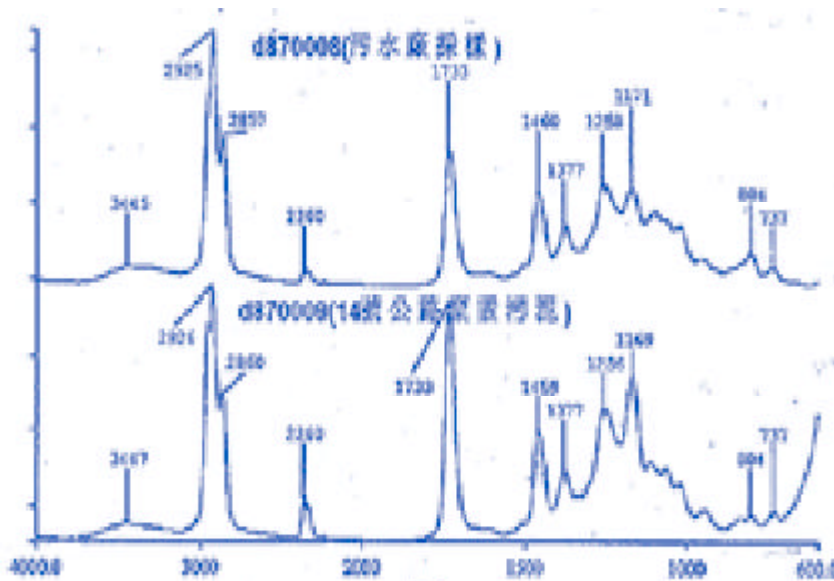
to investigate manufacture fingerprint data and confirm that industries regularly record their information. The three regional bureaus of environmental investigation and each local EPB should carry out screening and confirmation of onsite investigation data and provide feedback to assist with onsite sampling. This will ensure that the EPA fingerprint database has ample, updated, accurate and useful data, and helps the EPA bring into full play its ability to narrow down the scope of suspected pollution sources and assist investigators.

Waste Management

Waste Disposal Act Amended to Complement Resource Recycling Act

Tying in with the implementation of the *Resources Recycling Act*, changes have been made to the *Waste Disposal Act* so that both acts complement each other better. Articles related to resource recycling have been deleted and other content has been revised as well. In all, 39 articles have been modified.

Since the *Resource Recycling Act* (資源回收再利用法) was implemented on July 3, 2003, certain incompatibilities have arisen between some of its articles and regulations in the *Waste Disposal Act* (廢棄物清理法). To solve this problem, the EPA has made revisions to the *Waste Disposal Act*, deleting those articles that are incompatible making sure to meet the needs of waste management. Other pertinent changes were also made to the *Waste Disposal Act* at this time, and a total of 39 articles



FTIR Spectrum Charts (Top: wastewater treatment plant samples. Bottom: sludge dumped on roadside)

were revised (the Act contains 77 articles in all).

The main revision to complement the implementation of the *Resource Recycling Act* was to delete all regulations related to "reuse" and "mandatory recyclables" from the *Waste Disposal Act*. Any related regulations were made part of the *Resource Recycling Act*. For example, the *Resource Recycling Act* provides legal basis for strictly prohibiting air conditioners of designated structures to drip water into the urban environment.

Articles concerning general waste were revised, as in Article 9, which states that, "vehicles used for waste clearance/disposal should at all times carry certification regarding waste material, source location and disposal location for inspection purposes." This revision notes that the executive organization, people and businesses that clear away their own general waste or those otherwise designated by the EPA, are not required to carry such documents. Furthermore, as leftover earth from construction is reusable, it has been designated as a non-waste item, and has accordingly been removed from the related article.

Certain regulations regarding industrial waste have also been revised. For example, it was added to Article 42 that for public and private waste clearance and disposal organizations there is now a ten percent allowable margin for error between the monthly actual clearance and disposal total volumes and the permitted volumes. This reflects the demands of industry based on actual circumstances.

