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Feature Article

Enhancing Soil Pollution Remediation and Related Technology Development

Speeding up soil pollution remediation and developing relevant technology is a vital part of the EPA's "A Sustainable Earth" policy. Under the *Soil and Groundwater Pollution Remediation Act* (土壤及地下水污染整治法), the policy consists of two major parts: "strengthening preventive control and conducting investigations of high pollution potential" and "speeding up remediation of pollution sites and enhancing remediation technology". As tasks under the policy are gradually implemented, soil and groundwater pollution sites can be cleaned up and taken off the control list, leading to improvement of overall environmental quality.

Strengthening preventive control and conducting investigations of high pollution potential

(1) Preventive control measures

Land owners and enterprises are supervised and urged to take the soil quality of the land they use seriously as well as clear up both pre- and post-operation responsibilities. In accordance with the *Soil and Groundwater Pollution Remediation Act*, announced enterprises are required to report soil pollution assessment investigations and testing data before land transfer, as well as establishing, changing, and closing business. There were a total of 7,921 voluntary reporting cases between 2005 and 31 July 2019. In the future, current relevant regulations will undergo evaluations on a rolling basis in order to increase the effects of voluntary controls.

In This Issue

To enhance regional control of soil and groundwater quality, competent authorities are responsible to regularly monitor pollution trends within their jurisdictions under the *Soil and Groundwater Pollution Remediation Act*. From 2011 to 31 August 2019, the monitoring rate reached 98.7% in all of the 158 designated industrial parks in Taiwan. A color signal control system is in place in industrial parks based on current testing status and control results. The latest result (in August 2019) showed red in five sites, orange in 13 sites, yellow in 24 sites, and green in 116 sites. The EPA will continue to promote the color signal control system, enhance warning and monitoring efficiency in industrial parks, speed up pollution improvement, strengthen systematic support services for decision making and analysis, and supervise all units to actively take up various projects.

Every year, the EPA holds two to three training seminars on sediment quality testing and reporting as well as sediment reporting coordination meetings so as to supervise and help competent authorities conduct testing and reporting tasks. The purpose is to strengthen control of water body sediment quality, disclose testing data, and set up an Environmental Resource Open Data Platform for the public to look up testing data. It also assists competent authorities and agencies in charge of water body control to complete various reporting operations.

Between January 2014 to 31 August 2019, authorities of 473 sites, including 83 rivers, 91 lakes and reservoirs and 299 irrigation ditches have submitted sediment investigation and sampling plans for reference. The plan submission rate reached 100%. Among them, 90.7% have completed the inspections and submitted the reports for references.

For the 453 regional groundwater quality monitoring wells, monitoring is conducted regularly in order to get a grip of groundwater quality background in Taiwan. In 2018, a total of 750 samples were taken from monitoring wells and the testing results that met the *Groundwater Pollution Monitoring Standards* (地下水污染監測標準) (Category 2) was 92.3% on average.

(2) Investigation of high-polluting potential

A. Enterprises

To enhance control of abandoned factories, the EPA has inspected and rated 504 enterprises as sites with high-polluting potential. Inspection was done on 359 of these enterprises between 2004 and August

