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Feature Column

Feature Column: SGRFMB Shows Top Performance in Soil Remediation Efforts

Already up and running for a year and a half, the EPA's Soil and Groundwater Remediation Fund Management Board (SGRFMB) has used its limited human resources and finances to carry out a great deal of work toward promoting soil and groundwater remediation. After successfully setting up a regulatory system, the main tasks at hand are pollution investigation and remediation of polluted sites. The SGRFMB plans to further enhance communications with industry in order to effectively carry out this work.

New Workforce Allows Fund Operations to Run More Smoothly

In accordance with Article 24 of the *Soil and Groundwater Pollution Remediation Act* (土壤及地下水污染整治法) the EPA promulgated the *Organizational Rules of the Soil and Groundwater Pollution Remediation Fund Management Committee* (土壤及地下水污染整治基金管理委員會組織規程) in July 2001. The Soil and Groundwater Remediation Fund Management Board (土壤及地下水污染整治基金管理委員會) was then officially established in November 2001 with EPA Administrator Dr. Hau Lung-bin (郝龍斌) as its chairman and EPA Deputy Administrator Chang Juu-en (張祖恩) as its vice chairman. Experts from a wide range of fields were invited to make up the body of its 23 committee members. To ensure objectivity and professionalism among committee members, it was stipulated that over two-thirds of the committee must be scholars or specialists. In addition, the committee also invited the head of the Petrochemical Industry Association of Taiwan, Chen Wu-siong (陳武雄) to serve on the board in order to allow a voice from industry to be heard.

The SGRFMB indicated that the committee has operated quite regularly since its establishment and a meeting is scheduled every two to three months. The committee has already held a total of four meetings as of this April. Meetings have focused on business aspects of the SGRFMB, legislation issues regarding soil pollution bylaws, and the collection and use of monies levied

Sampling of soil and groundwater at polluted site.

In this Issue

cussion content during these meetings serves as an important reference for the EPA in drafting soil and groundwater pollution remediation policies.

One supervisor has been assigned to handle routine work, and this post is filled by Chen Shean-rong (鄭顯榮), who concurrently serves as the director of the Department of Water Quality Protection. Other key positions include an executive secretary, a deputy executive secretary, a Comprehensive Planning Division, a Levy Auditing Division, a Technical Evaluation Division, and a Legal and Compensation Recovery Division. SGRFMB Executive Secretary Chen Hsien-heng (陳咸亨) indicated that 10 EPA personnel have been transferred into specialized posts with the SGRFMB and the remaining staff comes from alternative military service personnel, leaving the committee short on manpower. After much effort, the SGRFMB finally received Executive Yuan approval early this year to apply the SGRFMB funds toward hiring more staff. Fourteen new staff members will be introduced to the workforce, and it is expected that soil pollution remediation work will proceed more swiftly with such expanded personnel.

Five Focal Work Areas in 2003

In addition to continuing on with previous work areas, the most important tasks in 2003 include:

1. Establish regulatory framework concerning soil and groundwater pollution remediation.
2. Inspect sites prone to severe pollution.
3. Carry out statutory inspections and assessments of polluted sites.
4. Implement soil remediation measures on polluted farmland.
5. Make information openly available and devote efforts toward localizing soil remediation technology.

Two new draft regulations concerning soil and groundwater pollution are expected to be issued this May, namely *Regulations for the Preliminary Assessment of Soil and Groundwater Pollution Control Sites* (土壤及地下水污染控制場址初步評估辦法) and the *Regulations for Assessing Pollution Boundaries, Environmental Impact, and Treatment Priorities of Remediation Sites* (整治場址污染範圍調查影響環境評估及處理等級評定辦法). After these two legislations come out in early May, the system of regulations concerning soil and groundwater pollution will be closer to perfection, and all aspects of future remediation work will fit under a concise legal framework.

As for control work at pollution sites, apart from monitoring and assisting local authorities with soil remediation work, the SGRFMB will continue to ascertain the status of soil and groundwater pollution at sites prone to severe pollution such as filling stations and large-scale petroleum storage facilities. Once pollution is discovered at such sites, the SGRFMB will also supervise filling stations and petroleum companies to make sure that they have adopted emergency response measures as required by law. The SGRFMB will see to it that polluters carry out follow-up pollution inspections and related remediation measures to prevent pollution from getting worse and to safeguard public health and living environments.

The majority of the SGRFMB's budget comes from collected remediation fees in accordance with fee collection regulations. Before the committee was established, there was a plan to collect NT$30 billion in fees within 20 years (an average of about NT$1.5 billion per year). Afterwards however, it was concluded during the Economic Development Advisory Committee Conference that in principle, remediation fees should not impact industry competition and therefore should not exceed 1% of an enterprise's total costs. As a result, fee rates were adjusted to 55% of the originally stipulated amount. As only around NT$687 million in soil pollution remediation fees was collected last year, it is estimated that NT$603 million can be collected this year.

Remediation Expedited on 283 Hectares of Polluted Farmland

The issue of heavy metal contaminated farmland has always been of great public concern. After large-scale investigations were carried out over 319 hectares of potentially contaminated farmland, a total of 283 hectares of farmland was confirmed to have soil pollution levels beyond control standards. The majority of this polluted farmland was in Jhanghua County (彰化縣), with a total of around 198 hectares. Soil analyses revealed that most of these polluted areas, or 251 hectares, contain heavy metals of less toxicity or heavy metals that cannot be absorbed by plants, including copper, zinc, nickel, and chromium. Only 32 hectares contained heavy metals of relatively high toxicity or heavy metals that are easily absorbed by plants, such as cadmium, mercury and lead. To prevent panic among the public, agreements were reached with the Department of Health and the Council of Agriculture, and all crops on these contaminated soils were uprooted and burnt.