Certain regulations regarding related penalties have also been revised. For example, Article 46 originally gave proprietors that dump hazardous waste or engage in other illegal practices a prison

sentence between one and five years. This term has been reduced to the conventional period of between six months and five years. New penalties have been added as well, for instance, Article 55 stipulates a fine between NT\$3,000 and NT\$30,000 for designated businesses that have failed to install the required professional personnel, and for businesses that violate regulations regarding the

Recycling

First Stage of Mandatory Garbage Sorting Starts Next Year

New initiatives to implement compulsory recycling of food waste have met success in some counties and cities in Taiwan. Food waste recycling is not only a crucial part of the "zero waste" policy, but also is bound to bring considerable economic benefits. The EPA recently announced that a full-scale food waste recycling policy will be formally implemented from January 1, 2006.

Taking further steps to achieve waste reductions and recycle resources, the EPA recently announced that the first stage of the Mandatory Garbage Sorting Plan will go into effect on January 1, 2005. In addition to the originally planned cities of Taipei, Kaohsiung, Keelung, Hsinchu, Taichung, Chiayi, and Tainan, two counties – Taichung and Yilan – will also implement the plan at this time. Certain other counties will choose townships as demonstration sites to take the lead in putting this plan into practice.

With only two months before the implementation of the first stage of the Mandatory Garbage Sorting Plan in nine cities, from January 1, 2005, people will be required to sort their garbage into the three categories of resources, food waste, and trash. Sanitation crews will make random inspections of garbage brought out by the public for disposal. At the outset, people who fail to sort their garbage will be given instructions and asked to

export, import, transboundary movement or transit of waste.

The EPA held departmental meetings and public hearings on September 23 and 27 regarding the draft revisions to solicit suggestions from county and city environmental protection bureaus, private sector and environmental NGOs, after which further revisions will be made accordingly.

either sort their garbage right then or take it home and sort it. Later on, after a regional compliance rate of 70% is reached, offenders will be penalized.

Recycling systems have already been established in the nine cities involved in the first stage of the program. Two to five days per week are designated as recycling days when recycling trucks follow established collection routes to pick up citizen's "resource waste" and transport it to plants for more thorough sorting. Sorted materials are then sent to separate plants that specialize in recycling certain materials such as iron, aluminum, plastic, glass or paper. Food waste is picked up by sanitation crews in a special container affixed to the back of garbage trucks.

Kaohsiung City is currently installing food waste recycling bins on its garbage trucks and searching for enterprises interested in recycling food waste. Hsinchu City has started a pilot food waste collec-

tion and composting system. Other county and city food waste recycling systems have already been set up as well. Food waste is steamed at a high temperature and fed to pigs or composted. The EPA estimates that by 2007, the Manda-

tory Garbage Sorting Plan will reduce the nation's garbage volume to 25% less than the volume in 2001. A recycling rate of 17.9% was reached last year and it is projected that by 2007 the recycling rate will increase to 25%.

not dishevel the anthill soil; and 3) call the COA's Bureau of Animal and Plant Health Inspection and Quarantine hotline (0800-095-590).

The EPA has made it convenient for the public to inquire about environmental agents by setting up a website to search for permitted environmental agents (<http://www.epa.gov.tw/j/envagent/>). This website allows the public to find the most effective environmental agent for their particular needs. The online search system can also locate professional vector control services that can help citizens exterminate red fire ants.

General Policy

Inter-Ministerial Mobilization to Control Red Fire Ants

The red fire ant invasion continues to proliferate throughout Taiwan, wreaking havoc on the natural environment and people alike. The Council of Agriculture has recently established the National Fire Ant Control Center, and the EPA is also coordinating efforts, responsible for preventing the spread of red fire ants into residential areas, and informing the public of recommended precautions.

In response to the potentially devastating proliferation of imported red fire ants in Taiwan, the Executive Yuan has elevated control work to national emergency status. On September 22, the Executive Yuan's Council of Agriculture (COA) announced the establishment of the National Fire Ant Control Center, which is in charge of monitoring the epidemic and providing the necessary resources and materials. The EPA is also actively involved working closely together with the COA, responsible for preventing red fire ants from spreading into residential areas.

Most citizens are unfamiliar with the red fire ant and unsure of which pesticides are appropriate in controlling this species. The EPA has recently approved the first environmental agent product to eradicate fire ants, a type of baited poison with hydramethalnon as the primary constituent. The EPA recommended this product to the public after experiments conducted by the National Taiwan University Entomology Department verified its effectiveness in eradicating red fire ants. Users are reminded to carefully follow instructions on the label.

