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Feature Article

Standards for Defining Hazardous Industrial Waste Get Major Overhaul

To make the hazardous industrial waste management system more rational and definite, on March 7 the EPA announced amendments to the *Standards for Defining Hazardous Industrial Waste*. In addition to revising current standards for listing hazardous wastes, defining hazardous properties, and intermixed metal waste, the new draft also adds mechanisms such as loss of hazardous properties, listed exclusions, and transition statutes.

Taiwan's domestic hazardous industrial waste management system is undergoing major reform. On March 7 the EPA promulgated amendments to the *Standards for Defining Hazardous Industrial Waste* (有害事業廢棄物認定標準) which completely overhaul the current system.

The *Standards for Defining Hazardous Industrial Waste* form the basis for determining whether a given substance can be classified as hazardous waste. As such, the standards are a very important part of environmental law because they have a significant impact on industrial waste management and environmental risk management. The EPA reports that since the standards were promulgated in May 1987, they have been amended three times – in 1994, 1996, and 1999. Of these only the amendments made in 1984 were major. Other changes have been partial. However, the changes made this time are the most far reaching to date.

In addition to revising current standards for listing hazardous wastes, defining hazardous properties, and defining intermixed metal waste, the amendments also include clauses on loss of hazardous properties, listed exclusions, and transition statutes. These changes will make the hazardous industrial waste classification process more comprehensive and clear-cut.

The EPA has stated that the promulgated amendments include:

1. Revisions to the methods for determining listed substances:
   (i.) Definitions for using manufacturing processes to identify hazardous materials were modified based on a review of current domestic manufacturing processes and comparison with management and control practices in other countries;
   (ii.) Changes were made to support the classification and management systems enacted in the *Toxic Chemical Substances Control Act*, and exclude Class IV toxic chemical wastes from within the scope of toxic, hazardous industrial wastes.
2. Revisions to the definition of hazardous properties:
   (i.) Leachable toxic industrial wastes: leaching tests were added for silver, selenium, nitrobenzene, 2,4-D, and Silvex, and removed for the heavy metal zinc;
   (ii.) Reactive industrial wastes: strengthened controls on toxic industrial waste gasses containing cyanide and sulfur compounds;
   (iii.) Waste containing asbestos and related products: to make waste management clearer and more rational, a direct listing method was included for friable asbestos containing materials;
   (iv.) Mixed metal waste: separate regulations were added specifying the different storage, clearance, and treatment stages for various types of mixed metal waste. The current regulation, which lists all mixed metal waste as hazardous, creates clearance and treatment difficulties;
   (v.) Infectious waste: certain types of infectious waste that have been completely sanitized will be listed as general (non-hazardous) industrial waste. This should improve the effectiveness of treating this type of waste.
3. In order to encourage industrial firms to implement toxicity reduction and waste reduction schemes, the new standards also stipulates that certain categories of hazardous waste items (such as discarded solvent containers, chemical substance containers, etc.) can be reclassified as general industrial waste.
4. Operations established prior to the establishment of amendments to the standards will have one year to implement improvement plans in consultation with the local environmental regulatory agency.

The EPA stated that roll out of the amended standards will not only maintain the use of effective hazardous waste management but will also clarify control items and scope. At the same time, the new standards should also motivate firms that produce hazardous waste to reduce the toxicity and quantity of their waste products.

EY Marine Pollution Incident Taskforce Begins Operation

On March 23 the EPA convened the first meeting of the Executive Yuan Severe Marine Pollution Incident Response Taskforce. In response to continued public concern Administrator Hau made an important series of decisions regarding the oil spill caused by the Greek tanker, the MV Amorgos. The Administrator declared that removal of the vessel and remaining oil and iron ores should be completed before the end of June.

On March 23, in response to the spill caused by the Greek oil tanker MV Amorgos, EPA Administrator Long-Bin Hau convened the first meeting of the Executive Yuan Severe Marine Pollution Incident Response Taskforce.

In accordance with the *Marine Pollution Control Act* the taskforce includes members from central government agencies, local government, experts and academics. The taskforce is the Executive Yuan's decision making apparatus regarding serious marine pollution incidents and is chaired by the EPA Administrator, Dr. Lung Bin-Hau.

The first meeting of the taskforce was mainly dedicated to hearing opinions from involved government agencies on continuing cleanup of the stranded MV Amorgos. During the meeting the Ministry of Transportation and Communications (MOTC) reported on the current status of salvage operations for the ship, the Ministry of National Defense (MND) reported on their onsite investigation and gave an assessment of cleanup progress, and the Hualien Harbor Bureau reported on their backup salvage plan.