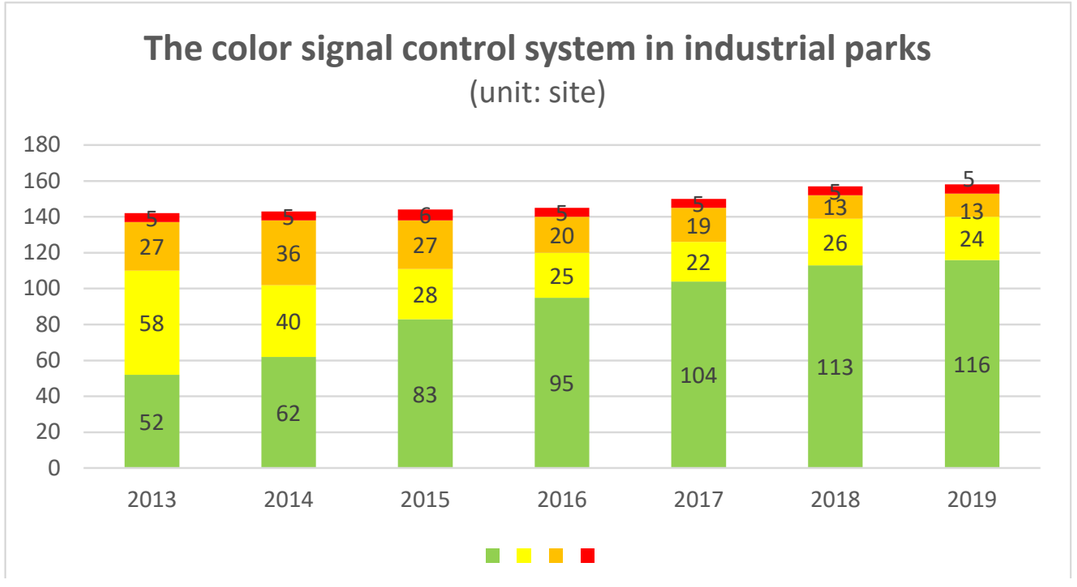

Chart: For the soil and groundwater pollution remediation network, color signals for pollution control in industrial parks are updated to effectively keep track of environmental quality and improvement status.

2019, 157 of which were confirmed with pollution, or a detection rate of 44%. Currently, 98 enterprises have been removed from the regulatory list. The investigation of the rest 145 enterprises is expected to complete in two years.

Furthermore, the EPA surveyed 943 enterprises and inspected 198 enterprises from 2008 to August 2019 for plants with high-polluting potential that are still in operation. The detection rate reached 62% as 122 of them were found to be polluted. To date, 29 enterprises are off the regulatory list. Onsite inspection at another 194 plants will continue and is expected to finish in three years.

B. Underground storage tank systems

To prevent underground storage tank systems from leakage, enterprises are required by law to self-monitor them on a regular basis before reporting to the local environmental agency. Targeting abnormalities in these reports, the EPA has continued inspection and pollution investigations in order to prevent pollution. Inspections have been conducted since 2001 with a total of 3,524 station-times, leading to confirmation of pollution in 289 stations. A total of 224 stations have been removed from the regulatory list so far, and 65 stations on the list are currently undergoing remediation implemented by their respective enterprises.

Speeding up pollution-site remediation and enhancing remediation technology

(1) Promoting remediation on polluted sites

The EPA has set up site management plans, a mechanism to improve sites where remediation has halted, and a control system to oversee the entire operation. The aim is to hasten improvement of sites with soil and groundwater pollution and effectively increase remediation progress by keeping an eye closely on the status of site remediation. The use of the Soil Pollution Fund is maximized through taking inventory of polluted sites, keeping track of investigation information so as site history and current pollution status, evaluating new evidence, and assessing the needs for additional investigation.

As of 31 July 2019, a total of 8,680 sites had been put under control. As many as 5,724 sites had been removed from the regulatory list, leaving 2,956 sites that are currently under control, 2,515 of which are farmlands (374 hectares) and 441 sites of