In the event that red fire ants are discovered in localized areas such as in planting pots on patios and rooftop gardens, the EPA asks the public to first try an environmental agent with proven effectiveness against ants, and if the problem persists then resort to manual means of prevention. For example, pour 5 to 6 liters of boiling water into the ant nest continuing this same procedure for 5 to 10 days, or immerse the entire planting pot into a container filled with cleaning agent for about 24 hours. When using these manual methods, the public is reminded to be careful not to get stung by the ants.

To assist the public in preventing the spread of ants into their homes and surrounding residential areas, the EPA is conducting an ongoing training program, which has already trained a total of 292 environmental agency and vector control service personnel. If red fire ants are found in residential areas, the EPA reminds the public to not panic and calmly deal with the situation. These three steps should be followed: 1) do not come in direct physical contact with the ant nest; 2) do

Noise Control

Low Frequency Noise to be Controlled Next Year

Aiming to control disturbing low frequency noise, this year the EPA has been conducting extensive testing on common sources of low frequency noise - cooling towers, air extractors, and air conditioners. Results will be used to draft appropriate low frequency noise control methods and standards, which are expected to take effect next year.

Generally speaking, low frequency noise does not pose a direct danger to the human body. However, it does have a major impact on sleep and mental health, and can potentially cause neurosis and depression. In response to this problem, the EPA has begun conducting extensive testing of the most common sources of low frequency noise – cooling towers, exhaust fans, and air conditioners. The EPA anticipates that appropriate low frequency noise control

methods and standards for the nation will be put into effect by 2005.

Low frequency noise is defined as noise with a frequency below 200Hz, which under normal circumstances does not have a direct impact on human physiology. However, low frequency noise can cause stress, which does have a major impact on sleep and mental health, and can potentially lead to neurosis and depression, especially for the elderly. As of now, advanced nations, such as Germany, Denmark, and Japan, have only issued recommendations for low frequency noise controls.

The EPA has conducted over 60 low frequency noise tests. Nearly all areas tested have exceeded the recommended standards for low frequency noise daytime controls issued by Germany and Japan, with some exceeding that mark by over 30 decibels. Two-thirds of the sites tested exceeded Denmark's recommended low frequency noise standards. It is apparent that low frequency noise emitted by cooling towers, exhaust fans, and air conditioners indeed has a bearing on the peacefulness of urban living environments.

So that environmental agency personnel better understand low frequency noise testing procedures, the EPA has invited Japanese specialist Hiroatsu Fukuhara to Taiwan to provide consultation on low frequency noise testing and control methods. In addition to giving special topic lectures, he will also conduct onsite tests on cooling towers, exhaust fans, air conditioners, and viaducts in Taipei City, Taichung County, and Tainan City. It is hoped that this exchange will provide a constructive reference to help the nation draft its own control standards, which will be legislated and enforced next year.

Green Mark

Biodegradable Plastics Eligible to Apply for Green Mark

In coordination with the restricted use policy on plastics, the EPA promulgated the "Biodegradable Plastic Products" Green Mark specification standards on July 21. These standards are designed to further reduce the negative impact of plastic waste products on the environment and address the increasing number of biodegradable plastic products on the market. Acceptance of applications from manufacturers began on September 20.

The government's active efforts to establish the Restricted Use Policy on Plastic Shopping Bags and Disposable Tableware in recent years has encouraged private manufacturers to develop "biodegradable plastic (BDP)" products. BDP products advertise their capacity to naturally decompose thus reducing their damaging impact on the environment. On July 21, the EPA promulgated the biodegradable plastics Green Mark eco-label specification standards to help the public choose the most environmentally friendly BDP products on the market. These standards establish parameters for manufacturers to follow and offer consumers a reliable reference for purchasing plastic products.

According to stipulations in the Green Mark specification standards, products must not con-

tain petrochemicals ingredients that are not easily degradable, such as polyethylene (PE), polypropylene (PP), polystyrene (PS), or polyvinyl chloride (PVC). Manufacturers whose products comply with the specification standards can apply for Green Mark status with the EPA by preparing permit documents and information on waste storage, clearance and disposal methods.