After listening to discussions during the meeting, Administrator Hau made the following five resolutions:

1. MOTC should oversee and ensure that the owner of the MV Amorgos completes contracting and begins removal of remaining oil, iron ore and vessel salvage before the end of March. If contracting cannot be completed in time the government will not rule out intervening;
2. There is a definite timetable for cleanup, and removal of the vessel and remaining oil and iron ores should be completed before the end of June;
3. In case the Amorgos salvage plan is unable to proceed in accordance with the above time limit, the MND should assess possible government intervention. In addition, the Coast Guard Administration should step up patrols in order to prevent secondary pollution during the cleanup and salvage period;
4. MOTC should immediately investigate any domestic organizations capable of performing the cleanup and salvage operation, understand all available professional resources, and cooperate with MND emergency response plans. If the vessel's owner is unable to carry out cleanup operations on time the MOTC should be prepared to take over and to clarify all relevant legal problems;
5. All necessary budget expenses will be reported to the Executive Yuan by the Taskforce. Funds will be used when necessary and compensation sought later from the vessel's owner.

Administrator Hau stressed that according to regulations they will request the shipping company to remove all the tanker's cargo on time and that the government will develop an appropriate emergency salvage plan. If the vessel's owner is not able to complete cleanup operations within the time limits given the government may at anytime forcibly intervene. Under no circumstances will any delay of the cleanup schedule be allowed to occur.

Five Pollutant Categories in Draft Soil Pollution Control Standard

The EPA has released a draft *Soil Pollution Control Standard* which will serve as the future basis for regulation of soil contamination sites. The draft contains standards for 36 volatile organic compounds, 24 semi-volatile organic compounds, 17 pesticides, 8 heavy metals, dioxins and polychlorinated biphenyls. When the draft is officially promulgated sites where pollution concentration exceeds these standards will be listed as control sites and required to adopt necessary control measures.

The *Soil and Groundwater Pollution Remediation Act* went into force on February 2, 2000. The Act stipulates that the EPA should set a *Soil Pollution Control Standard* (土壤污染管制標準) to prevent deterioration of soil quality. In accordance with this regulation, environmental agencies are required to identify areas where pollution concentration exceeds the control standard and list them as "control sites." The agencies must then take

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necessary assessment and control measures.

After a long period of research the EPA recently completed a draft of the *Soil Pollution Control Standard*, which was announced on March 3. Concerned parties were invited to submit their opinions on the draft's contents.

As submitted by the EPA, the draft addresses five categories of pollutants, including 36 volatile organic compounds such as acetone; 24 semi-volatile organic compounds such as aniline; Aldrin and 16 other pesticides; arsenic and 7 other types of heavy metals; and others, such as dioxin and polychlorinated biphenyls.

The EPA noted that pollutant types and concentrations contained in the draft are based mainly on Taiwan's existing regulations and European and American standards. Also, past pollution incidents in Taiwan were taken into consideration during formulation of the standard. Unlike foreign standards, however, the draft is generic and applies equally to all sites regardless of land use classification.

Because a separate set of control standards will be devised for groundwater pollution, the *Soil Pollution Control Standard* applies only to soil in the non-saturated zone. Necessary revisions will be carried out every five years in order to ensure the standard reasonably meets the needs of both society and the environment.

After release of the draft *Soil Pollution Control Standard* the EPA welcomed comments from concerned parties. Due to the wide impact the future standard will have the EPA will hold discussions and public hearings to solicit a wide range of outside opinions.

Draft Implementation Rules Announced for Soil & Groundwater Act

The EPA has announced draft implementation rules for the *Soil and Groundwater Pollution Remediation Act*. The implementation rules stipulate that local governments have five years time to complete comprehensive soil and groundwater surveys. It also states that remediation plans must be proposed within three months of completing investigation and assessment of a remediation site. If it is impossible to lower pollution concentrations below the prescribed remediation values then attainable "remediation goals" may be proposed based on the nature of the site or pollutant, remediation costs, and assessment of environmental and health impacts. Proposed remediation goals must be approved by the competent environmental agency.

Since promulgation of the *Soil and Groundwater Pollution Remediation Act* in the year 2000 the EPA has accelerated formulation of a supporting regulatory infrastructure. As part of this effort, on March 19 the EPA announced draft *Soil and Groundwater Pollution Remediation Implementation Rules* (土壤及地下水污染整治法施行細則) and invited outside parties to comment.

