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十五、中文摘要

污染物指紋資料庫應用在非法污染案件產源與棄置者的責任追查為主，計畫執行策略與內容規劃，以建構利於追查的環境及建立鑑識技術，再結合污染案件追查的實務需求為依歸。

1.指紋追查環境建構：

透過法規、行政管制與稽查作業程序，結合建置完整的蒐尋資料庫，來建構利於追查的環境。

其內容應包含：

申報管制作業調整：藉由法規或行政規範，使所定義之指紋指標資料與申報內容項目的結合。

產源蒐尋資料庫整合建置與維護：資料庫的建立有在現有資料庫的架構下進行整合與擴充及所需配合的鑑識技術與資訊建立，如檢測技術與鑑定比對程序。

優先行業指紋資料建置：依污染案件追查需求，擴充相關行業產製程指紋資料的內容。

專家諮詢機制建置：建立與國內外環境法醫及產製程相關專業人士之網上或定期的諮詢管道。

2. 鑑識技術建立

成份或特殊指標鑑定技術的建立：建立優先行業指紋資料比對鑑識所需之成份或特殊指標檢測技術與作業程序。

特定污染物質環境效應與關聯鑑定：依污染案件追查需求，針對特定污染物質進行環境效應影響，如氣候化效應(weathering effect)、微生物造成之降解反應、污染物於介質或生物體中傳輸間關聯性分析等。

統計方法與應用程序建立：建立以統計方法說明比對鑑識結果之可信度，尤其是多種指紋比對時之應用程序。

3. 案例追查與驗證

污染案件產源追查與驗證：以實際污染案件追查實例，驗證建構之產源蒐尋資料庫、驗證作業程序與鑑識技術。案件以非法棄置事業廢棄物、水或土壤污染案件為主。

追查與鑑識程序作業手冊建立：藉由污染案件追查驗證結果，建立包含法規實務與追查鑑識程序作業手冊。

人員教育訓練：建立網上訓練與及時諮詢的人員訓練機制。

配合指紋資料庫的建置，未來三年執行計畫規劃，皆已列於第六章中。而透過實例的驗證，除可以修正所規劃的鑑識程序與資料庫方向外，更可驗證整個計畫的執行成果。

十六、英文摘要

The primary use of the pollutant fingerprints database is to provide a practical tool to track the origin of illegal dumping activities and responsible parties. Strategy and scope of the database establishment are based on easing the identification of favorable environmental forensic techniques, generating and maintaining knowledge, and providing useful details for investigating polluting parties.

1. Establishment of Fingerprints-tracing Environment

The goal is to build a complete database that would facilitate the investigation process through judicial and executive efforts and regular review of regulatory procedures. The database should be based on the following:

-)Adjustments of the reporting system – Regulations or executive orders are used to ensure the target fingerprints data are included in the required reports.
-)Creation and maintenance of the source database – The formation of the source database is done under the framework of the existing database infrastructure and should incorporate essential forensic techniques and know-how, standard operating procedures, etc.
-)Prioritization of the industrial categories based on pollution analysis for database establishment – All the industrial groups are prioritized using the existing case history of illegal dumping activities, then the fingerprints database is expanded to include pertinent information about each of the prioritized categories.
-)Establishment of an expert consulting system – A consulting network consisting of domestic and foreign environmental and industrial process experts is formed for online collaborations and periodic conferences.

2.Establishment of Environmental Forensic Techniques

)Incorporation of an identification techniques knowledge base to the fingerprints database – A knowledge base for components or representative component identification is integrated into the source database and will contain necessary information regarding manufacturing processes, key components of raw materials and waste streams, associated analytical/identification techniques, and standard operating procedures for prioritized industries.

)Formation of a database for the relationship between the environment and representative pollutants – The environmental effects of any specific pollutant, such as weathering effect, microbiological degradation, the fate and transportation of the pollutant in the media and/or inside organisms are documented and analyzed in a relationship database.

)Establishment of statistical analysis methods and their application – Reliable statistical methods are established to validate and interpret the environmental forensic results.

3.Verification of the Applicability of the Database and Case Study

)Tracking and verification of pollution cases with established databases – Information about existing contaminated sites are used to verify the effectiveness of the fingerprints database, forensic techniques, and standard operating procedures. The sites used are primarily related to illegal dumping of industrial wastes and water and soil contamination.

)Preparation of standard operating procedures for tracking and forensic analysis – Preparation of standard operation procedures are based on the results from case studies.

)Personnel training program: Two separate training programs will be established, one for the service personnel answering the hotline, and the other for web-based education of prospective and current employees.

Chapter 6 depicts the detailed work plan for the next three years of the project to establish a fingerprints database. Through actual case studies, not only can the database and established procedures be modified, but the effectiveness of the entire plan can be evaluated and verified.

關閉視窗