

## 第六部份 土壤調查監測作業

# 六輕廠區土壤監測作業

## 100 年度監測報告

開 發 單 位：台 塑 石 化 股 份 有 限 公 司

執行監測單位：琨鼎環境科技股份有限公司

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# 六輕廠區土壤監測作業

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# 第一章 監測內容概述

## 1.1 工作進度

『六輕廠區土壤監測作業』其環境監測期程自 100 年 07 月起至 100 年 12 月止，工作預定進度及實際進度如表 1.1 所示。本次報告為計畫廠區內之土壤監測工作環境監測結果進行彙整及分析。

## 1.2 監測情形概述

本環境監測工作係依據『六輕廠區土壤監測作業』合約執行監測，監測執行期間自民國 100 年 07 月起至 100 年 12 月，本次環境監測工作之監測結果摘要如表 1.2 所示。

## 1.3 監測計畫概述

依本計畫合約內容規定，需辦理土壤監測之類別之監測，由琨鼎環境科技股份有限公司(環署第 042 號，認證資料如附錄一)負責土壤重金屬採樣分析，土壤揮發性有機物委由台旭環境科技中心(股)公司(環署第 027 號，認證資料如附錄一)負責採樣分析，資料彙整評析工作委由朝陽科技大學企業創新學院院長王敏昭教授及朝陽科技大學環境工程與管理系副教授張簡文紋進行。

表 1.1 工作預定進度表

| 工作項目    | 100 年 |       |       |      |       |       |
|---------|-------|-------|-------|------|-------|-------|
|         | 7 月   | 8 月   | 9 月   | 10 月 | 11 月  | 12 月  |
| 資料蒐集分析  | ===== |       |       |      |       |       |
| 實地現勘    |       | ===== |       |      |       |       |
| 提送工作計畫書 |       |       | ===== |      |       |       |
| 土壤採樣    |       |       | ===== |      |       |       |
| 土壤分析    |       |       | ===== |      |       |       |
| 資料整理分析  |       |       |       |      | ===== |       |
| 提送成果報告  |       |       |       |      |       | ===== |
| 預定工作進度  | 10%   | 25%   | 55%   | 75%  | 90%   | 100%  |