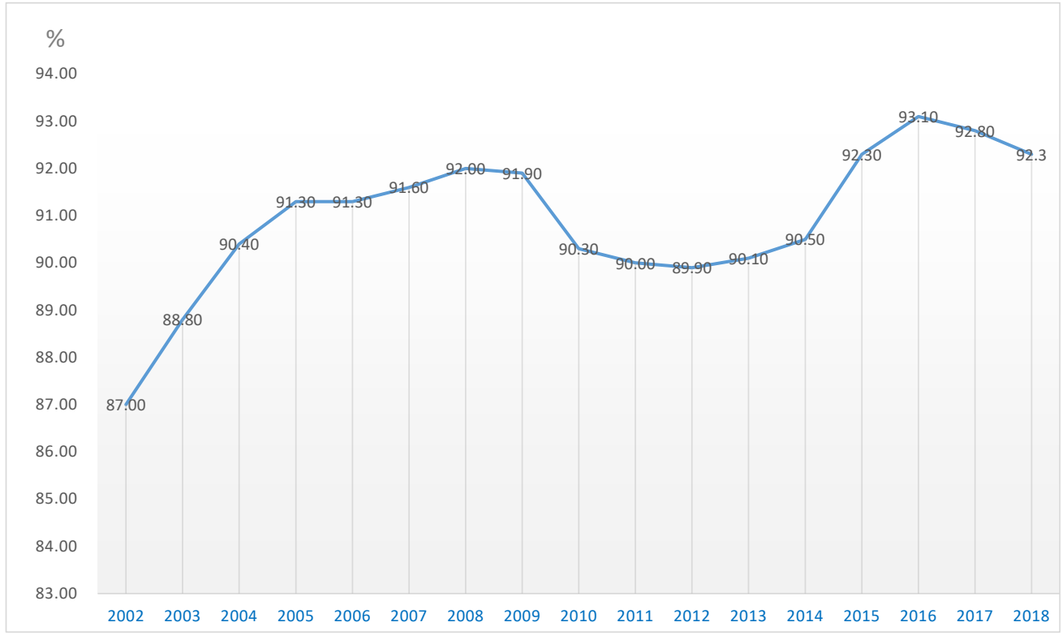

Chart: Changes in annual compliance rates of regional groundwater monitoring wells

enterprises.

(2) Enhancing remediation technology

A. Developing and testing new technology

Technologies suitable for pollution investigation and remediation in Taiwan have been developed and tested based on the features and remediation needs of polluted sites. It includes phyto-sensors, high-resolution site investigation technology, bio-remediation, and onsite smoldering remediation. The technologies developed are being tested on seven sites.

B. Promoting development and application of local technology

(i) Since 2010, the EPA has been promoting the 2019 Soil and Groundwater Pollution Remediation Funds-subsidized Research and Pilot Study Program. Research centers in universities in Taiwan (both national and private) as well as public and private research facilities are encouraged to investigate soil and groundwater and develop remediation and rehabilitation technology. The program also helps link remediation technology with those in need of it in order to speed up removal of polluted sites from the regulatory list. Up to December 2018, major results included 205 projects subsidized with NT$220 million, 129 research manuscripts submitted to international journals, 23 patents, five technology transfers, 43 instances of technology applied to polluted sites, and more than 800 soil and groundwater professionals trained.

(ii) In 2019, the EPA has kept on promoting the research and pilot study program, accepting applications between 31 August and 26 September 2018. Research units were welcomed to submit applications to develop technologies suitable for domestic needs. A two-stage review was carried out from October to December 2018. Twenty-eight applications were approved, which included 18 research projects and ten pilot study projects. The total subsidies amounted to NT$30 million.

(iii) For commercialized technology with great potential developed under the research and pilot study project above, the EPA has established a soil and groundwater pollution technology matching mechanism. A conference with 360 attendees was held in June 2019 to promote soil and groundwater remediation results and match available technologies to those in need of them. It aimed to strengthen local technical capacity, link up industries and academia, and enhance the potential for application of technology.

C. Introduction of advanced technology and related training

In 2018, Dr. James Landmeyer of the US Geological Survey and Dr. Song Jin of the University of Wyoming were invited to speak at seminars and staff training programs titled “Green Investigation Technology” and “Electrokinetic Remediation Technology”. A total of 413 people attended 13 training sessions. Soil and groundwater investigation and remediation technology in Taiwan were greatly enhanced through such training courses and case sharing.

Waste

Revised Targets and Implementation Methods Announced for Single-Use Utensil Ban

On 8 August 2019, the EPA announced the revised *Targets and Implementation Methods for Restricted Use of Single-Use Utensils* (免洗餐具限制使用對象及實施方式). The revisions aim to encourage people to carry their own utensils and use washable and reusable ones, while reducing disposable ones. The revised regulations prohibit department stores, shopping centers, and retail stores from providing single-use utensils made of any materials when customers eat at their premises.

Cutting down on plastic is an international trend. The 170 attending nations at the Fourth UN Environmental Assembly pledged to greatly reduce disposable plastic products by 2030, and the EU also made plans to limit the use of single-use utensils, including forks, knives, spoons, and chopsticks, by 2021. In addition, the Osaka Blue Ocean Vision that was passed at the G20 Osaka Summit reached an agreement on oceanic plastic waste, which was a goal of zero plastic use by 2050. In order to assist the public to change their habits, the EPA began with itself and promoted the concept of “not choosing single-use utensils” and then gradually helped the public and enterprises to also adopt such behaviors.