Soil pollution remediation measures currently target those farmlands that contain heavy metal poisoning

of weaker toxicity, such as chrome, copper, nickel, and zinc. In principle, the method of soil improvement involves tilling the soil to dilute pollutant concentrations. As for cadmium, mercury, and lead pollution, the primary method adopted is to wash the soil with an acid solution. In addition to the above two pollution remediation methods, alternative techniques may be selected where appropriate, based on related research and application results, and after synthesizing factors such as regional environmental characteristics, polluted substrate and extent of pollution, maturity of remediation technology, public acceptance and remediation costs. Whatever methods are used, the overall aim is to effectively carry out pollution remediation work.

Currently, more and more counties and cities have submitted Polluted Farmland Control Site Remediation Plans for examination and approval, and these local governments are already proceeding with follow-up pollution remediation plans. To ensure smooth execution of these plans, the EPA has requested that local governments strengthen communication and coordination with farmers at the time of implementation. For instance, this includes coordination of construction traffic, communication on how improvement work will be executed, and dealing with potential issues of secondary environmental pollution and other issues that may affect the public. If necessary, public announcements and meetings should be called to ensure thorough communication. The SGRFMB has indicated that the ultimate objective is to restore farmland to a state in which it is safe to cultivate after pollution remediation tasks are completed.

Improved Communication With Industry

Many industries show a high level of interest in SGRFMB activities, especially the petrochemical industry as they are the main target of soil remediation levies. Such industries continually convey their willingness to learn about and participate in SGRFMB activities, and the committee has continually made efforts to make all information available to the public. The content of the committee's meetings is on record and freely accessible online at http://ww2.epa.gov.tw/SoilGW/page07/page07_01.asp, allowing all interested parties to directly browse relevant information.

Soil and groundwater pollution remediation is intimately related to many domestic industries. In addition to seating an industry member on the committee board, the SGRFMB also regularly takes initiatives to set up communication channels with industry. This includes holding public hearings, adopting suggestions from the private sector, strengthening mutual interaction and providing opportunities for further mutual understanding. During the process of remediation, the committee also communicates with local governments, environmental authorities and industry. In fact, this is one of the most important tasks of this year's remediation work.

Many industries are worried that Taiwan's soil pollution remediation system will come to resemble the U.S. Superfund system in that it will pose a heavy financial burden, while actual remediation effectiveness remains extremely limited. The SGRFMB points out that although Taiwan's soil and groundwater pollution remediation system was partially based on the Superfund system, methods used by European countries were also referred to during its design. Taiwan chose a double threshold system by incorporating both pollution control sites and pollution remediation sites, and this arrangement has allowed the government a greater degree of flexibility when carrying out pollution remediation work. For pollution cases of lesser urgency, the pollution control site mechanism can be used to prevent pollution conditions from worsening. In contrast, for those areas that require immediate remediation, limited resources can be concentrated and mobilized to step up remediation work. This way Taiwan should be able to prevent the abuses inherent to a single standard system such as the Superfund.

General Policy

Hau Carries Out Green Diplomacy in Britain

EPA Administrator Hau visited Britain at the end of March to consult with British environmental officials regarding bilateral cooperation between Taiwan and the U.K., as well as visit Britain's environmental protection facilities, including its oil spill disaster response system. Overall, this visit was highly constructive toward furthering Taiwan-U.K. cooperation and bringing environmental know-how back to Taiwan.

In succession with a July 2001 visit to the U.S. to confer with the U.S. EPA director, and then August 2002 attendance at the UN World Summit on Sustainable Development in Johannesburg, EPA Administrator Hau once again led a delegation on a successful "green diplomacy" mission at the end of March, this time calling on Britain.

The primary objective of the

EPA's recent visit to Britain was to advance Taiwan-U.K. cooperation in the area of environmental protection. Upon arrival in Britain, Hau met with U.K.'s Department of Environment, Food, and Rural Affairs (DEFRA) Director General Bill Stow on March 25. During their discussion on bilateral environmental protection issues, the two sides exchanged experiences in environmental protection work, and discussed how to strengthen Taiwan-U.K. cooperation in environmental protection in the future.

Afterwards, Hau met with Britain's Environmental Agency (EA) and discussed with the organization's Chairman, Mr. Sir John Harman, regarding both countries' experiences as well as potentials for bilateral cooperation on water management technology and soil and groundwater management.

Yu: "...Taiwan should actively incorporate sustainable development issues into its diplomacy concerns, and advance green diplomacy ..."

In addition to meeting with Britain's governmental agencies, Administrator Hau also made surveys of several of Britain's environmental protection facilities. As Taiwan has been intensifying efforts toward establishing a marine pollution response system in recent years, Hau was especially interested in visiting Britain's renowned oil spill management company, OSRL. OSRL is the world's largest oil spill disaster response company, holding stocks in 26 petroleum firms, and possessing abundant experience in emergency response training programmes and consultancy services. During the EPA's survey, Hau made a point to gain a greater understanding of OSRL's experience in marine oil spill disaster response training, equipment and organization.