Criteria for the newly announced "Biodegradable Plastic" Green Mark go beyond original stipulations of "mostly degradable" and "degradable over a long-term," raising the standard to "fully degradable," meaning that such materials can be quickly degraded by microbes. This new standard will help create a world free from the damaging impact of plastic products that take centuries to



Environmentally friendly biodegradable shopping sacks are already available on the market.

degrade. The EPA began accepting Green Mark applications from manufacturers on September 20.

The EPA emphasizes that this kind of plastic is suitable for use as plastic mulch for farmers, trash bags, and kitchen scrap bags, effectively minimizing detrimental impact on the environment. However, the public is reminded that using fewer plastic bags or none at all is ultimately the best choice.

Air Quality

Tightened Control of Ash from Casting and Copper Melting

This year the EPA has stepped up efforts to administer investigations of large-scale casting and copper melting factories in central Taiwan. Effort is being taken to ensure the appropriate management of waste dust and ash from this industry and prevent pollution resulting from illegal dumping or burial of related waste. So far about one-fifth of businesses in these industries have either been fined or penalized and this has led to great improvements in terms of numbers and severity of related pollution cases.

Working to ensure appropriate disposal of industrial waste ash and dust and to prevent pollution caused by illegal dumping or burial of such waste, the EPA has clamped down on 250 casting and copper melting factories in central Taiwan. Of the cases earmarked for investigation, already 50 factories have been issued penalties this year and one factory was given strict injunction to shut down. It was found during this inspection

clampdown that the situation has already improved greatly compared to former years in terms of the extent of pollution from reckless dumping of dust and ash along stream banks or in vacant lots.

The central regional Bureau of Environmental Inspection (BEI) points out that the ash and dust collected from stack scrubbers in casting and copper melting factories often contains heavy metals such as lead, zinc and arsenic. Some of this waste could also contain the heavy metal cadmium, which is easily uptaken by rice plants. If such waste is not appropriately disposed of, it could result in contaminating more than just farmland.

A similar incident occurred in the Changhua region last year. Insisting that factories dispose of waste in the proper manner, the central regional BEI began to more stringently control ash and dust of mid- to small-scale casting and copper melting factories this year. Disciplinary action was taken against businesses that polluted the environment in the process of storage, clearance, disposal of collected ash and dust, or those businesses that were unable to clearly report the flow of such waste. Perpetrators were given a deadline to make the necessary improvements. Since inspections began in February 2004, already 50 factories have been charged for violating regulations in the *Waste Disposal Act* (廢棄物清理法) and one factory was ordered to suspend operations due to serious violation of environmental laws.

Although large-scale casting and copper melting factories in central Taiwan are considered small enterprises, it is often the case that the owners or operating personnel lack basic business operation management concepts. Such circumstances increase the likeli-

hood of pollution from manufacture processes. In light of this, the results from the EPA's inspections this year were reported to the Industrial Development Bureau (IDB), Ministry of Economic Affairs, on the grounds of providing assistance, the IDB conducted several pollution control technology training seminars for the casting industry in central Taiwan. This approach raises businesses' capacity for improvement and over time makes them gradually aware of their environmental responsibility. There are already fewer cases of environmental violations.

The EPA emphasizes that the inspection plan will be continuously in effect and unscheduled inspections will be carried out to check up on the status of improvement of those factories already found in violation of environmental laws until they have completely controlled the source of pollution. Factory owners are called on to strengthen pollution controls and guard against possible pollution problems beforehand.

International Symposium on the Reuse of Incinerator Ash/Residue

An international symposium on the reuse of incinerator ash/residue was held in Taipei County on September 22-23, jointly sponsored by the EPA and the Taipei County EPB. The main focus of discussion was the status of incinerator ash/residue management and reuse in Taiwan as well as future strategies for managing this waste material. Host organizations made it a point to invite seven experts and scholars from the US, France, Holland, Japan, and S. Korea to deliver lectures on regulation standards and technology regarding the reuse of incinerator ash and residue, and to exchange experience and views with domestic personnel and organizations in related fields. This will be of substantial benefit to Taiwan's management of ash and residue from waste incinerators.

Toxic Substance Management

First Drill for Toxic Disaster Response Team

The EPA's Northern Toxic Disaster Emergency Response Information Center and the Hsinchu County Environmental Protection Bureau joined forces to conduct a no-warning toxic disaster response drill. The exercise utilized the only domestically manufactured disaster frontline response command vehicle in Asia, equipped with the world's first 20-ton class response equipment. The outcome of the surprise drill showed that Taiwan is unsurpassed in toxic disaster response preparedness.