In light of various business scales, types, and locations, regional competent authorities are required to collect opinions from all sectors and propose to the central government effective dates for implementing controls on each industry, based on the circumstances within their own jurisdictions. Dates for limits and bans will be announced and take effect after the central competent authorities approve them. Violators will be subject to fines of NT$1,200~6,000, according to the *Waste Disposal Act* (廢棄物清理法) Article 51 paragraph 3.

The EPA stated that food and beverage enterprises in counties and cities that have already announced the implementation of restrictions on single-use utensils should comply with the policies, and it also encouraged enterprises in other places to voluntarily switch to reusable utensils. Meanwhile, citizens are encouraged to carry their own utensils as part of a more environmentally-friendly lifestyle.

Water

Discharge Reduction Promoted for Point-Source Pollution in Reservoir Watersheds

Besides regularly monitoring reservoir water quality, the EPA has been working to reduce discharges from pollution points within reservoir watersheds, in compliance with the Ministry of Economic Affairs’ (MOEA) Forward-Looking Infrastructure Development Program (前瞻基礎建設計畫). Measures include setting up total phosphorus reduction equipment at point-source pollution locations and designating total phosphorus control zones. The aim is to lighten pollution loads emitted into reservoirs and improve reservoir water quality.

To effectively ascertain changes in domestic reservoir water quality in Taiwan, the EPA has since 2017 switched from monitoring water quality every three months to once a month. To align with the MOEA’s Forward-Looking Infrastructure Development Program, regional governments are also subsidized to set up total phosphorus pollution reduction equipment in reservoirs that provide water for human use but have a higher Carlson Trophic State Index.

Currently, total phosphorus control zones are being designated for watersheds of four reservoirs. In additional, there is water quality improvement construction work ongoing at two other reservoirs. For offshore islands, aeration-exposure tanks using bionets as well as multi-soil-layering systems have been set up in testing sites to improve water quality. Thus far the test results have shown the measures effectively reduce total phosphorus.

The EPA states that it has actively promoted various total phosphorus water quality improvement strategies for point-source pollution within reservoir watersheds. It also coordinates with relevant authorities to conduct pollution control measures such as setting up sewage systems and combined purification tanks, promoting low-impact developments (LID), as well as best management practices (BMPs) for rainwater runoff and other non-point-source pollution. All of the aforementioned are carried out in hopes of gradually improving watershed water quality.

Green Mark

Green Point Scheme Expands to Include Smile Logo-certified Products

EPA Minister Tzu-Chin Chang announced that MIT smile logo-accredited products are to be included in the green point redemption program starting from 1 September 2019. The green point scheme allows participants to earn and collect points by taking public transportation, renting public bikes, and taking part in environmental protection activities. The green points can be used in exchange for food, clothing, accommodation and transportation. For example, the points can be redeemed for products with the Green Mark certification, or entrance to environmental education facilities and national forest recreation areas. Points can also be used for purchasing green products or dining at green point partner restaurants.

EPA Minister Tzu-Chin Chang (center) and Director General Jang-Hwa Leu (right) of the Industrial Development Bureau of the MOEA presided over the launch ceremony for MIT smile logo-accredited products included in the green point redemption program.

Minister Chang announced that the EPA would be launching new incentives as part of the green point scheme in September to encourage public participation. Starting from September 2019, the EPA will hold weekly giveaway events to give out one million points to randomly selected participants. Also, purchasing specific items will be given 2000 extra points and purchasing MIT smile logo-accredited products on weekends can earn participants 10 times the number of points.

Both Minister Chang and Director General Jang-Hwa Leu of the Industrial Development Bureau of the Ministry of Economic Affairs urged retailers to support the green point program to stimulate green consumerism and a circular economy. The scheme also motivates manufacturers to obtain MIT smile logos, Green Mark certification, and carbon footprint labels.

Director General Leu also encouraged consumers to support the domestic products and take part in environmental protection by purchasing MIT smile logo products. The green point system recently expanded to include 814 MIT smile logo products (such as clothing, towels, shoes and small home appliances) and, with the existing green products, now consists of a total of 1,858 green products. The purpose of the green point scheme is to boost green business participation, support a circular economy, and promote green consumerism and sustainable lifestyles.