After last year's UN World Summit on Sustainable Development, Premier Yu Shyi-kun indicated, "Sustainable development can serve as the driving force behind government efforts to carry out diplomacy. In the future, Taiwan should actively incorporate sustainable development issues into its diplomacy concerns, and advance green diplomacy through integration of government and citizen powers." Hau's recent visit to Britain worked to raise Taiwan's visibility in the international arena, as well as played a highly constructive function in developing Taiwan-U.K. cooperation and introducing advanced environmental protection technology to Taiwan. All in all, this mission proved to be another successful round of green diplomacy.

Air Quality

Frequency of Poor Air Quality Drops by 60% Over Nine Years

Air quality is showing progressive trends of improvement. EPA statistics indicated poor air quality for 2.87% of the time during 2002, a 60% improvement over 1994, and also revealed marked annual incremental progress. The EPA has also proposed measures to control ozone pollution, which is the source of 80% of poor air quality.

The EPA's 2002 Annual Report on Air Quality Monitoring has been released with statistics clearly indicating a progressive pattern of improvement in air quality. The overall air quality condition is based on results taken from nation-wide monitoring stations. Poor air quality was recorded only 2.87% of the time during the year of 2002, and when sandstorm deductions are factored in, the percentage drops to 2.76%. A progressive trend of improvement is seen when comparing this ratio to 5.23% for 1997 and the 1994 figure of 6.83%. The 2002 ratio shows a 60% improvement over the 1994 results. EPA statistics also indicate improvement trends in the "moving average," which uses three-year segments as the basis for assessment.

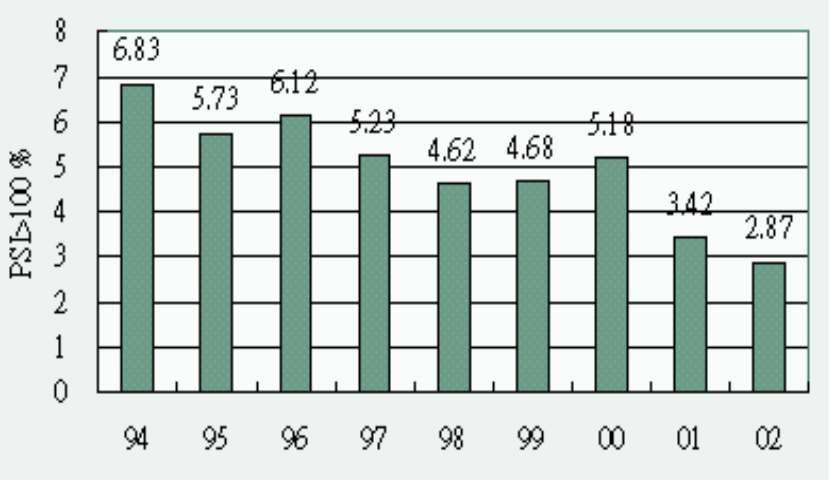
From a regional air quality perspective, the Kaohsiung-Pingtung Air Quality Zone recorded the greatest improvement. The poor air quality ratio dropped from the 1994 level of 18.4% to 7.45% in 2002, a decrease of nearly 60%. The Hualien-Taitung Air Quality Zone and Ilan Air Quality Zone perennially post the nation's best air quality with a 0. 0% ratio of poor air quality, and poor air quality occurs at the most once a year.

The main sources causing poor air quality are suspended particulate matter and ozone pollution, which in 1994 were responsible for 76% and 24% of poor air quality, respectively. However, changes in the socioeconomic environment leading up to 2002 have diminished the role of suspended particulate matter as a source of poor air quality pollution to second with 22%, while ozone pollution now assumes a greater significance as a source of poor air pollution at 78%. These figures clearly indicate that the focus of air pollution controls must be placed on ozone pollution.

The EPA expressed that socioeconomic developments are increasing the environmental burden of the nation's air quality. Statistics for 1994 indicate that the population was 21.18 million with a total energy consumption of 66.06 million KLOE (kiloliters of oil equivalent), and there were 12.38 million automobiles. By 2002 the population had increased to 22.52 million, nearly a 6% rise, total energy consumption increased to 99.96 million KLOE, a rise of 51%, and the number of automobiles increased to 17.91 million, a rise of nearly 45%. It is evident that the results of air pollution control efforts have been effective as the trend for progressive improvements continues despite the escalating environmental burden.

The EPA iterates that preventive control work in the past primarily focused on fuel use quality restrictions and emission standards and related regulations, as well as coordinating inspections and implementing controls on pollution source monitoring procedures. In recent years, efforts to more effectively control pollution emissions has led to the emergence of pollution reduction negotiations with major polluters. These negotiations have pressed for adjusting annual maintenance periods to coincide with times of the year when air quality is the worst, thus lessening the degree of environmental burden. Regarding mobile pollution sources, control standards have been established for motor vehicle diesel fuel composition and function and reducing the diesel fuel sulfur content, while adequate economic incentives have been provided to expedite the replacement of high-pollution late-model vehicles. In 2001 and 2002, allowances were provided for the replacement of 180,000 late-model motor vehicles.

In response to the escalating problem of ozone pollution, the EPA stated that it is presently implementing measures to reduce domestic ozone precursor products, targeting the automobile manufacturing industry, petroleum industry, semiconductor industry, PU composite industry, and dry-cleaning industry. Specific measures currently being promoted are emission restriction standards for volatile organic compounds, low NOx emission technology for boiler combustion, implementation of infrared sensor technology in petroleum industry parks to track sources of pollution leakage, and the installment vapor recovery equipment at filling stations. Regulatory controls for city and county air quality control zones will also be aggressively carried out in the future. In efforts to intensify promotion of pollution controls for the Kaohsiung-Pingtung region (the most seriously polluted air quality zone), the area will be classified as a priority total quantity control (TQC) zone and a set of relevant TQC measures will be drafted. It is hoped that these efforts will effectively reduce the problem of NOx pollution.