表 1.2 「六輕廠區土壤監測作業」監測結果摘要表

| 監測類別 | 監測項目               | 監測結果       |              | 因應對策                      |
|------|--------------------|------------|--------------|---------------------------|
|      |                    | 標準值        | 監測數值         |                           |
| 土壤   | pH                 | —          | 7.5~8.9      | 各測點測值均符合土壤污染監測標準及土壤污染管制標準 |
|      | 重金屬鋅 (mg/kg)       | 1000*/2000 | 119~845      |                           |
|      | 重金屬鎘 (mg/kg)       | 10*/20     | N.D.<0.215   |                           |
|      | 重金屬鉛 (mg/kg)       | 1000*/2000 | 12.7~43.4    |                           |
|      | 重金屬銅 (mg/kg)       | 220*/400   | 8.30~91.0    |                           |
|      | 重金屬鉻 (mg/kg)       | 175*/250   | 20.0~73.0    |                           |
|      | 重金屬鎳 (mg/kg)       | 130*/200   | 20.5~47.3    |                           |
|      | 重金屬砷 (mg/kg)       | 30*/60     | 7.0~11.5     |                           |
|      | 重金屬汞 (mg/kg)       | 10/20      | ND<0.311~1.4 |                           |
|      | 苯 (mg/kg)          | 5/10       | N.D.<0.0054  |                           |
|      | 甲苯 (mg/kg)         | 500        | N.D.<0.0099  |                           |
|      | 乙苯 (mg/kg)         | 250        | N.D.<0.0057  |                           |
|      | 二甲苯 (mg/kg)        | 500        | N.D.<0.0082  |                           |
|      | 1,3-二氯苯 (mg/kg)    | 100        | N.D.<0.0054  |                           |
|      | 1,2-二氯苯 (mg/kg)    | 100        | N.D.<0.0058  |                           |
|      | 四氯化碳 (mg/kg)       | 5          | N.D.<0.0057  |                           |
|      | 氯仿 (mg/kg)         | 100        | N.D.<0.0077  |                           |
|      | 1,2-二氯乙烷 (mg/kg)   | 8          | N.D.<0.0053  |                           |
|      | 順-1,2-二氯乙烯 (mg/kg) | 7          | N.D.<0.0073  |                           |
|      | 反-1,2-二氯乙烯 (mg/kg) | 50         | N.D.<0.0054  |                           |
|      | 1,2-二氯丙烷 (mg/kg)   | 0.5        | N.D.<0.0065  |                           |
|      | 四氯乙烯 (mg/kg)       | 10         | N.D.<0.0056  |                           |
|      | 三氯乙烯 (mg/kg)       | 60         | N.D.<0.0094  |                           |
|      | 氯乙烯 (mg/kg)        | 10         | N.D.<0.0059  |                           |
|      | 六氯苯 (mg/kg)        | 500        | N.D.<0.0033  |                           |
|      | 3,3'-二氯聯苯胺 (mg/kg) | 2          | N.D.<0.30    |                           |
|      | 2,4,6-三氯酚 (mg/kg)  | 40         | N.D.<0.20    |                           |
|      | 2,4,5-三氯酚 (mg/kg)  | 350        | N.D.<0.22    |                           |
|      | 五氯酚 (mg/kg)        | 200        | N.D.<0.44    |                           |
|      | 總石油碳氫化合物 (mg/kg)   | 1000       | 10.0~66.1    |                           |