Individuals can redeem their green points in exchange for more than 1,000 available Green-mark certified or eco-labelled products (including home appliances, household cleaners, thermos cups, stationery, food and groceries) through the following retailers: E-Life Mall Corporation, RT-Mart, Far Eastern A-Mart, Hilife, 7-Eleven, and ET Mall. The green point system has a total of 320,000 users who have accumulated more than five billion points.

To start earning points, individuals only need to create an account on the Green Point website or app and link up their smart cards or retail customer reward cards to their accounts. Points can also be acquired through shopping from a range of 1,000 eco-friendly products on the website. The green point redemption program is the best reward program in the market where points can be exchanged for up to 10% of discounts on products.

The EPA encourages everyone to download the Green Point app and sign up to enjoy the various benefits of the redemption program while practicing environmental protection in their daily lives. For more information on the green point program, please go to its official website: htps://www.greenpoint.org.tw/.

Chemicals

Amendments Preannounced for the Management and Handling of Toxic and Concerned Chemical Substances

The *Toxic and Concerned Chemical Substances Control Act* (毒性及關注化學物質管理法) was amended on 16 January 2019 to add "concerned chemical substances" as a new category of controlled substances. In response to changes to the Act and to maintain consistency of the stipulations, the drafts of revisions have been made to the following regulations: the *Permit Registration and Approval Regulations for Toxic Chemical Substances* (毒性化學物質許可登記核可管理辦法), the *Regulations Governing* Recordkeeping for the *Handling and Release of Toxic Chemical Substances* (毒性化學物質運作及釋放量紀錄管理辦法), and the *Toxic Chemical Substances Labeling and Materials Safety Data Sheets Regulations* (毒性化學物質標示及安全資料表管理辦法). In addition, the management regulations governing permission to use class 4 Toxic Chemical Substances will be annulled and any related policies under the original law will be merged into the *Permit Registration and Approval Regulations for Toxic Chemical Substances.*

Revisions to the *Permit Registration and Approval Regulations for Toxic Chemical Substances*, the *Regulations Governing Recordkeeping for the Handling and Release of Toxic Chemical Substances*, and the *Toxic Chemical Substances Labeling and Materials Safety Data Sheets Regulations* mainly focus on:

1. Revising the legal basis of the laws according to the amended *Toxic and Concerned Chemical Substances Control Act.*

2. Renaming the regulations in response to the newly added category of controlled chemical substances: concerned chemical substances.

3. Adding new management regulations and revising the content of some articles.

4. After evaluating outcomes of current policy, permit application procedures were simplified and management was enhanced for the handling of controlled chemicals.

All three amendments are expected to take effect on 16 January 2020.

The main points of the amendments to the *Permit Registration and Approval Regulations for Toxic Chemicals* are as follows:

1. The *Permit Registration and Approval Regulations for Toxic Chemical Substances* will be renamed the *Permit Registration and Approval Regulations for Toxic and Concerned Chemical Substances*.

2. Existing content of the *Management Regulations Governing Permission to Use Class 4 Toxic Chemical Substances* (第四類毒性化學物質核可管理辦法) will be combined into the renamed regulations.

3. To simplify the application and review procedures, permits, registration documents and approval documents are to be applied for and granted based on the handlers or operating sites instead of having separate permits for each individual chemical substance.

4. Regulations governing the replacement, renewal or extension of permits are added.

5. Regulations governing the deadlines for making corrections to different permit and document

applications are added.

6. Regulations governing the procedures and content that handlers shall follow for transparency of information are added.

Amendments to the *Regulations Governing Recordkeeping for the Handling and Release of Toxic Chemical Substances* include:

1. The *Regulations Governing Recordkeeping for the Handling and Release of Toxic Chemical Substances* will be renamed the *Regulations Governing Recordkeeping for the Handling and Release of Toxic and Concerned Chemical Substances.*

2. Regulations are added to stipulate the content and format of the handling records and how often they need to be updated. The frequency for reporting the records to the EPA will be announced in the future.

3. The current regulations exempt handlers from submitting handling records every month if the released volumes to be released stay the same. However, it has been difficult to differentiate between overdue reports and exemptions, which have caused confusion for both handlers and local environmental protection bureaus. Therefore, this rule will be abolished, and monthly submissions of handling records will be required with no exceptions.