The nation's air quality continues to improve despite the escalating burden placed on the environment.

General Policy

Green Mark Shows a Decade of Success

To commemorate the 10th anniversary of Taiwan's Green Mark system, the EPA has issued the White Paper on Green Mark Policy, which points out Taiwan's achievements in the area of environmental labeling. Taiwan's ecolabeling system ranks as the world's fourth best, and Taiwan was the first country with laws to push the government to purchase environmentally friendly products. In the international arena, Taiwan is currently engaged in cooperation agreements with four countries, and has completed setting up six common specification standards with Canada. As the system gradually gets on track, the EPA will take steps to privatize the Green Mark system next year so as to decrease administrative costs.

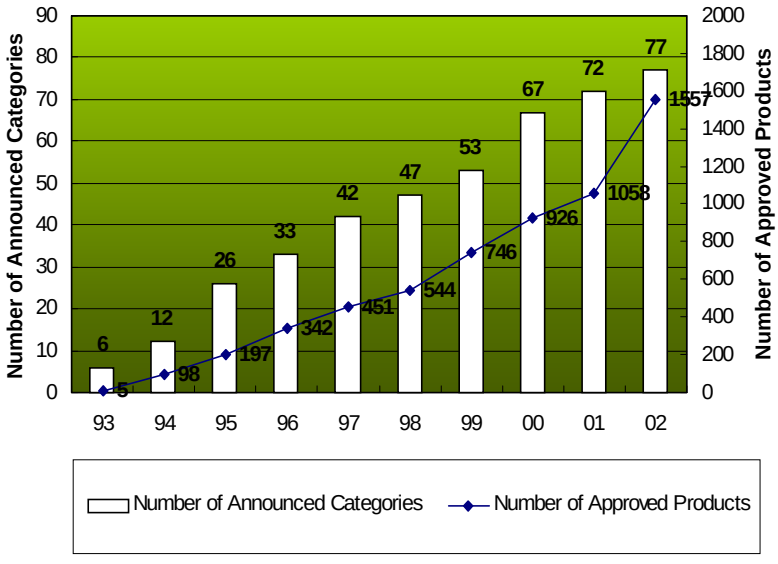
An ecolabeling system can be seen as an economic tool that awards manufacturers with a monopoly trademark to encourage production of goods that are low-pollution, recyclable, and resource-efficient. Consumers are in turn also encouraged to put a priority on purchasing and using such

products. It has already been a decade since the implementation of Taiwan's Green Mark system in December 1992, and the EPA has used this 10-year anniversary as an opportunity to compile the White Paper on Green Mark Policy. This document explains in detail the important achievements and direction of future policy. The EPA indicated that during the last 10 years of implementing the Green Mark system, the first stage of policy called for establishing a system and environment of public credibility, accuracy, and fairness. The most important efforts so far have been to develop specification standards, review product applications and ensure legitimate use of the Green Mark label.

Taiwan's Green Mark system conforms with Type I ecolabel regulations of the ISO 14024 (promulgated in 1998), which has established a basis for reciprocal recognition with other countries. During the middle stages of implementation, policy objectives shifted toward pushing the government to make green procurements to expand product channels and increase incentives. Thus there was an eager call to add green purchasing statutes to the *Government Procurement Act* (政府採購法), as well as officially launch the *Program to Promote Green Procurement in Government Agencies* (機關綠色採購推動方案), which has been in place since 2002.

Taiwan is the first country in the world to pass legislation requiring the government to make green procurements.

According to EPA statistics, 77 product categories with specification standards have been made available under Taiwan's current Green Mark system, and nearly 1,600 products have already been examined and approved (see Chart). Already over 2.9 billion Green Marks have been stamped onto products, accounting for an output value upwards of NT$40 billion. These results rank Taiwan's Green Mark system as fourth most effective worldwide, and second best in Asia. Moreover, Taiwan is the first country in the world to pass legislation requiring the government to make green procurements. This testifies that Taiwan has indeed become a leader of the ecolabeling trend among advanced nations.



The scale of Taiwan's Green Mark system has gradually expanded over the years.

Owing to Taiwan's experience and performance throughout its development, many developing nations have invited experts from Taiwan to provide guidance and assistance in establishing their ecolabeling systems. The Global Ecolabeling Network (GEN) held its annual conference in Taiwan for the first time in 2002, further attesting to Taiwan's accomplishments toward advancing the ecolabel trend.

The EPA relates that Taiwan has made every effort to sign reciprocal ecolabeling certification agreements with other countries and develop common specification standards. Taiwan currently enjoys reciprocal certification with the U.S., Canada, Thailand, and S. Korea. As for developing common specification standards, the first example in the world has been set between Taiwan and Canada and six standards have been finalized to date. Reciprocal certification agreements and common specification standards are expected to reduce costs, time, and human resources currently required for companies to apply for Green Mark certification. For example, companies will only be required to have their product tested in a domestic standards testing laboratory. After factories obtain their test report, the report will be accepted by other countries that have signed onto the agreement. This way, companies are not required to send their product to other countries for further testing.