註1：標準值主要為土壤管制標準，有“\*”表示土壤監測標準

註2：土壤污染監測標準：中華民國100年1月31日行政院環境保護署環署土字第1000008485號令訂定發布

註3：土壤污染管制標準：中華民國100年1月31日行政院環境保護署環署土字第1000008495號令修正發布

## 1.4 監測位址

土壤類別各採樣點之監測位置如圖 1-1 所示。

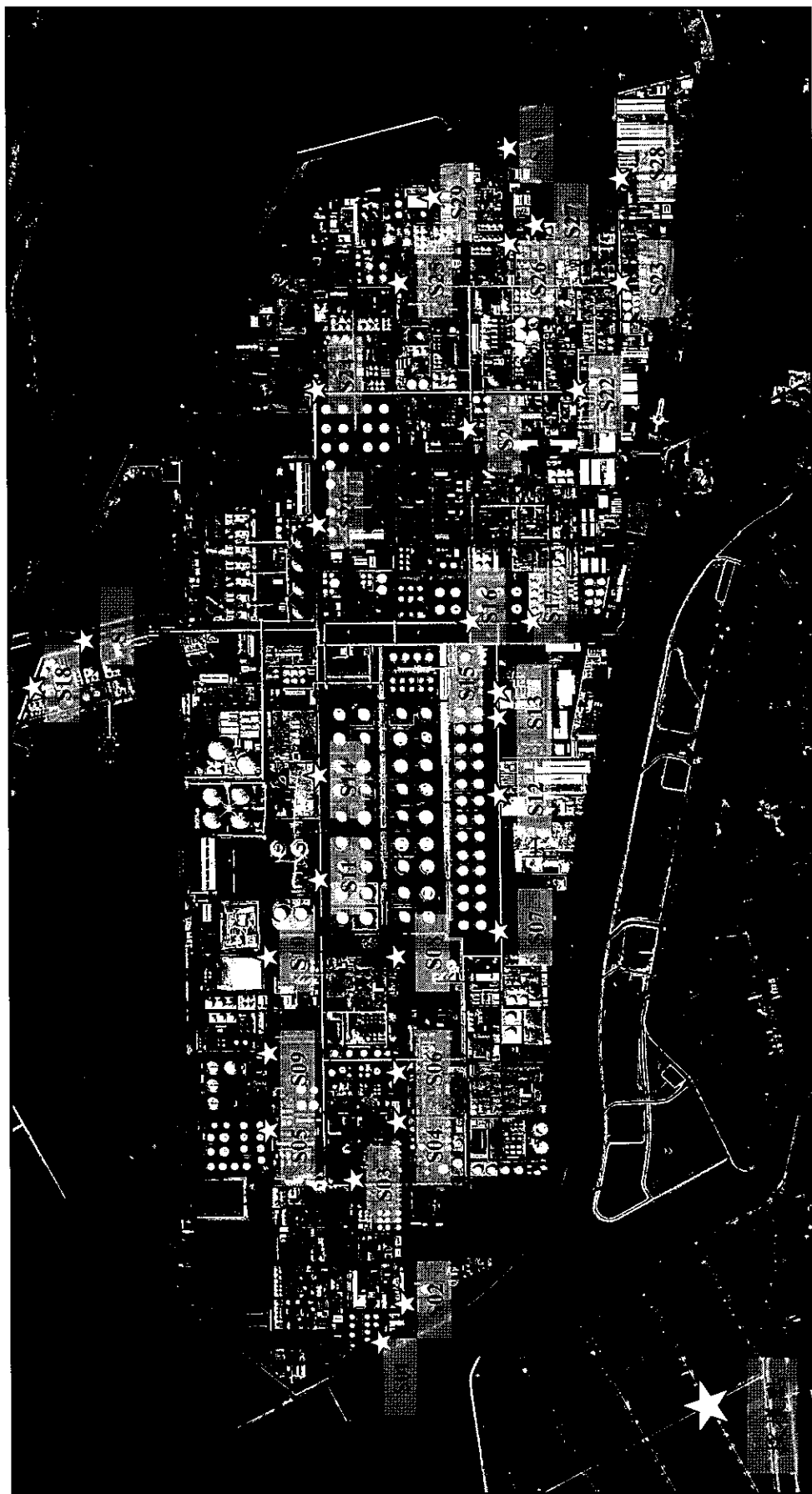


圖 1-1 土壤監測作業位置圖

## 1.5 品保／品管作業措施概要

### 1.5.1 土壤現場採樣之品保／品管

土壤採樣方法則依據環保署公告之土壤採樣方法(NIEA S102.60B)，此方法適用於執行「土壤及地下水污染整治法」所規定各種不同目的之土壤污染採樣工作。採樣分析工作流程如圖 1-2 所示，所採集土壤樣品繼續進行檢測分析工作。對於受污染土壤或疑似遭受污染場址之土壤採樣，應依據採樣目的及該場址特性所擬定之採樣計畫書執行。採樣計畫書內應詳細說明決定採樣方式。污染調查時需先釐清非污染區、疑似污染區及已知污染區。而計畫書內容應包括下列事項：

- (1) 土壤採樣現勘記錄表
- (2) 土壤採樣規劃表
- (3) 土壤調查資料彙總表
- (4) 污染初步評估資料表
- (5) 工作預定進度及經費
- (6) 工作預定經費
- (7) 採樣分析品保計畫

採樣方式涵蓋整個作業區劃定，包括界定場址範圍、樣品處理區、除污區，執行方式分為淺層採樣以及深層採樣兩種。採樣點數量，實際上可依現場面積大小、污染分佈與污染物傳輸速度、污染程度、土壤質地、污染物質之物理化學性質、場址地表情況而變動。

- i. 淺層污染採樣：一般重金屬污染或半揮發性有機物之採樣深度為表土（地表下 0~15 公分）及裏土（地表下 15~30 公分）為主。
- ii. 深層污染採樣：當進行深層污染採樣時，採樣過程需注意避免打破含水層之不透水層，以防止污染相鄰之含水層。若需對不同含水層土壤採樣時，需以適當措施（如皂土回填）避免相鄰之含水層受污染。