The nation's first no-warning toxic disaster response drill took place on September 14 at the Hsinchu Science Park. The simulated scenario presumed there had been a toxic disaster accident within the park, which activated the "Toxic Disaster Joint Forces Response Team" and the "Toxic Disaster Specialist Response Team." This was the first drill that the EPA's Northern Toxic Disaster Emergency Response Information Center (TDERIC) has undergone since its establishment. Asia's only domestically manufactured frontline disaster response command vehicle was mobilized during this exercise, a vehicle designed by the Industrial Technology Research Institute at a cost of NT\$6 to 8 million.

A 20-ton class response vehicle is necessary because the majority of chemical tanker transport spills in the past have predominately involved freight loads of roughly 20 tons. This vehicle is equipped with the world's most complete specialized equipment able to handle toxic disaster accidents for almost any average transport tanker load. The equipment has the capacity to respond to virtually any kind of toxic disaster accident and includes: high-speed high-pressure leak filling equipment, high-speed trench blocking equipment, rapid-expansion foam machine to control toxic vapors, an explosion-proof

and corrosion-proof mobile rapid liquid pump, and other specialized precision response equipment.

The plant site for this no-warning exercise was randomly selected by the EPA and the Hsinchu County Environmental Protection Bureau (EPB). The "Toxic Disaster Joint Forces Response Team" was notified to respond to a presumed chlorine leak at the Vangaurd International Semiconductor Corporation. After arriving onsite, the Hsinchu EPB activated the test plant's disaster response mechanism and notified the industrial park's "Toxic Disaster Joint Forces Response Team" to provide immediate assistance. The Hsinchu County EPB promptly contacted the Northern TDERIC requesting that its members im-

mediately arrive on the scene to provide environmental testing and sample analysis and response measures. The objectives for this exercise were to test the following: the plant's internal response and reporting actions, the EPA's supervision and coordination response, the ability of industries to bring the "Toxic Disaster Joint Forces Response Team" into full play, and the TDERIC specialists' ability to quickly arrive onsite to conduct tests and carry out follow-up work. Evaluation of test results also accounted for the performance of other joint forces involved and the EPA evaluation committee showed overall approval, giving a commendable mark of 92.25.

The EPA explains that to prevent the occurrence of toxic chemical disasters that could have a potentially devastating impact on both the industry and the public, city and county EPBs should conduct no-warning periodic test exercises each year at plants that use hazardous toxic chemical substances. Ninety tests are conducted each year to increase each plant's efficiency at utilizing the joint forces response mechanism. Through the active efforts of local EPBs, currently 801 industries have joined the nation's 52 "Toxic Disaster Joint Force Response Teams."



Disaster relief workers in action cleaning up the site of a simulated chlorine leak accident.

Water Quality

New Policy Calls for One River Monitoring Station Per City/County

A new river remediation policy has already taken effect, and the EPA has proposed a new strategy to control river pollution in upstream areas first and then gradually work downstream. The new national management objective for river remediation is to install one river monitoring station per county/city and improve water quality at all monitoring stations.

With a great increase in funding for river remediation in 2005, the EPA recently convened the "River Pollution Remediation Discussion Meeting" to propose a new strategy for river remediation that focuses first on upstream areas and later on downstream areas. The new management objective is to install one river monitoring station in each city and county and improve water quality at each station.

To increase citizens' awareness of the effects of river remediation, pollution remediation efforts will focus first on upstream river sections and gradually work downstream. Equally important is to take into consideration the extra treatment capacity of existing wastewater treatment plants. Ecological engineering methods will be used to treat pollution at its source or by channeling wastewater through contained treatment beds and preventing it from entering the river.

The EPA has designed monitoring stations on each river to determine

whether water quality complies with the stipulated water body water quality standard. This serves as important basis upon which the EPA assesses local river pollution remediation.

During the discussion, experts and scholars showed approval of the "One Monitoring Station Per County/City" management plan and also advised the EPA to clarify which areas of responsibility are under the jurisdiction of local governments or central

governments. It was advised that the central government should be responsible for planning and policy formulation while the local government should be responsible for implementing remediation plans.