With an eye toward the future, the EPA is aiming to reduce the government's burden by practicing the new international trend to make businesses that use Green Mark labels foot the bill. The EPA is actively drawing up plans to relegate certification tasks to qualified certification agencies and thereby gradually decrease government

expenditures over the years. The EPA will still handle such tasks as developing specification standards and raising the status, credibility, and added value of Green Mark products. Efforts to privatize the Green Mark are expected to begin next year.

Waste Management

Testing Frequency of Incinerators Increased to Twice Per Year

Aiming to cut down on pollution generated through the inappropriate disposal of industrial waste as well as decrease the public's misgivings about dioxin emissions from incinerators, the EPA has requested more frequent testing of ash residue from thermal treatment and testing of dioxin levels from large-scale incinerators. Testing frequency has been stepped up from once per year to twice per year, and it is expected that the new regulations will be enacted in May.

Taiwan's waste management practices have had only limited effectiveness so far, as the domestic industrial waste management system has yet to be perfected. With so many different types of industrial waste, current procedures lack long-term accurate data on waste generation. Moreover, as medium- and small-scale enterprises make up the backbone of domestic industry, it is hard to track the clearance of industrial waste, thus resulting in case after case of illegal waste disposal.

It has been discovered in recent years that after just one yearly sample of incinerator waste is tested to determine that it is non-hazardous, the fly ash, bottom residue and ash residue generated from industrial waste that has undergone thermal treatment is buried in landfills or reused as though it were general industrial waste. Sometimes fly ash and bottom residue are even mixed together in order to pass this annual test and then disposed of together. This situation could result in environmental pollution from the improper disposal of fly ash, bottom residue or ash residue. To tackle this problem, the EPA proposed the revised draft of the *Method and Facility Standards for Industrial Waste Storage, Clearance, and Disposal*（事業廢棄物貯存清除處理方法及設施標準）. In this revision, Article 23-1 was added to stipulate that fly ash, bottom residue and ash residue from thermal treatment waste cannot be mixed and must each undergo testing twice per year. Disposal of each type of material is then separately determined according to TCLP (toxicity characteristic leaching procedure) standards for hazardous industrial waste identified in Table 3 of Article 23 of Standards for Defining Hazardous Industrial Waste.

The EPA relayed that the primary reference on which this new regulation is based is Article 31 of the *Regulations Governing the Recycling, Clearance and Disposal of General Waste*（一般廢棄物回收清除處理辦法）, which stipulates that garbage incinerators must carry out regular testing of fly ash, bottom residue and ash residue. The appropriate disposal method of these materials is then determined based on test results, and ultimately leads to a reduction in environmental pollution incidents.

To get a better understanding of industry's opinion on this, a public hearing was held in late April regarding this draft revision. If everything goes as planned, it is expected that this new measure will formally go into effect in May.

Moreover, while the Legislative Yuan's Environment and Social Welfare Committee was examining the EPA's 2003 budget, an additional resolution was drafted to reduce citizens' misgivings concerning dioxin from incinerators. This resolution called for the EPA to increase the frequency of incinerator dioxin testing to the current once per year to once per half year. Moreover, local residents and environmental protection organizations should be invited to join and supervise the testing process. Data from the test results are then announced to the public.

Based on these same principles, the EPA recently set forth a revised draft of the *Waste Incinerator Dioxin Control and Emission Standards*（廢棄物焚化爐戴奧辛管制及排放標準）. This calls for increased testing frequency of large-scale incinerator dioxin levels, from once to twice per year, as a measure to reduce the public's misgivings about dioxin pollution. An article in the revised version stipulates that testing for dioxin within incinerator flues should be carried out regularly twice per year. One test shall be administered during each of two test periods, which run from January to June, and from July to December. However, the second test each year must be taken before nine months have passed from the first test.

The possibility that one incineration plant may have more than one incinerator has also been taken into consideration. The newly revised article stipulates that incineration plants that have more than one incinerator of the same model, scale, operation conditions, and pollution control equipment, must abide by regulations stated on their operation permit or otherwise report that they have been examined and

approved by the local competent authorities to choose incinerators with emissions of a specified amount or above for testing. However, the same incinerator may not be successively tested during the next test period.

According to the newly revised draft, seven days before an incinerator's first regular test, the operator must submit the test plan to the local competent authority. Before every regular testing thereafter, the operator should openly announce the scheduled test date and testing content at the incinerator grounds or on the competent authority's website, or at a suitable location in the vicinity. Environmental protection groups and local resident representatives should also be informed and invited to participate and supervise testing.

Within 60 days after each regular test, incinerator operators are required to submit a report on test results to local competent authorities. After examination by the local competent authority, the test results should be made available to the public on the local competent authority's website.

The EPA indicated that a public hearing was held in late April regarding this revised draft of the Waste Incinerator Dioxin Control and Emission Standards, and it is expected that the new regulations will be enacted in May.

Soil and Ground Water

Bottom Sludge in Polluted Irrigation Canals to be Removed ASAP

Remediation of heavy metal contaminated farmland has already become one of the focal tasks of local environmental authorities. According to investigation results, there is a direct correlation between heavy metal amounts in irrigation canal bottom sludge and their respective amounts in agricultural land. Aiming to cut pollution at its source, agricultural agencies and the EPA are carrying out pollution inspections in irrigation canals and is also planning to completely remove the bottom sludge from the 15 most heavily polluted canals as soon as possible.