In the past Taiwan has collected relatively comprehensive survey data only for heavy metals in agricultural land. To get a better grasp on the overall condition of Taiwan's soil and groundwater, the draft stipulates that within five years of promulgation of the implementation rules city and county governments must complete a comprehensive soil and groundwater survey. These surveys will form the basis of future soil and groundwater management and remediation efforts.

If it is discovered that soil or groundwater pollution influence health, agriculture, fisheries, or drinking water the draft implementation rules stipulate that the competent authority may order the polluter or interested person of the polluted land to undertake the following actions:

1. halt the polluting activity;
2. remove or dispose of the pollutants;
3. erect appropriate signs or markings and fence off the area, or take other measures to prevent access;
4. halt use of groundwater;
5. halt agricultural or fish production;
6. prohibit or restrict personnel entrance;
7. other necessary measures.

The draft also stipulates that even if a control site assessment reveals no need for remediation, the competent authority can still, if necessary, order the polluter to submit a pollution control plan. The control plan should contain basic site information, special characteristics of the site, control scope and target pollutants, control method, site supervision plan, pollution prevention plans, verification plans, and other necessary documentation.

If an area is listed as a remediation site, a remediation plan must be submitted within three months of completion of the site survey and assessment. A three month extension is possible with approval from the competent authority. In addition to the information required in a control plan the remediation plan must also include remediation values and remediation methodology.

Because of the high uncertainty associated with soil remediation technology, the *Soil and Groundwater Pollution Remediation Act* specifically includes a provision which allows, under the appropriate circumstances, substitution of remediation values with attainable "remediation goals." The draft implementation rules clearly state that when determining remediation goals the special nature of the site and the pollutants must be considered, as well as the costs of remediation, assessment of health and environmental effects and the feasibility of the remediation goals.

The *Soil and Groundwater Pollution Remediation Act* also specifies that if the interested person of the polluted land is guilty of gross negligence they bear joint liability along with the polluter. The implementation rules define gross negligence as:

1. failure to inspect, repair, or guard against leakage from the installation of oil or other pipelines;
2. although not permitting the pollution, allowing the land to be used for illegal activities which easily lead to pollution;
3. allowing themselves or others to use their land or the land they used for activities outside the range of what would be considered normally acceptable;
4. other actions announced by the EPA

The *Soil and Groundwater Pollution Remediation Act* stipulates that a portion of the Soil and Groundwater Pollution Remediation Fund should derive from the budget of other environmental protection funds. Regarding this, the implementation rules specify that these funds should come from air pollution control, water pollution control, resource recycling management, and clearance and treatment of general waste.

The EPA said that a public hearing will be held to obtain outside opinions and help refine the draft implementation rules. The EPA estimates the draft will be completed and sent to the Executive Yuan for approval within three months.

Effluent Standards Expanded to Include Total Nitrogen and Phosphate

Due to the worsening problem of eutrophication of Taiwan's drinking water sources, the EPA is tightening standards for effluent discharge from sewers in zones demarcated as water sources. In the future, public sewer systems located in water sources will have to comply with limits on total nitrogen and phosphate concentration.

On March 1, the EPA announced draft amendments to the *Effluent Standards* and invited all interested parties to submit comments. The proposed revisions will place controls on the total concentration of nitrogen and phosphate that may be discharged by public sewage systems located in water source areas.

The EPA Bureau of Water Quality Protection stated that as measures to control traditional pollutants gradually come on track the problem of eutrophication in water source areas has been receiving increasing attention. The current effluent discharge standards include controls on ammonia-nitrogen and phosphate, however, research has shown that the current standards are insufficient to prevent eutrophication caused by microorganisms that cycle nitrogen and phosphate. The EPA has therefore proposed a new standard for nitrogen and phosphate in effluent from public sewage systems located in water source quality protection areas. Under the proposed standard, total nitrogen and phosphate concentrations must be respectively limited to 15 mg/l and 2 mg/l.

EPA officials point out that the proposed amendments mark the first effort to incorporate controls for total concentration of nitrogen and phosphate into standards, and represent an important milestone in the EPA's efforts towards resolving the problem of eutrophication. The Bureau of Water Quality Protection stated that the livestock industry is also a significant source of nitrogen and phosphate in water source areas. However, due to the limitations of the pollution control technologies currently available, the EPA has not tried to include all sources of nitrogen and phosphate in the proposed draft amendments.

In addition to the new controls on nitrogen and phosphate, the proposed revisions also support changes to industry classifications for mandatory collection and treatment of wastewater runoff from operational areas, and partially modified effluent restrictions for the petrochemical industry, chemical industry and recreational parks.