In future river remediation work, the EPA will allocate resources to those counties and cities that are actively carrying out river pollution remediation, and centralize manpower and financial resources to obtain the best results.

Waste Management

Intensified Enforcement of Plastics Restricted Use Policy

Determined to carry through with the Restricted Use Policy on Plastic Shopping Bags and Disposable Tableware, the EPA has begun to step up enforcement, firmly requesting each local environmental protection bureau to incrementally include 20% more targeted businesses under inspections each month. Warnings will be given to first time offenders, and those businesses that further violate the rules will be fined.

From September 27 (2004), the EPA began carrying out comprehensive inspections of air, water, waste, toxic chemical substances and the use of plastic bags and tableware. The three regional bureaus of environmental inspection in northern, central and southern Taiwan have coordinated inspections of pollution

sources that have violated environmental regulations. This is the first time for the EPA to implement a major law enforcement plan for the Restricted Use Policy on Plastic Shopping Bags and Disposable Tableware.

According to revisions to the *Waste Disposal Act* (廢棄物清理法)



Thanks to the plastics restricted use policy, many shoppers now bring their own shopping bags.

promulgated on June 2 this year, public offices, department stores, shopping centers, discount stores, supermarkets, convenience chain stores, fast food chain restaurants and other food and beverage stores that provide indoor seating are not allowed to provide shopping bags thinner than 0.06mm. Shopping bags must be thicker than 0.06mm and must be separately purchased by customers.

The said targeted businesses are also prohibited from providing plastic disposable tableware. Violators of this regulation will be subject to a fine of NT\$1,200 to NT\$6,000. High-polluting industries that violate environmental regulations could face a maximum fine of NT\$1 million and in serious cases of pollution, businesses could be ordered to suspend business, shut

down or relocate. The EPA reminds businesses to strengthen pollution control and environmental protection efforts to avoid penalties.

Due to a strong public response, the EPA has downscaled the plastic bag restricted use policy, taking some of the pressure off of inspectors when issuing penalties. To carry through with the enforcement of the plastics restricted use policy, local environmental protection bureaus have been asked to incrementally add 20% more targeted businesses in their monthly inspections. Contrary to public perception, the plastics restricted use policy has not been relaxed and the EPA calls on all targeted businesses to adhere to the rules rather than trust their luck with inspections.

will take more than just requiring gas stations to improve their equipment. The public must also improve their gas filling habits. The EPA explained that when filling up at the gas station the public should avoid requesting the attendant to force feed gas after the gas pump has automatically shut off. This will reduce vapor pollution and enable vapor recovery equipment to efficiently function up to capacity.

As of August 31 among the nine cities and counties of top priority, 98% of the gas stations have completed installation while the remaining gas stations are either in the installment process or testing phase. Out of a total of 2,373 gas stations in Taiwan 2,086 have already installed vapor recovery equipment, posting an installment rate of 88%. This translates into a sharp reduction of volatile organic compounds of over 20 thousand tons annually, and constitutes more than 80% of gas stations' total emissions.

Out of the 200 gas stations inspected, the EPA found 31% failed to meet standards, indicating a progressive trend compared to figures from previous years. The EPA has concluded from results of many years of conducting tests on vapor recovery equipment that improper gas filling method is the main reason why vapor recovery equipment functions inefficiently.

Air Quality

EPA Suggests Gas Filling Tips to Reduce Vapor

In addition to requiring gas stations to install gasoline vapor recovery equipment, the EPA is also appealing to consumers to do their part when filling up at gas stations. This dual approach will ensure the effective functioning of vapor recovery equipment as well as safeguard public health and protect air quality.

Reducing the amount of vapor at gas stations will help safeguard public health and protect ambient air quality of the surrounding area. Thus, on July 1 the EPA began promoting the installment of vapor recovery equipment at all gas sta-

tion facilities in urban areas of nine cities and counties with the most serious ozone pollution and densest populations, including Taipei City.