Heavy metal pollution of farmland is already a serious problem, and this type of pollutant finds its way to farm soils primarily via irrigation canals. Last year the EPA conducted a comparative survey targeting farmland with high levels of heavy metal pollution as well as water quality and bottom sludge of irrigation canals in Jhanghua, Taoyuan and Kaohsiung. The results of this survey showed a high degree of correlation between tested levels of heavy metal pollution in farmland and irrigation canal bottom sludge. The EPA has already adopted measures to begin improvement work on those irrigation canals that have become the main sources of polluted farmland, as well as carry out follow-up work on polluted farmland.

As far as controls on farmland pollution sources is concerned, the EPA initiated an inspection and control plan for electroplating and metal surface treatment factories in March 2000 as a decisive step toward preventing heavy metal pollution on agricultural land. Starting in December 2001 and through the following three months, a large-scale enforcement action to control heavy metal pollution sources was carried out. Around 570 electroplating companies, metal surface treating enterprises and other metal treating enterprises, plastic stabilizers and leather industries in Taoyuan, Jhanghua and Kaohsiung counties were selected as priority targets for this comprehensive inspection and enforcement action. This measure helped urge legitimate industries to carry on with regular pollution prevention measures in accordance with environmental protection regulations.

Continually seeking ways to enforce the policy to separate wastewater discharge from irrigation systems, and thereby effectively control pollution sources, the EPA invited related agencies and industries in April and May of 2002 to discuss how to gradually relocate electroplating and metal surface treating enterprises to industrial parks. After this meeting, the EPA promptly directed local governments to counsel unregistered companies to close down operations and relocate to industrial parks within a specified deadline, or otherwise be subject to a severe clamp down. During the relocation period, companies are allowed to use tankers to transport wastewater to the industrial parks for disposal. If this method proves effective, similar enforcement measures will be extended throughout Taiwan in the future.

The EPA presses local governments to strictly inspect and control the entire electroplating and metal surface treating industry before these enterprises have completely relocated to industrial parks. The EPA has already subsidized Jhanghua County in executing irrigation canal audits so as to methodically control the discharge of heavy metals into irrigation canals.

The EPA is also compiling guidelines for identifying polluted bottom sludge, which will serve as a framework for identifying and managing polluted irrigation canals. After the EPA and the Council of Agriculture coordinate cleanup work, the county govern-

ments will direct the local irrigation association to establish taskforces to act according to the above guidelines. The EPA will then consult with local environmental authorities to handle follow-up disposal of the polluted sludge, as well as track down polluters and request compensation.

The EPA conveyed that each county and city government is currently in the process of follow-up remediation work on heavy metal contaminated farmland. In the future, the EPA will continue to step up efforts and provide assistance to make sure that local governments complete remediation work as soon as possible, in hopes that agricultural land is soon restored to its original state.

General Policy

Changes Made to EIA for NPP4 Wharf Construction Due to Beach Nourishment Plans

Taipower issued a second plea for EPA approval of plans to nourish the degraded Fulong beach with seabed material dug up from construction of a wharf designed to accommodate heavy machinery for Taiwan's fourth nuclear power plant (NPP4). To address this issue, the EPA convened a discussion between the Environmental Impact Assessment Committee, experts, academia, and related organizations. The outcome of this meeting was that there was still no way to directly approve the plan, and that Taipower should apply to change the original EIA as called for in the Environmental Impact Assessment Act.

Recently, much attention has centered around Taipower's plans to restore the beach at Fulong, Yanliao（鹽寮福隆）with seabed material excavated from the construction site of a heavy duty wharf for Nuclear Power Plant No.4. The NPP4 Environmental Protection Supervisory Committee of the Atomic Energy Council (AEC) under the Executive Yuan reached a resolution at its 41st meeting that the sand removed during the construction of the wharf would be used for a beach nourishment project at Fulong Beach in Yanliao. The committee asked Taipower to apply for EPA approval as soon as possible so that Taipower can resolve the problem according to environmental impact assessment regulations. Taipower twice submitted a request for EPA approval of this project, prompting the EPA to convene a discussion between the Environmental Impact Assessment Committee, experts, scholars, and related organizations on March 14.

During the meeting on March 14, Gongliao（貢寮）village representatives called into question the legitimacy of the meeting, thereby inciting a round of debate. The EPA expressed that the purpose of the meeting was not to discuss whether Taipower could proceed with beach nourishment, but rather to clarify how Taipower's procedures will comply with the *Environmental Impact Assessment Act* if they plan to proceed with beach nourishment.

The EPA also indicated that NPP4's EIA report was done before the Environmental Impact Assessment Act had gone into effect. The EIA conclusion was reviewed and approved by the AEC in 1991, and it was only until December 30, 1994 that the Environmental Impact Assessment went into effect. Therefore, regulations stipulate that for any changes made regarding construction of NPP4 that would affect the original EIA report content, Taipower should apply with the EPA according to EIA modification procedures.

NPP4 construction is to take up 210,000 cubic meters of earth on the sea floor, and the original EIA report was based on plans to cast this earth into the ocean. After local fishermen and other locals opposed this, the plan was changed to place the removed earth on land instead. As a result, Taipower followed *Environmental Impact Assessment Act* regulations by submitting an Environmental Impact Variance Analysis Report in 1996 regarding how changes in this new plan affected the original EIA. This analysis report was then examined and approved by the EPA. The report listed five ways to handle the removed earth, including use for making roadbeds, as fill material around completed structures, use for landscaping as needed while stored on NPP4 grounds, and use

Activity

Filling Stations to Apply for Outstanding Vapor Recovery Performance

Local filling stations are encouraged to hasten the installation of vapor recovery equipment as a measure to improve the problem of escaped fuel vapor at filling stations and reduce overall pollution. In addition to initially providing subsidies for filling stations to purchase vapor recovery equipment, the EPA will select and award the most outstanding filling stations that have already installed recovery equipment. Items tested will include air to liquid volume ratio and gasoline dispensing static/dynamic back pressure. Filling stations with vapor recovery equipment are welcome to sign up for this examination. Application details and forms can be found at http://www.epa.gov.tw/f/download/dl_index.htm or by calling 2312-7722 ext. 2777.

as pond bottom material to improve the soil at aquaculture facilities.