In accordance with the *Administrative Procedures Act* the draft amendments have already been published and reported to the Executive Yuan. The new amendments will go into effect after approval by the Executive Yuan.

Feature Article

Newly Appointed Administrator, Dr. Lung-Bin Hau, Emphasizes Results and Enforcement

Dr. Lung-Bin Hau has been appointed to the post of EPA Administrator. Working from his personal beliefs as an environmentalist and with his respect for professionalism, Dr. Hau hopes that in the short-term he can dissipate the public's current dissatisfaction with environmental protection. In the long run Dr. Hau aims to ensure that Taiwan will always have green mountains and clear water.

Under the watchful eyes of Taiwan's citizens, the Executive Yuan recently completed a partial reorganization of the government's Cabinet. As part of the reorganization, the post of EPA Administrator was filled by former Legislator Dr. Lung-Bin Hau (郝龍斌). The official handover was completed on March 7, under the supervision of Minister without portfolio Chen Chin-huang (陳錦煌), when Administrator in waiting Lung-Bin Hau received the EPA seal from the hands of departing Administrator Edgar Lin.

During the ceremony, Minister Chen joked that the EPA was a "fire-pit." In response, Dr. Hau said that EPA employees have long been working in the fire-pit and that by jumping in today he would simply be feeling what they had felt for a long time, and that he hoped to help the EPA be like a phoenix reborn from the flames.

In stepping down as EPA Administrator, Edgar Lin said that, "I am moved by Administrator Hau's courage in taking on this position." Lin pointed out that over the last ten months he has built a comprehensive environmental protection infrastructure and given priority back to protecting the environment. Lin stated that by working on these foundations, and with Hau's professionalism and dedication, he had the utmost confidence that Hau would succeed as Administrator.

Addressing the former Administrator, Hau said that although Lin would be leaving his post at the EPA, environmental protection has been his lifelong pursuit and that Lin would always be the "Father of Environmentalism" in Taiwan. As for himself, Hau stated that from this day forward he was part of the EPA and formally a member of the environmental family. The new Administrator further stressed that although Taiwanese are very diverse, with different political and social backgrounds, all Taiwanese have a common cause – the environment – and a common love for this island.

Administrator Hau also stated that he would work to give the citizens of Taiwan a clean land, and that all of his thoughts and energy would be devoted to ensuring environmental quality. The Administrator stated his resolve to draw on help from environmental agencies, environmental groups and academic circles in the short-run to help Taiwan's citizens learn to cherish the environment and dispel their dissatisfaction with the current situation. In the long-run Hau aims to ensure that Taiwan always has green mountains and clear water.

At an Executive Yuan press conference shortly afterwards Hau emphasized that only strict enforcement of the law can put an end to illegal activities. Pollution in Taiwan is caused by those unlawful citizens who flagrantly disregard environmental laws, he said, and it is clear from the MV Amorgos oil spill that no matter what the fine or how large the restoration effort they cannot fully compensate for environmental destruction. For this reason, only preventative measures can ensure that Taiwan's environment stays clean and pollution free.

In response to media questions about the Fourth Nuclear Power Plant, Administrator Hau pointed out that resuming construction is already Executive Yuan policy and that Premier Chang Chun-hsiung (張俊雄) has made it clear that all future activities will be carried out in accordance with the law. For this reason, whether or not to perform another environmental impact assessment (EIA) is a legal and not a political question. In other words, unless significant changes occur to the construction of the Fourth Nuclear Power Plant and there is a legal need for another EIA, the EPA will focus its efforts on strict oversight of the project.

In a report delivered during his first meeting with top EPA officials on March 12, Administrator Hau stressed efficiency and stated that during any serious pollution incident the EPA should always be on the frontline. Problems should be dealt with swiftly and environmental laws strictly enforced using all of the government authority granted to the EPA.

After hearing key work reports from the respective EPA bureaus, Dr. Hau formulated the following directions for his administration:

An Introduction to the New EPA Administrator, Dr. Lung-Bin Hau

Prior to his appointment as EPA Administrator, Dr. Hau was twice elected as a member of the Legislative Yuan in 1996 and 1999. During his 5-year tenure as Legislator he devoted himself to medical care and sanitation affairs to safeguard public health. He advocated passage of the *Health Food Control Act*, and introduced the concept of "medical savings accounts" into amendments of the *National Health Insurance Act*. In addition, Dr. Hau was very concerned with constitutional reform. He requested the Council of Grand Justices to interpret important constitutional controversies, such as; whether or not the Vice President should be able to concurrently serve as Premier of the Executive Yuan; the provincial government's status as a public juristic person; and the ability of National Assembly members to extend their own tenures.