The main points of the amendments to the *Toxic Chemical Substances Labeling and Materials Safety Data Sheets Regulations* are as follows:

1. The *Toxic Chemical Substances Labeling and Materials Safety Data Sheets Regulations* will be renamed the *Toxic and Concerned Chemical Substances Labeling and Materials Safety Data Sheets Regulations*.

2. When there are any difficulties with labeling caused by the appearances or materials of the containers or packaging, alternative methods are to be adopted, such as using fold-out labels, attaching hang tags, or directly printing required information on the containers.

3. To enhance risk communication for handling processes, labeling and materials safety data sheets are to be in Chinese, with English translation when necessary. Also, a one year grace period will be given to those who need to adjust their label content and materials safety data sheets based on this rule.

As for the amendments regarding concerned chemical substances, an official control list will be announced in the future. Any substances on the list will require proper labelling and handlers are to produce safety data sheets for materials in accordance with the regulations. Furthermore, substances on the list will be under tiered management based on their characteristics and handlers will be obliged to obtain approval documents and submit regular operation records.

General Policy

EPA Celebrates its Thirty-second Anniversary with Former Ministers

On 22 August 2019, the EPA marked the 32nd anniversary of its founding. To celebrate its birthday, the EPA held an event and invited former EPA ministers, deputy ministers, and all retired employees to share its accomplishments in environmental protection.

With the joint efforts of 16 former ministers and the entire EPA staff, environmental protection sprouted and has become deeply rooted in Taiwan's education system. On this special day, former ministers were invited to join the celebration and share their experiences in environmental protection over the past 32 years. Participating past ministers included: Eugene Chien, Larry L.G. Chen, Chang Chu-Enn, Shu-Hung Shen, Kuo-Yen Wei, and Ying-Yuan Lee.

The theme of the event was to honor the EPA staff's hard work and commitment in promoting environmental sustainability. Hence, to commemorate the EPA's growth over the past three decades and to show gratitude for the joint cooperation of the entire staff, the EPA made a large mosaic poster with thousands of images of current and past staff. The EPA also made special anniversary albums with photos of major environmental events throughout the last 32 years and gifted them to every former minister.

In recent years, Taiwan has experienced significant improvement in both its environmental regulations and awareness. In the future, the EPA will continue working on resource reuse and recycling and striving for environmental sustainability. Through this celebration event, the EPA also wished to show the public its determination and perseverance in environmental protection.

On 22 August 2019, the EPA hosted its former ministers and deputy ministers to celbebrate past accomplishments .

Air

Risk Assessment Procedures for Hazardous Air Pollutants from Stationary Sources Announced

The EPA announced *Risk Assessment Procedures for Hazardous Air Pollutants from Stationary Sources* (固定污染源有害空氣污染物健康風險評估作業方式) on 23 August 2019. These regulations provide environmental competent authorities with consistent procedures for conducting health risk assessments, when amending or formulating the emissions standards for hazardous air pollutants (HAPs). These procedures will help the EPA with its work on reducing risk of exposure to HAPs so as to protect the public's health.

The announced procedures are in accordance with the *Air Pollutant Control Act*, amended on 1 August 2018, which states that stationary pollution source emission standards must include HAPs. Such standard values shall be based on the results of health risk assessments and the feasibility of prevention measures. The categories of the above-mentioned HAPs and the health risk assessment procedures shall be announced by central competent authorities. Setting standardized health risk assessment procedures will provide a valuable reference for environmental competent authorities.

The procedures base their scope on the categories of the HAPs announced by the EPA and assess the impacts to human health of inhalation exposure. They must be conducted according to the following:

(1) Identification of hazards: The categories of toxicity (e.g. carcinogenicity, prenatal developmental toxicity, reproductive toxicity, developmental toxicity, mutagenicity, systemic toxicity), emission sources, and amounts emitted must be assessed.

(2) Dose-effect assessment: For carcinogenic HAPs, inhalation cancer slope factor or inhalation unit risk shall be determined, while for non-carcinogenic HAPs, reference concentration (both acute and chronic) shall be assessed.