The EPA indicated that according to the Environmental Impact Assessment Act, Taipower should handle the removed earth as indicated by the Environmental Impact Variance Analysis Report. If Taipower plans to proceed with beach nourishment, it is required to clarify whether its actions will correspond to content within this report. Otherwise Taipower should report further changes regarding methods of handling removed earth. In the end, the Environmental Impact Assessment Committee, specialists, academia and related organizations came to the conclusion that if Taipower wishes to use the removed earth for a beach nourishment project, such a plan would overstep the content of the analysis report of modifications. Therefore, Taipower should submit a beach nourishment plan and apply for changes according modification procedures in the Environmental Impact Assessment Act.

General Policy

EPA Prompts Localities to Establish Environmental Protection Plans

Just days ago, EPA announced the Guidelines for Compiling and Reviewing Local Environmental Protection Plans as a measure to prompt local governments to set up environmental protection plans as soon as possible. In the future, county and city governments are to formulate their own environmental protection plans according to different local needs and characteristics, and based on the National Environmental Protection Plan. These plans will serve as the administrative blueprints for local governments as they promote environmental protection work.

Naturally, due to the multitude of tasks involved with environmental protection work, it is essential that carefully designed plans are drawn up before work is carried out. After the *National Environmental Protection Plan*（國家環境保護計畫）was passed by the Executive Yuan in 1998, the EPA hoped that all county and city governments could establish their own respective environmental protection plans based on this national plan. However, such planning was not practical at that time because there were no concrete ordinances or work guidelines to follow. To remedy this shortcoming, the Legislative Yuan established the Fundamental Environmental Protection Act in 2002 which stipulated that counties and cities should first recognize the ecological/social conditions and needs of their own region, and then establish autonomous ordinances and local environmental protection plans according to environmental protection regulations and to the EPA's National Environmental Protection Plan.

To put this provision into practice and comprehensively promote environmental policy and environmental protection work in each locality, the EPA invited the environmental protection departments of each county and city to discuss the *Guidelines for Compiling and Reviewing Local Environmental Protection Plans*（地方環境保護計畫編審作業要點）draft on March 20. After integrating the ideas deliberated by all parties, a set of working guidelines were agreed upon, which would suit each locality's unique initiatives and requirements. This was a great stride toward effectively establishing local environmental protection plans.

In coordination with the National Environmental Protection Plan's agenda, local environmental protection plans are to be implemented by 2011, and each plan will be executed in a series of short-term, mid-term and long-term stages. The EPA pointed out that while each county and city is establishing their own environmental protection plans, they should not only consider the requirements of ecological and social conditions within their own area of jurisdiction, but should also adhere to the fundamental national policies of environmental protection. Furthermore, specialists, academia, and related organizations should be consulted during the planning process.

According to the guidelines, the compilation of local environmental protection plans should pass through an integrated series of procedures. To start with, county chiefs and city mayors, should convene all agencies and organizations under their authority to discuss and examine the objectives, strategies, measures, and plans involved. The county chiefs and city mayors should also designate a suitable candidate to assemble a taskforce to compile local environmental protection plans, draft work plans, establish liaisons, and proceed with planning preparation.

These local taskforces then immediately proceed to collect data and analyze current conditions in an attempt to encompass a wide diversity of public sentiment. Mandatory reference material includes the National Environmental Protection Plan, white papers on policies made by the leading local authority, comprehensive development plans, environmental protection related opinion poll results and other relevant data. Based on collected data, the taskforce then proposes a pre-

liminary environmental protection focus area as well as countermeasures. The purpose of this initial stage is to conceptually map out local environmental protection plans, plan objectives, and environmental quality indicators, in addition to strategies and effective response measures.

Each county and city government is also required to hold group discussions throughout their constituency and keep a record of suggestions made by all parties. Meetings should be held with related government agencies of all levels, as well as public representatives, experts, academia, citizen groups, business fields and community members. After the first draft of local environmental protection plans is submitted, it is up to local taskforces to proceed with the first trial work. Recommendations by internal agencies should be integrated, division of labor should be determined and periodical evaluations should be made to gauge procedures. The taskforce should also make briefings to county chiefs and city mayors, and their plans should obtain approval through meetings with county and city administrations. The final draft should then be sent to the EPA for reference.

These new working guidelines stipulate that each local government should hold annual assessment reviews on the implementation status of local environmental protection plans, and announce review findings to the public. After local environmental protection plans have been established, local governments should hold a comprehensive review at least once every 4 years depending on actual environmental changes.

The EPA points out that local environmental protection plans should bear the following key points in keeping with the essence of the National Environmental Protection Plan:

1. Plans should support the National Environmental Protection Plan as well as build on the special features of each county and city. Parent environmental laws should be upheld according to environmental autonomous system concepts, which in turn should be formulated based on local requirements.
2. Holistic environmental management strategies should include multifaceted considerations and designs.
3. Basic planning concepts should take into account economic development and its benefits, social development and mutual benefits, total quantity controls, complete citizen participation, and sustainable development.