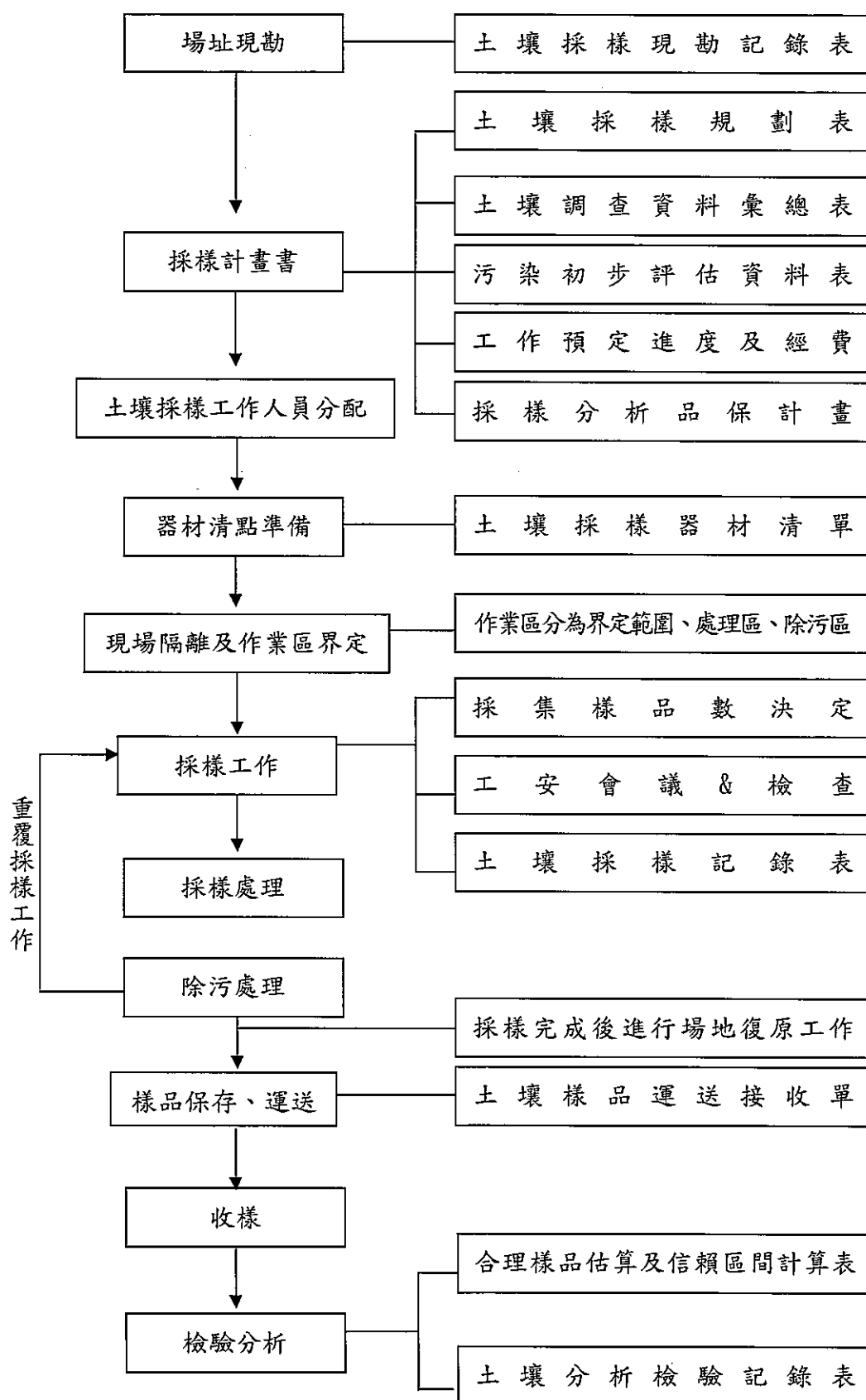


圖 1-2 土壤採樣分析流程圖

## 1.5.2 土壤分析工作之品保／品管

分析工作品質管制方式，主要是完成精密性、準確性、完整性以及比較性目標。精密性利用重複分析方式，計算相對差異百分比(RPD)以評估品保目標；準確性利用查核樣品、基質添加以及檢量線確認、查核等方式，計算回收率以評估品保目標；完整性則以檢測員實驗數據與品保人員確認接受檢驗數據數目比較，來評估品保目標；比較性則以出具檢驗報告之數據必須符合共同單位及位數，俾利比較數據差異。底下分別針對上述管制方式加以敘述。

### 一、運送保存作業

根據環檢所最新公告於 93.10.04 公告之 NIEA-PA102「環境檢驗室樣品採集及保存作業指引」規定，對於土壤類別訂有規範，本公司即遵循公告方法最新規範進行樣品採集、運送及保存作業，相關本計畫樣品保存如表 1.3 所示。

### 二、樣品分析品保/品管措施作業

為求得分析結果之準確性及精密性，品保品管工作落實是非常重要的。圖 1-3 顯示本公司有關樣品分析品保流程圖。實驗分析依據土壤為每批次分 20 個樣品，實驗室內部要求查核樣品回收率為 80%至 120%之內，添加樣品回收率為 70%至 130%之內，重覆分析之 RPD 則為 15%以內。濃度標準之檢量線一次回歸值則要求在 0.995 以上。相關品質管制措施彙整如表 1.4 所示。此外，為求得準確之品管要求，本實驗室購置美國 APG 或 ERA 查核樣品輔助品管工作，以求其回收率均能符合品管要求。

表 1.3 本計畫樣品保存一覽表

|        | 檢測項目                          | 最少樣品量     | 樣品保存容器     | 保存方法              | 最長保存期限                  |
|--------|-------------------------------|-----------|------------|-------------------|-------------------------|
| 土<br>壤 | 重金屬<br>(As、Cd、Cr、Cu、Pb、Ni、Zn) | 100 g     | 玻璃或塑膠袋 (瓶) | 室溫                | 180 天完成分析               |
|        | Hg                            | 100 g     | 玻璃或塑膠袋 (瓶) | 4±2°C 冷藏          | 28 天完成分析                |
|        | 揮發性有機物                        | 100 g     | 玻璃或塑膠袋 (瓶) | 4±2°C 冷藏<br>並避免照光 | 14 天完成分析                |