(3) Exposure assessment: The total inhalation exposure to the spread of HAPs among residents living in the affected areas of the regulated entities shall be assessed.

(4) Description of risk characteristics: Based on the results of the above assessments, the total increased carcinogenic and non-carcinogenic risks caused by the regulated HAPs for residents living in the affected areas of the regulated entities shall be assessed. Risk assessments shall be analyzed for uncertainty with a 95% upper confidence limit.

Air

Volatile Organic Compound Limits for Architectural and Industrial Maintenance Coatings Announced

On 13 Aug 2019, the EPA announced the *Volatile Organic Compound Content Limits for Architectural Coatings and Industrial Maintenance Coatings* (建物及工業維護塗料揮發性有機物成分標準). These regulations seek to reduce the usage of volatile organic compounds (VOCs) as part of the EPA's mission to ensure the public's health.

Architectural and industrial maintenance coating products contain high concentrations of VOCs. It is often not possible to collect and treat these VOCs during coating processes. For a short period of time after the coating is applied, VOCs continue to be released, impacting air quality, working personnel and people in general. Furthermore, according to the recently amended *Air Pollution Control Act*, chemical products that are manufactured, imported or sold containing the VOCs announced by the central competent authorities must meet the content limits for such VOCs. Thus, there is a need to enhance related controls on such products.

After considering other countries' experiences in controlling VOCs, the current state of manufacturing technology development, and the VOC content testing data of the coating products on the market, the EPA announced the *Volatile Organic Compound Content Limits for Architectural Coatings and Industrial Maintenance Coatings*. The restrictions put in place will be for coatings used in buildings and in maintaining industrial equipment, as these are stationary sources of pollution. The concentration limits are for the VOC content in the products sold on the domestic market; coatings to be exported will not be affected.

The EPA emphasized that the targets of this draft include enterprises involved in the manufacturing, importation and sale of architectural and industrial maintenance coatings containing VOCs. The regulated coatings include three broad categories and five specific types. The categories are: coatings for interior walls and ceilings (category A/B) and exterior walls (category C). Labels for the diluting solvents and the solution ratios will be required to prevent the use of solvents from unknown sources and to determine the largest amounts of VOCs used in coating products.

Table: The concentration limit of VOCs in three broad categories and five specific types

Category	Use	Adjust stickiness method	Concentration limit of VOCs
Category A	Coatings used for interior walls and ceilings (60° glossiness < 25 GU)	water-based solvent-based	must not exceed 50 (g/L)
Category B	Coating used for interior walls and ceilings (60° glossiness > 25 GU)	water-based solvent-based	must not exceed 100 (g/L)
Category C1	Exterior wall coating	water-based	must not exceed 100 (g/L)
Category C2	Opaque exterior wall coating	solvent-based	must not exceed 450 (g/L)
Category C3	Transparent exterior wall coating	solvent-based	must not exceed 600(g/L)

Air

Penalty Guidelines for Violations of *Air Pollution Control Act* Amended

According to the recent revisions to the *Air Pollution Control Act*, penalties are now issued based on each violation committed instead of consecutive days of a violation. Consequently, the EPA has also amended the *Guidelines for Consecutive Daily Fines for Violations of the Air Pollution Control Act* (違反空氣污染防制法按日連續處罰執行準則) and renamed it the *Implementation Guidelines for Late Corrections, Reporting or Improvements for Violations of the Air Pollution Control Act* (違反空氣污染防制法按次處罰通知限期改善補正或申報執行準則). The new guidelines were made effective on 19 August 2019 for the imposition of penalties by competent authorities.

The main focus of the amendments is to change the basis of the punishment to be the number of violations instead of the consecutive days of a violation, and to move the stipulations in Article 36 to 38 of the *Air Pollution Control Act Enforcement Rules* to the administrative standards.

The EPA also referenced the *Implementation Guidelines for Late Corrections, Reporting or Improvements for Violations of the Water Pollution Control Act* (違反水污染防治法按次處罰通知限期改善或補正執行準則) while formulating the amendments with similar topics, including: required documents for the completion of improvements, improvement verification procedures, penalty guidelines and improvement deadlines for failing the improvement verification, and standards for determining implementation failures against improvement plans.