In the period from March 2000 to March 2001, Dr. Hau served as convener of the National Campaign and Development Committee of the New Party. Dr. Hau took the lead in cooperating with the KMT and the DPP to amend the Constitution to reduce the power of the National Assembly. He also successfully mediated a meeting between President Chen and opposition parties leaders, which reduced political tension after the 2000 presidential election. After the ruling DPP announced a stop to construction of the Fourth Nuclear Power Plant, Dr. Hau again mediated a meeting of leaders from the KMT, the People First Party and the New Party. The meeting led to establishment of a communication mechanism, an alliance of opposition parties, and later, resumption of the construction process.

Born in Taiwan, Dr. Hau holds a B.S. in Agricultural Chemistry from National Taiwan University (NTU) and a Ph.D. in Food Science from the University of Massachusetts. From 1984 to 1996 he was an Associate Professor and later a Professor at the NTU Institute of Food Science, where he focused his teaching and research on the areas of food safety, food chemistry, lipid chemistry, nutrition chemistry, food radiation and food processing. His contributions in food science research were well recognized and received the Madam Chiang Hsu Lian-Tsang Food Science Award, the National Science Council Excellent Research Award, and the Atomic Energy Council Excellent Research Award.

In addition to his academic writings, Dr. Hau has authored two books: *The New Road*, and *Healthy Diet Go Go Go*. The latter was a domestic best-seller in the nonfiction category for 1999.

1. In terms of personnel, because the EPA completed a large scale reorganization in February for the time being efforts will be made to keep personnel stable;
2. Before accepting this post Administrator Hau stated that within six months he would turn in a "good report card." He hopes that in the short-term all EPA departments can take active measures to let the public feel that progress is being made. Towards this goal, each department must turn in 1-month, 3-month, and 6-month improvement plans. They must also work full steam to raise administrative efficiency and digitize environmental work;
3. The EPA will identify 10 threats to Taiwan's environment as well as paths to improvement and assess their feasibility;
4. Ministry of Economic Affairs plans to dissolve water quality protection status for the Tseng-wen River would remove the legal basis to ban hog rearing there. Administrator Hau stated that from the EPA's position hog rearing is detrimental to water quality protection so the EPA will use its full strength to implement the ban, while at the same time undertaking active communication and coordination with other appropriate government agencies.
5. The people of Taiwan are very concerned with the continued handling of the MV Amorgos incident. Administrator Hau will speed up progress on this issue and establish two expert taskforces, one to deal with oil pollution cleanup and the other to handle compensation matters, including compensation for damages, ecological destruction and ecosystem rehabilitation. The two taskforces will be headed respectively by the EPA's Secretary General, Yeong-Ren Chen and Deputy Administrator Ta-Hsiung Lin.

Recycling of Waste Printers Due to Begin in April

On average, over 1,200,000 printers are disposed of annually in Taiwan. In order to reduce the environmental burden of disposing of printers, the EPA has announced that beginning April 1, 2001 waste printers must be recycled along with desktop computers, monitors, and notebook computers. The three primary channels currently used for recycling of these items are IT product recycling take-back stations located around Taiwan, municipal or county curbside recycling trucks, or recycling companies and organizations.

In 2000 and 2001, domestic printer sales reached 1,020,000 units and 1,200,000 units respectively. Over the last seven years, over 4,000,000 printers have been sold in Taiwan. The need to dispose of a growing number of waste printers now represents a significant environmental concern for Taiwan. In an effort to find a solution, the EPA surveyed the operators of information technology (IT) product take-back stations regarding the feasibility of recycling waste printers. Seventy-seven percent of the operators of take-back stations stated that demand for waste printers was at least equivalent to demand for waste computers.

Following several meetings with printer manufacturers, the EPA issued a public notice on November 20, 2000 listing waste printers as a mandatory recycling item.

The EPA stated that the lifespan of products in the electronics industry tends to be very short due to the rapid pace of technology innovation. As a result, there is an increasing need to develop strategies to ensure the proper disposal of information technology products as they become outdated to prevent them from becoming a serious source of pollution. The product recycling systems that have been established for notebook computers, motherboards, hard drives, power packs, computer casings, and monitors have already recovered a combined 1,800,000 units, which represents an impressive recycling rate of 85%.