|        | 半揮發性有機物                       | 100~500 g | 玻璃或塑膠袋 (瓶) | 4±2°C 冷藏          | 14 天內完成萃取，萃取後 40 天內完成分析 |
|        | TPHg、TPHd                     | 100 g     | 玻璃或塑膠袋 (瓶) | 4±2°C 冷藏          | 14 天完成分析                |

表 1.4 本計畫各檢測類樣品之品質管制措施相關規定

| <div> <div>品管項目</div> <div>選擇方式</div> <div>檢測原理</div> </div> |         |                    | 品管分析要求 |       |       |        |      |        |      |
|--------------------------------------------------------------|---------|--------------------|--------|-------|-------|--------|------|--------|------|
|                                                              |         |                    | 方法偵測極限 | 檢量線製備 | 檢量線確認 | 空白分析樣品 | 重複分析 | 查核分析樣品 | 添加分析 |
| 土<br>壤                                                       | 電極法     | pH 值               | ×      | ×     | ×     | ×      | ○    | ×      | ×    |
|                                                              | 原子吸收光譜法 | 鎘、銅、鉛、鋅、鎳、鉻、砷、汞    | ○      | ○     | ○     | ○      | ○    | ○      | ○    |
|                                                              | 氣相層析質譜法 | 揮發性有機化合物、半揮發性有機化合物 | ○      | ○     | ○     | ○      | ○    | ○      | ○    |
|                                                              | 氣相層析法   | 總石油碳氫化合物           | ○      | ○     | ○     | ○      | ○    | ○      | ○    |