The EPA reminds the public that heavy penalties (including criminal and administrative penalties) are imposed for violations of the *Air Pollution Control Act*. Hence, violators should make immediate improvements in compliance with the law to avoid further punishments. Failure to make improvements may result in revocation of operating permits, suspension or even termination of businesses. Any illegal gains from violations will also be confiscated.

News Briefs

Penalties for Transportation Vehicles Violating Air Pollution Control Act Revised

In accordance to the *Air Pollution Control Act* revised and announced on 1 August 2018, the EPA has combined the fines and authorization regulations into Article 85 of the Act. After reviewing *Regulations for Fines for Transportation Vehicles Violating the Air Pollution Control Act* (交通工具違反空氣污染防制法裁罰準則), *Standards for Fines for Transportation Vehicles that Violate Emission Limits* (交通工具排放空氣污染物罰鍰標準), and *Standards for Fines for Motor Vehicles Violating Idling Management Regulations* (違反機動車輛停車怠速管理規定罰鍰標準), the EPA has amended and merged these three regulations into the first regulations and abolished the latter two.

The main points of the revised fines are as follows:

1. In line with the revision of Article 86 of the *Air Pollution Control Act* that illegal gains from violating the mandatory obligations stipulated in the Act can be confiscated, the competent authorities are authorized to formulate the gain assessment methods, and confiscation can be done through administrative actions. Relevant provisions have been removed from the regulations.

2. Added fine fees for trains emitting air pollutants exceeding emission standards.

3. Added fine fees for vessels that utilize fuel which contains ingredients exceeding content standards.

4. In accordance to Article 80 paragraphs 1 and 3 of the *Air Pollution Control Act*, the fines for vehicles that have not had a regular exhaust inspection by the deadline is now NT$500. There are also additional fines for those

who have not had a vehicle exhaust inspection six months after the deadline, as well as for those who do not go for a re-inspection as required or who do not pass a re-inspection.

First Taiwan-Vietnam Environmental Education Youth Excellence Workshop Held in Hanoi

As part of Taiwan's New Southbound Policy, the EPA held the Taiwan-Vietnam Environmental Youth Excellence Workshop in Hanoi. Twelve youth representatives for environmental education, selected from educational institutions and social organizations across Taiwan, gathered in Hanoi, Vietnam on 18-23 August 2019. The six-day event allowed these youth an opportunity to share thoughts about environmental issues and response methods with representatives from Vietnamese educational institutions. These higher-education institutions included Vietnam National University of Social Sciences and Humanities (VNU-USSH), VNU University of Natural Sciences, and Hanoi University of Natural Resources and Environment.

During the opening of the event, the Vice Rector of VNU-USSH noted that the emphasis of conversations surrounding environmental issues in the past was on preventing and handling pollution, yet gradually it is becoming clear that such a focus is insufficient. She stated that environmental education represents a better solution to environmental problems. The Deputy Director of the Vietnam Communications Center of the Ministry of Natural Resources and Environment, Vu Minh Ly, also expressed that environmental education is the key for equipping future generations to solve complex environmental issues. Also in attendance was Richard R.C. Shih, representative of the Taipei Economic and Cultural Office in Vietnam. He spoke about the cooperation between Taiwan and Vietnam he has experienced as a representative in Vietnam, and said that Taiwan's experiences can provide real assistance to Vietnam whether in industrial development or environmental education.

Taiwan, US and Indonesia Jointly Conduct Asia-Pacific Mercury Monitoring Network Meeting

The Taiwan EPA held the "8th Annual Asia-Pacific Mercury Monitoring Network Workshop" in Jakarta, Indonesia on 14-16 Aug 2019 with the collaboration of the Indonesia Ministry of Environment and Forest and the USEPA. It was the first such meeting to be jointly led by Indonesia, Taiwan and the US. Over 60 representatives, including government officials, scholars and experts, from 16 countries attended. The Taiwan EPA shared its experience in mercury monitoring and analyzing technologies and the results of its work. In addition, the Indonesian government scheduled visits to local artisans and small-scale gold mines. These site visits provided a practical way to look into mercury pollution issues in Indonesia, promoting international networking surrounding environmental issues.

Participants from 16 countries gather in the 8th Asia-Pacific Mercury Monitoring Network Workshop in Jakarta, Indonesia.

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