There are numerous types of printers, including bubble jet, laser and dot matrix. The EPA stated that after collection waste printers can be disassembled into: plastics, the power cord, integrated circuits, non-ferrous metals, ferrous metals, capacitors, batteries, and printer cartridges. With the exception of the hazardous materials, most of the printer components can be reused either as components in new printers or recycled for use as raw materials.

Current recycling technologies use shredders and grinders to process waste IT materials. Electromagnets then separate the metals from the non-metals in the converted scrap. Precious metals are recovered through refining and purification for resale as raw materials for the high tech industry, and non-ferrous metals turned into resin for concrete products.

The EPA stated that anyone with a waste printer can give it to municipal/county waste crews, IT product take-back stations, or recycling organizations. Six-hundred take-back stations have already been registered with the Recycling Fund Management Committee. Those persons interested in finding a take-back location near their home or office can call the toll-free recycling information line (0800-085717) or check the internet for nearby take-back stations.

Simplification and Total Quantity Controls Pushed in EIA System

Movement is underway to make Taiwan's EIA system more rational. As part of conclusions reached at the National Economic Development Conference, the EPA has requested the Hsinchu Science-based Industrial Park Administration to implement EIA response measures and total pollution quantity control policies. In the future, once factories are recognized as complying with industry park total quantity controls, they will not be required to perform environmental impact assessments. The EPA also plans to revise the EIA implementation rules by simplifying regulations governing the EIA review process.

Environmental impact assessment (EIA) requirements have been in place in Taiwan for 15 years, and the EIA system is as controversial as ever. The general public has high expectations of the EIA process, while industry feels EIA requirements greatly burden economic development.

During the National Economic Development Conference this January, the EIA system became the most heavily discussed environmental protection issue. Attendees at the Conference came up with the following conclusions:

1. Companies that apply to construct facilities within industrial parks, science parks, or export processing zones that have completed the EIA review process will not themselves be required to perform EIAs, provided their

emissions will not cause the park to exceed originally approved total emissions quantities. The Hsinchu Science-based Industrial Park, which was established before EIA requirements were in place, must submit an EIA investigation, analysis and propose response measures according to Article 28 of the *EIA Act*. These tasks must be completed by the end of November.

2. The approval process for changes made to EIAs will be simplified. This will apply to changes such as planned capacity or scope reductions; modifications to the original construction site; improving the treatment capability or efficiency of environmental protection equipment; altering content in an environmentally beneficial way; or implementing environmental monitoring plans.
3. A pre-EIA review process will be implemented. In the future, companies in the early stages of project planning will only need to submit initial development plans, siting information, and relevant environmental background information in order to apply for a pre-EIA review. This will then determine assessment scope and the key points of future review processes.

The EPA reported that it has already reached agreement with the National Science Council for the Hsinchu Science-based Industrial Park (not including the fourth stage expansion) to submit an EIA investigation and analysis and propose response measures. This must be completed in accordance with Article 28 of the *EIA Act* before the end of November. The submitted measures must include approaches for controlling total pollution quantities within the park.

In addition, the EPA has also finished revising a draft of the *EIA Act Implementation Rules*. Successive implementation of these and other measures will improve the efficiency of the EIA system. The EPA emphasized that increasing review efficiency will be conducted under the premise of total quantity controls and preservation of environmental quality. As a result, environmental protection goals will be upheld.

EPA Invites Private Investment in Incinerator Ash Recycling Programs

As a series of large-scale trash incinerators come on line in Taiwan, the amount of ash generated per day is expected to reach up to 7,600 tons. To address this problem, the EPA has proposed an incinerator ash recycling and reuse plan. Private firms will be encouraged to work together to establish regionally integrated treatment facilities. The EPA has already submitted this plan to the Executive Yuan. Implementation will proceed rapidly once approval is received.

Following the "921 Earthquake" in 1999, the EPA was successful in implementing a program that separated, recycled, and sought reuse of waste generated by the disaster. The EPA is now hoping to replicate this successful model in tackling the problem of incinerator ash recycling and reuse.

The EPA reports that the island currently has 18 publicly owned refuse incinerators in operation, with total treatment capacity of 19,800 tons per day. Collectively these incinerators generate 5,600 tons of ash per day. The ash treatment methods currently employed by county and city governments mostly include solidification of fly ash and landfill of bottom ash. The burden on local landfills, therefore, is heavy and will certainly increase. By 2004, the EPA expects Taiwan to have 36 incinerators up and running, producing 7,600 tons per day of ash and creating a very serious environmental loading problem.