註：○：表示必需執行      ×：表示可不必要執行

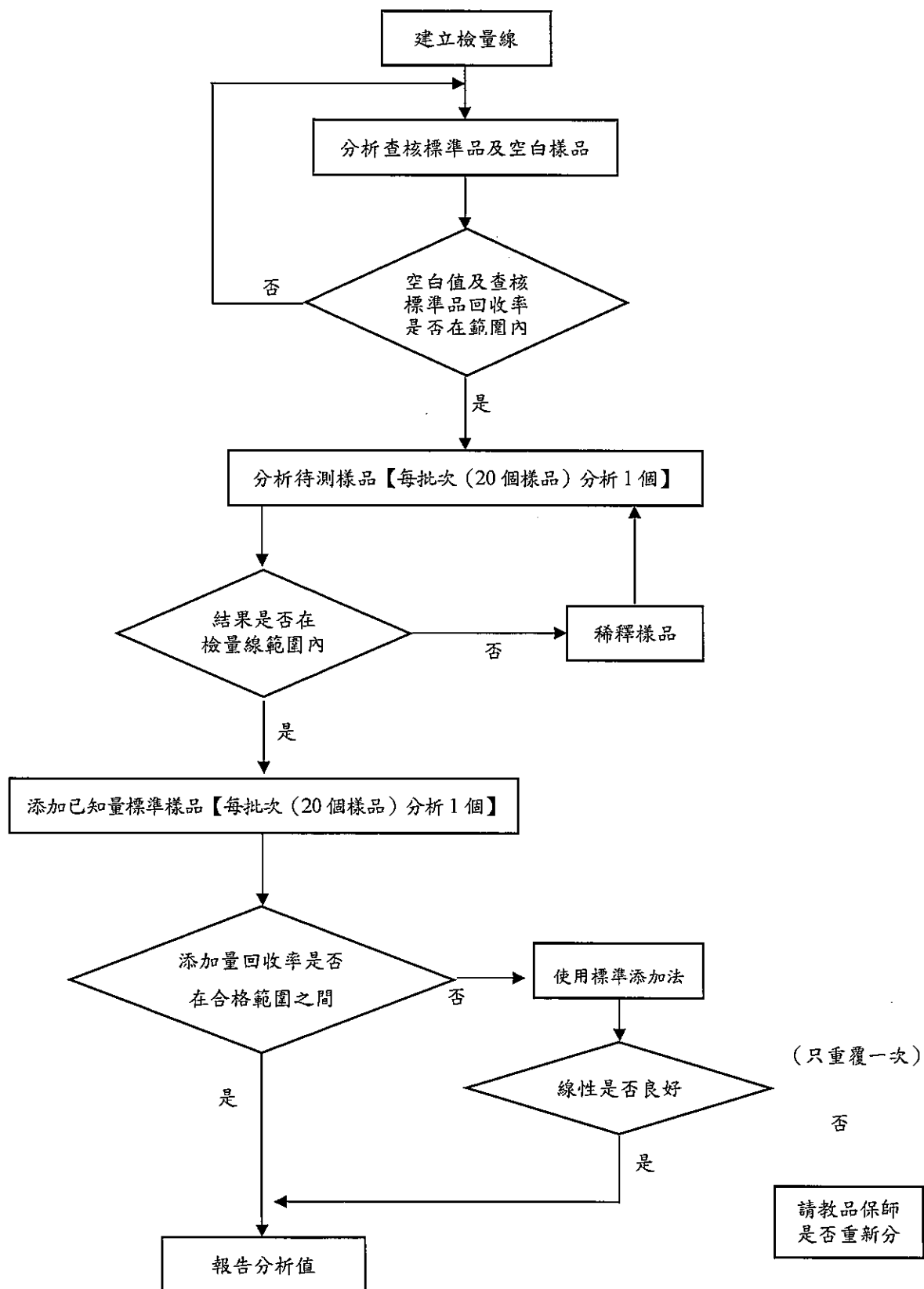


圖 1-3 樣品分析品保流程圖

## 1.6 分析項目之數據品質目標

本計畫分析方法，主要依據行政院環保署環境檢驗所公告之標準方法 (NIEA)，相關數據品質目標彙整於表 1.5 所示。

表 1.5 分析項目之數據品質目標

| 分析項目   |           | 檢測方法                   | 方法偵測<br>極限(mg/kg) | 重覆分析<br>(相對百分偏差) | 查核<br>回收率% | 添加<br>回收率% | 空白分析   |
|--------|-----------|------------------------|-------------------|------------------|------------|------------|--------|
| pH     |           | NIEA S410.62C          | —                 | —                | —          | —          | —      |
| 重金屬    | 鋅         | NIEA S321.63B/M111.00C | 2.61              | 10%              | 100±20     | 100±20     | ≤ 2MDL |
|        | 鎘         | NIEA S321.63B/M111.00C | 0.215             | 10%              | 100±20     | 100±20     | ≤ 2MDL |
|        | 鉛         | NIEA S321.63B/M111.00C | 1.28              | 10%              | 100±20     | 100±20     | ≤ 2MDL |
|        | 銅         | NIEA S321.63B/M111.00C | 0.633             | 10%              | 100±20     | 100±20     | ≤ 2MDL |
|        | 鉻         | NIEA S321.63B/M111.00C | 1.75              | 10%              | 100±20     | 100±20     | ≤ 2MDL |
|        | 鎳         | NIEA S321.63B/M111.00C | 1.24              | 10%              | 100±20     | 100±20     | ≤ 2MDL |
|        | 砷         | NIEA S310.63C          | 0.311             | 20%              | 100±20     | 100±25     | ≤ 2MDL |
|        | 汞         | NIEA M317.02C          | 0.031             | 20%              | 100±20     | 100±25     | ≤ 2MDL |