Since 1998, the EPA has extended a great deal of effort toward urging counties and cities to draw up environmental protection plans. The only hitch so far has been the varying pace of each local government. Currently, several of Taiwan's 25 counties and cities have already completed drawing up their first draft, with Hsinchu City being the earliest in 1999. Through this new comprehensive program that methodically puts the National Environmental Protection Plan into practice, the EPA once again actively calls on counties and cities to draw up environmental protection plans to agree with existing environmental needs as well as practical needs. This program is designed to help localities fully cooperate in implementing environmental policies directed toward sustainable development, and keep in step with the spirit of the Year of Sustainability.

Activities

EPA Issues Research Results of Environmental Forensics Technology and Applications Study

The EPA held a forum on March 19, 2003, to issue the results of annual commissioned research projects, centered on the theme of "Environmental Forensics Technology and Its Applications." Close to 100 members of industry, government and academic backgrounds from Taiwan's environmental protection arena attended the forum. The following studies were released and discussed during the forum: Application of Environmental Forensics Technology in Environmental Protection, Application of Chemical Fingerprint Analysis on Appraisal of Pollution from Petroleum Products and Waste, Application of Biomarker and Isotope Analysis in Environmental Forensics, and Application of Telemeter and Satellite Technology for Public Nuisance Dispute Resolution.

Dioxin Pollution Controls and Inspection Technology Forum Held in March

From March 12 to 13, the EPA held the Dioxin Pollution Controls and Inspection Technology Forum（戴奧辛空氣污染防制及檢測技術研討會）together with cosponsors including the Industry Technology Research Institute's Center for Environmental, Safety and Health Technology Development, the Institute for Environment and Resources, and the Taiwan Steel & Iron Industries Association. Domestic and foreign experts and scholars were invited to engage in international exchanges focused on dioxin control technology. Domestic firms that have shown success in improving dioxin pollution were also invited to share their achievements and experience in this area. The conference was commenced with the release of the National Status Report on the Implementation of Stationary Pollution Source Dioxin Emission Controls by the EPA's Department of Air Quality Protection. This report showed Taiwan's substantial achievements in reducing pollution levels in recent years, as well as pointed out that the focus of future efforts will be to reduce the levels of dioxin emissions.

News Briefs

Intensified Inspections of Industrial Discharge into Irrigation Canals during Droughts

Taoyuan County citizens have reflected that rivers in the area during drought periods are less able to dilute untreated wastewater discharge from industrial parks - a situation that could negatively impact the water quality of the area's irrigation canals. The EPA related that industrial park wastewater control has continually been one of the administration's focal tasks. For example, in 2002, a total of 1,256 inspections were carried out in Taoyuan County, 280 of which were followed up by penalties. During this year's drought periods, the EPA will intensify wastewater discharge inspections, especially focusing on factories that have received approval by irrigation associations to discharge into irrigation canals. The EPA appeals to all citizens to call the toll-free report hotline at 0800-066-666 if they discover factories discharging untreated wastewater. Upon receiving such information, the EPA will immediately dispatch personnel to carry out inspections and enforce penalties.

More Stationary Pollution Sources to Install CEMS

The EPA announced the third group of public and private stationary pollution sources that will be required to install continuous emission monitoring systems (CEMS) and set up electronic links with competent authorities' data systems. By law, stationary pollution sources are required to complete these two tasks within two years from the date of announcement (March 27, 2003). Stationary pollution source operators that had already established electronic links with local competent authorities before March 27, 2003, are required to obtain such authorities' consent that they need not submit an electronic network plan. Stationary pollution sources covered under this announcement include large-scale boilers (not including recycling boilers), petroleum heating furnaces, cracking furnaces, and coking and sintering furnaces for steel smelting.

Demonstration Environmental Communities Show Promising Results for Sustainability

In keeping with the spirit of the Year of Sustainability, on March 25, the EPA announced achievements made by 23 demonstration environmental communities（環保示範社區）that have been established over the past two years. The EPA targeted the unique aspects of each community to promote watershed conservation, river conservation, wetlands protection, biodiversity conservation, waste management (including greening and cleaning the environment), collective purchasing and green businesses, shoreline protection, air pollution controls, green energy and other environmental protection tasks. The project emphasized that community organizations should establish environmental protection volunteer teams and environmental education. This approach has not only allowed each community to bring the creativity of its own residents into full play and made use of local human, material and financial resources, but has also induced a spirit of partnership among community members to work together to protect their own living environment.

Inspection & Appraisal Regulations for Marine Pollution from Military Operations

In accordance with the Marine Pollution Control Act, the EPA compiled the *Inspection & Appraisal Regulations for Marine Pollution from Military Operations*（海洋污染涉及軍事事務檢查鑑定辦法), which went into effect on March 19. These regulations stipulate that in the future, when environmental protection authorities, executive bodies or co-executive bodies of any level are dispatched to perform inspections or appraisals of marine pollution involving military operations, their personnel must carry certification documents at all times. Such personnel must be accompanied by either local military police or local military organization environmental protection staff when entering harbors and other sites, and when boarding boats and other marine facilities. The military organization under inspection or appraisal is required to provide necessary assistance and proactively inform of potential dangers. Likewise, inspection and appraisal organizations and their staff are required to keep classified military operations confidential.

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