The EPA's Central Taiwan Division pointed out the difficulties encountered in obtaining land for solidification of fly ash and the landfilling of bottom ash. Managing such operations is not easy and after the ash has been landfilled, secondary pollution often results from hazardous substances leaching from landfills. These difficulties necessitate a recycling and reuse effort that extends across existing administrative boundaries.

In light of the increasing maturity of ash recycling and reuse technology, it is now possible to move beyond the narrow focus on fly ash solidification and bottom ash landfilling. It will, however, be necessary to breakthrough the current situation whereby individual county and city governments handle their own treatment. The development of integrated recycling and reuse centers is required to fully

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implement sustainable resource use policies.

The EPA indicated that three incinerator ash recycling and reuse facilities will be established in the northern, central, and southern parts of the island along with medium and long-term resource classifications and reuse channels. Using the best available technology, these facilities will be able to make incinerator ash into products such as cement, road-paving materials, soundproof walls, aggregate, man-made reefs, foundation bricks, wastewater ditches, and construction bricks.

Government resources are limited, however, so the EPA has considered inviting the private sector to operate these facilities. Bidding methodologies and contractor selection requirements are still under consideration. The plan has already been submitted to the Executive Yuan and the EPA anticipates rapid implementation once approval is received.

On Eve of Departure Edgar Lin Urges EPA to Stick to Environmental Ideals

On the eve of his departure from the EPA, former Administrator Edgar Lin expressed his appreciation for his colleagues' hard work and encouraged them to continue to bravely try new ideas and new methods to promote environmental protection. He noted that Taiwan's national development relies on the presence of a strong and impartial civil service that can remain stable, effective, and immune to the influence of political disputes or arguments.

At his going-away party on March 6, former EPA Administrator Edgar Lin emotionally stated that life is full of highs and lows, but that these changes are also what give meaning and depth to a person's life. Being appointed to serve as a government official is a rare opportunity and one to be appreciated, but one must also be prepared to let go with no complaints and no regrets when the time comes. Administrator Lin said that over the previous ten months, he had developed strong relationships with his colleagues in the EPA and expressed his gratitude for their concern for him. He encouraged his colleagues to continue their hard work to help protect Taiwan's environment.

Edgar Lin said that he has no regrets regarding the last ten months in office and was grateful to have had the opportunity to work with his colleagues in the EPA to undertake the difficult challenge of promoting environmental protection. Lin stated that he tried to take on the challenge one step at a time by prioritizing the tasks that needed to be undertaken and tackling them based on their order of priority. He further stated that in his opinion the most pressing task facing Taiwan was management of industrial solid waste, and that the EPA had completed preparation of the necessary policies and accompanying measures. In the area of air pollution control, improving urban air quality should rank as the number one priority, and Edgar Lin hopes that within 5 years electric-powered scooters will replace 50% of the traditional scooters on the streets. Mr. Lin further added that the EPA should press on with its work on river remediation.

On the subject of the MV Amorgos, Administrator Lin stated that the fact that the EPA had been criticized by a number of outside organizations, and had taken full responsibility for the incident. He encouraged his EPA colleagues to remember that "it is impossible to do anything perfectly. Only through a constant process of seeking to improve yourself, re-evaluating yourself, and being critical of yourself, will you be able to grow and develop as an individual. Furthermore, the continued growth and improvement of our country and society also is dependent on this process." He encouraged his colleagues to remain steady in their beliefs, maintain their self-respect, and sustain a professional attitude while undertaking their work. In addition, Edgar Lin also recommended that the Executive Yuan convene a cross-agency meeting to carefully review the incident and use the conclusions as the basis for revising the laws and regulations pertaining to managing crises.

Edgar Lin stated that he was once asked whether serving as a government official was more difficult than other work. He replied that in reality, undertaking projects or seeking to accomplish a specific goal should be more difficult than serving in government. However, the common perception in Taiwan is that serving in government is the more difficult path, a perception which must be reversed if Taiwan is to have any hope for the future. Edgar Lin stated that the advancement of a country depends on a strong and impartial civil service system that is immune to political influences and can rise above

small disputes. Despite the changing of the leadership of government agencies, the civil service must remain steady and firm as a mountain. He also encouraged his former colleagues to continue to bravely try new ideas and new methods to promote environmental protection.

In closing, Edgar Lin said his only regret in leaving the EPA was that he would be unable to continue sharing with his colleagues the joys and frustrations of their work. He hoped that his colleagues at the EPA would continue to be brave in pursuing their work, brave in facing conflict, brave in maintaining a neutral attitude, and remain dedicated to their work.