| 揮發性有機物 | 苯         | NIEA M157.00C/M711.01C | 0.0054            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 甲苯        | NIEA M157.00C/M711.01C | 0.0099            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 乙苯        | NIEA M157.00C/M711.01C | 0.0057            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 二甲苯       | NIEA M157.00C/M711.01C | 0.0082            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 1,3-二氯苯   | NIEA M157.00C/M711.01C | 0.0054            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 1,2-二氯苯   | NIEA M157.00C/M711.01C | 0.0058            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 四氯化碳      | NIEA M157.00C/M711.01C | 0.0057            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 氯仿        | NIEA M157.00C/M711.01C | 0.0077            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 1,2-二氯乙烷  | NIEA M157.00C/M711.01C | 0.0053            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 順-1,2-二氯乙 | NIEA M157.00C/M711.01C | 0.0073            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 反-1,2-二氯乙 | NIEA M157.00C/M711.01C | 0.0054            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 1,2-二氯丙烷  | NIEA M157.00C/M711.01C | 0.0065            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 四氯乙烯      | NIEA M157.00C/M711.01C | 0.0056            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 三氯乙烯      | NIEA M157.00C/M711.01C | 0.0094            | 20%              | 100±30     | 100±30     | ≤ 2MDL |
|        | 氯乙烯       | NIEA M157.00C/M711.01C | 0.0059            | 20%              | 100±30     | 100±30     | ≤ 2MDL |