However, realization of this goal

News Brief

EPA to Upgrade to "Ministry of the Environment and Natural Resources"

Revisions to the *Organic Law of the Executive Yuan* (行政院組織法) were passed on September 15, calling for the integration and streamlining of the 37 highest levels of authority. The Environmental Protection Administration will be elevated to ministerial status with the new title of the "Ministry of the Environment and Natural Resources" (環境資源部). EPA Administrator Chang indicated that the EPA will be in charge of organizing the "Ministry of the Environment and Natural Resources," and integrating resources of existing departments. The Executive Yuan Premier indicated that experts should be consulted and their advice should be amply presented in consultation and discussion regarding preliminary planning of the new ministry. Current EPA departments are now cooperating to develop recommendations for the upcoming reorganization process.

The EPA encourages the public to not force feed gas after the gas pump has automatically shut off

so that vapor recovery equipment can function efficiently. This simple measure alone will greatly

reduce the odors of released vapor and safeguard the health of those pumping gas.

News Briefs

EPA to Assist Development of Recycling Industry

The EPA has complemented the "Service Industry Development Guiding Principles and Action Plan" with the drafting of the "Plan to Provide Assistance to Recycling Service Industry." This plan provides guidance for the development of this industry, gradually to achieve the goal of "Complete Recycling for Zero Waste." To reach this goal the EPA has made recycling the core of the environmental service industry. The EPA will provide development assistance to environmental industries engaged in the following five areas: "Recycling of Mandatory Recyclables," "Recycling of General Food Waste," "Recycling of Large Waste Items," "Plan to Reuse Leftover Earth and Building Materials from Construction Projects," and the "Environmental Science and Technology Park Promotion Plan."

Online Registration for Environmental Testing and Analysis Organizations

Making it more convenient to provide environmental testing and analysis service in all fields, the EPA has developed an online registration system for businesses. The online system enhances the review process for environmental testing and analysis organization permits. It is hoped that testing and analysis organizations will have highly accurate testing and analysis data quality to facilitate proper reporting, environmental investigation, environmental quality monitoring in all fields of industry. The "Environmental Testing and Analysis Organization Online Registration System" will integrate the existing environmental testing and analysis organization reference system online and provide functions such as management of the permit application process, downloads of example application forms, e-mail notification and online inquiry into the progress of applications, and print-outs of revised permits. From August 2004 marked the full-scale implementation of opening up providing another speedy and convenient channel in which environmental testing and analysis organizations, with just a click of the mouse, can process the "Permit for New Installation," "Newly Added Laboratory," "Newly Added Categories of Testing and Analysis," "Newly Added Items of Testing and Analysis," "Extensions," "Relocation of Laboratory," and "Resumption of Services."

Taichung City Named Nation's Best Food Waste Recycler

After three years of hard work, Taichung City has been commended by the EPA as the nation's most proficient organization in terms of food waste recycling in 2003. Taichung City's "Lirenweimei" (里仁為美) com-

munity was chosen among the nation's top ten model environmental communities. The Taichung City Environmental Protection Bureau processes collected food waste into compost and pig and chicken feed. The method for recycling food waste for chicken feed was jointly developed by ChungHsing University and Tunghai University. This research team has already raised several batches of chickens on food waste and is actively promoting their product on the market. Progressive Taichung City has also established the nation's first diversified food waste recycling and reuse park, which contains a composting area, a feed processing area, a chicken raising area, an organic nursery for vegetables, flowers and plants, and a center for education and exhibitions. This multifunctional park is a great place for the public to recreate and learn about the Earth's natural cycles.

EPA Drafts Standards for Defining Plastic Disposable Tableware

Although the Restricted Use Policy on Plastic Shopping Bags and Disposable Tableware has been in effect for two years, there is still dubious interpretation among the public regarding the definition of disposable tableware. The EPA convened the "Public Hearing to Discuss the *Standards for Defining Plastic Disposable Tableware (Draft)*" on September 17 to listen to the views of environmental NGOs. The restricted use policy holds the following definition of disposable tableware: "any plastic tableware utensil designed and manufactured with the intent of providing to consumers for one use only, after which it is disposed of, and which normally is not washed and provided to consumers as a reused item." The definition is still subject to subjective interpretation dependent upon whether or not a utensil is discarded or reused after its first use. The EPA's initial assessment of this dubious point was that plastic tableware utensils thicker than 0.7mm (not including 0.7mm) and not made of a pressed or molded foaming agent, can be objectively described as a utensil that can be washed, reused and repeatedly provided to customers. Such items are not within the scope of restricted use. The EPA will take into account the views of environmental groups, manufacturers and local environmental protection bureaus when laying down concrete and feasible methods for defining disposable tableware.