News Briefs

Cross-Agency General Industrial Waste Treatment Task Force Established

Following last year's major pollution incident in the Kaoping River, industrial waste treatment problems have been receiving serious attention. After receiving Executive Yuan approval, the EPA recently established a cross-agency General Industrial Waste Treatment Task Force. The Ministry of Economic Affairs and eight other government agencies formed the task force with academics and experts in order to research, plan, and coordinate waste treatment mechanisms.

Textile Manufacturing Sludge, Food Processing Waste, and Waste Rubber Added to List of Articles Allowed for Reuse

In order to encourage resource reuse, the EPA recently announced amendments to regulations concerning industrial waste reuse categories and management methods. Textile manufacturing sludge, kitchen waste, and waste rubber have been included in the scope of the regulations. Once these amended regulations are officially promulgated, the items listed above can be recycled and reused.

EPA Immediately Responds to Incident at Third Nuclear Power Plant

On March 18, reactor number one at the Third Nuclear Power Plant experienced a "3A" nuclear incident. The EPA responded immediately to the incident on March 19 by dispatching personnel to test the temperature at two of the plant's cooling water release points. The inspection personnel found the temperature of the emitted water to be below the standard of 42° C. In addition to continued monitoring, the EPA also indicated that the incident has not led to any public or environmental harm.

Revisions to Regulations Governing Waste Disposal Organizations in the Works

In order to improve the EPA's efficiency in supervising and monitoring solid waste clearance and treatment organizations as well as development of a comprehensive solid waste disposal system, the EPA is preparing revisions to the *Regulations Governing Management Assistance for Public/Private Waste Clearance and Treatment Organizations*. The revisions will alter the system for supervising waste clearance and treatment organizations to facilitate the ability of clearance organizations to accept waste and allow the EPA to improve its performance in monitoring waste disposal activities.

The majority of industrial waste generators in Taiwan rely on independent clearance and treatment companies to dispose of their wastes. The EPA stated that under the *Waste Disposal Act*, companies must obtain separate permits for clearance of waste and for treatment of waste. However, the EPA has been unable to effectively implement this system due to its limited administrative resources. This deficiency has become a critical link in problems with proper management of the clearance and treatment of industrial waste.

After assessing the current situation and its internal administrative resources, the EPA has decided to restructure the existing clearance and treatment administrative systems to focus on waste treatment organizations as the primary responsible agent for waste disposal. Through this change, the EPA hopes to be able to re-focus its inspectors on key areas and thereby increase its administrative and enforcement efficiency.

The Bureau of Solid Waste Management stated that the *Standards for Industrial Waste Stor-*

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age, Collection and Treatment Methods and Facilities outline a two-step process for clearance and treatment of solid wastes. Waste generators must first sign a written contract with a treatment organization for the waste in question. Generators are then required to arrange for the transport of the wastes to the site either by hiring a clearance company or transporting the wastes themselves. The EPA now plans to change the requirements such that clearance companies will no longer be required to provide waste treatment documents when applying for a clearance permit. As a result, clearance companies will not have to specify the intermediate or final site for their wastes when applying for a clearance permit. When clearance companies contract to transport wastes, they will be expected to deliver the waste to the treatment organization that has been contracted by the generator to dispose of the waste, and will no longer be restricted to treatment facilities listed on their original clearance permit application. These revisions will serve to accommodate Clause 2 Article 50 of the *Standards for Industrial Waste Storage, Clearance, and Treatment Methods and Facilities* that requires generators to sign separate contracts for clearance and treatment.

The EPA is also considering adding further amendments requiring companies to consolidate clearance and treatment operations to improve implementation of solid waste management and facilitate the EPA's monitoring of clearance and treatment activities.

In order to avoid redundancy or confusion from conflicting regulations, the EPA is also considering excluding items that are listed for reuse or recycling under other laws from the solid waste treatment permitting process.

In addition to the above changes, the EPA plans to revise regulations to clearly state that local governments cannot restrict inter-regional transportation of solid waste. Recently a number of county and city governments have used requirements for clearance organizations to formally notify the local government of all waste shipments to prevent the transportation of waste generated in other counties to treatment facilities located in areas under their jurisdiction. The local governments have claimed that they are unable to properly supervise and monitor the flow of industrial waste from companies based outside of their area of jurisdiction. Such actions not only violate the rights accorded under law to licensed solid waste management companies, but also interfere with the proper clearance and treatment of industrial waste in Taiwan. The EPA will soon announce further revisions to deal with this problem.

The EPA announced that it will soon release a draft revision of regulations that incorporate the ideas discussed above and welcomes comments and suggestions from interested parties.

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