Low-Sulfur Diesel Fuel Enters Market

The EPA is cooperating with international trends and the demand for further improvements to pollution from diesel vehicles by actively coordinating with domestic manufacturers of diesel fuel products to urge transport companies with private gas filling and storage equipment to make the switch to 50ppm low-sulfur

diesel fuel in advance. One domestic company, Chinese Petroleum Corp. (中油公司) has announced that all allied gas filling stations and those under direct ownership will begin providing 50ppm low-sulfur diesel fuel from October 1, 2004. This new fuel prod-

uct has been termed as SuperDiesel. EPA Administrator Chang Juu-en presided over the kick off ceremony to announce the beginning of a new era of low-sulfurdiesel fuel.

Activities

EPA Judges Packaging of Moon Cake Gift Boxes

The EPA held this year's "Selection of Environmentally Friendly Moon Cake Gift Box Packaging" on September 18. Seventy different moon cake gift boxes were inspected and nineteen companies entered the activity on their own initiative. The most environmentally conscious gift box packaging was selected according to the number of layers of packaging, the ratio of unused space, and innovative design of environmentally friendly packaging. Evaluation results showed that 33% of gift boxes inspected had less than three layers of packaging, 63% had three layers of packaging and only 4% exceeded three layers of packaging. Most packaging however is still too elaborate with an excessive proportion of empty space, too many different materials, and glossy coatings on portions of the exterior box. In response, the EPA is currently drafting related rules to reduce the amount of product packaging.

2004 Annual Awards for Individual and Group Environmental Initiatives

On September 20, the EPA held an annual awarding ceremony to commend those individuals and

organizations that have made honorable contributions to environmental protection in 2004. The EPA indicates that this is the most impressive awarding ceremony it has held since its establishment with 162 awards presented in nine different categories. The five categories of individuals included volunteers, outstanding environmental protection professionals, teachers, students

and environmental protection bureau staff who have made contributions to environmental protection. The four categories of organizations included domestic industries that have been awarded for environmental protection initiatives, model environmental communities, organizations and schools that have put forth meritorious effort in the area of environmental protection.

申請方式名稱	簡釋說明
1. 新設證許可證	
2. 增加檢驗室	
3. 增加檢測類別	
4. 增加檢測項目	
5. 展延	
6. 檢驗室搬遷	
7. 復業	

Online registration system enhances the review process for environmental testing and analysis organization permits.

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

Publisher

Dr. Chang Juu-en, Administrator

Publishing Directors

Tsay Ting-Kuei, Lin Ta-hsiung
Ni Shih-piao

Advisors

Chang Hoang-jang; Chang Shen-ho; Chen Chau-teh; Chen Shis-how; Chen Hsiung-wen; Chen Lian-ping; Chen Shean-rong; Fu Shu-chiang; Ho Soon-ching; Horng Yuh-fen; Hsiao Hui-chuan; Huang Wan-chu; Leu Horng-guang; Lu Chiao-song; Pong Sheng-ming; Tung Te-po; Wang Chen-chi; Wang Lung-chic; Wang Pih; Wu Tien-chi; Young Chea-yuan; Yueh Chang-shya

Editor-in-Chief

Roam Gw o-dong

Executive Editors

Y.F. Liang, Chang Shiu-an-wu,
Hsiao Lee-kuo, Lin Char-hung,
Chang Shao-wen, Peter Morehead

Editorial and translation support provided by:

Hui-kuo Consulting, Ltd.,
Sustainable Earth Network

The EPM has been published monthly since July 1997. The EPM is available on the EPA website at <http://cemnt.epa.gov.tw/eng/webezA-3/code/main.asp>

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, Jhonghua Rd.,
Taipei, Taiwan, R.O.C.
tel: 886-2-2311-7722, ext. 2207.
fax: 886-2-2311-5486
e-mail: uemail@sun.epa.gov.tw

GPN: 2008600068
Contents Copyright 2004.



printed on recycled paper

行政院新聞局出版登記證局版北市誌
字第壹陸壹壹號

中華郵政北台字第6128號執照登記為
雜誌交寄