表 1.5 分析項目之數據品質目標（續）

| 分析項目 |           | 檢測方法                            | 方法偵測<br>極限(mg/kg) | 重覆分析<br>(相對百分偏差) | 查核<br>回收率% | 添加<br>回收率% | 空白分析   |
|------|-----------|---------------------------------|-------------------|------------------|------------|------------|--------|
| 有機物  | 六氯苯       | NIEA M167.00C/M731.00C          | 0.0033            | ≤30%             | 40~120     | 30~120     | ≤ 2MDL |
|      | 3,3'-二氯聯  | NIEA M167.00C/M731.00C          | 0.30              | ≤30%             | 50~120     | 30~120     | ≤ 2MDL |
|      | 2,4,6-三氯酚 | NIEA M167.00C/M731.00C          | 0.20              | ≤30%             | 30~120     | 30~130     | ≤ 2MDL |
|      | 2,4,5-三氯酚 | NIEA M167.00C/M731.00C          | 0.22              | ≤25%             | 50~120     | 40~130     | ≤ 2MDL |
|      | 五氯酚       | NIEA M167.00C/M731.00C          | 0.44              | ≤30%             | 25~130     | 25~130     | ≤ 2MDL |
| TPH  | TPH       | NIEA M155.00C/M167.00C/S703.61B | 4.10              | ≤20%             | 75~125     | 65~135     | ≤ 2MDL |

## 1.7 數據處理原則

### 一、單位

本計畫主要為土壤類採樣分析檢測其單位均為 mg/kg。

### 二、有效數字

檢驗結果表示以三位有效數字取捨為原則，報告上採用有效數字表示，以避免含糊不清。報告上之各數字最好是確切明白，只有最後一位數字可能不定，此種數字便是有效數字。若超過兩位數可疑，則後一位數字便無意義，例如報告上寫「56.7mg/L」，其「56」應該確實無疑，至於「7」則不確定。

### 三、四捨六入法—數值修整原則及一般有效位數表示法

本實驗室於分析過程中，以儀器讀值為記錄數值，計算過程皆以真實值進行，其檢驗數據結果依此法修整，各類檢驗項目報告位數依環檢所公告之“檢測報告位數表示規定”表示之。當出具檢測報告時，應使用以下之數值修整原則處理原始檢測數據：

1. 檢量線  $\gamma$  值相關係數記錄至小數下第四位，第五位以後一律捨棄，a

(斜率)、b(截距)值皆以科學符號表示，以三位有效數字為取捨原則，第四位四捨五入。

2、欲標定之當量濃度值，記錄小數下第四位，第五位以後一律四捨五入。

3、四捨六入法—數值修整原則及一般有效位數表示法。

4、小於方法偵測極限(MDL)時皆以 N.D.值(N.D.<MDL)方式表示；若小於定量極限，而大於 MDL 時，則以 “<QDL 之數值” 顯示，並於備註欄內註明小於定量極限值(<QDL)。

對於本計畫相關數據處理表示方法彙整如表 1.6 所示。

表 1.6 檢測報告位數表示規定

| 檢測項目                       | 檢測方法名稱                          | 檢測報告位數表示 |             |        |
|----------------------------|---------------------------------|----------|-------------|--------|
|                            |                                 | 單位       | 最小表示位數      | 最多有效位數 |
| 土壤重金屬<br>(鋅、鎘、銅、鉛、<br>鉻、鎳) | 土壤中重金屬檢測方法—王水消化法/火焰式原子吸收光譜法     | mg/kg    | 小數點<br>以下三位 | 三位     |
| 土壤重金屬砷                     | 土壤中砷檢測方法—砷化氫原子吸收光譜法             | mg/kg    | 小數點<br>以下二位 | 三位     |
| 土壤重金屬汞                     | 土壤、固體或半固體廢棄物中總汞檢測方法—冷蒸氣原子吸收光譜法  | mg/kg    | 小數點<br>以下二位 | 三位     |
| 土壤<br>揮發性有機物               | 土壤及事業廢棄物中揮發性有機物檢測方法—氣相層析質譜儀法    | mg/kg    | 小數點<br>以下二位 | 三位     |
| 土壤<br>半揮發性有機物              | 半揮發性有機物檢測方法—毛細管柱氣相層析質譜儀法        | mg/kg    | 小數點以下<br>二位 | 三位     |
| 土壤<br>總石油碳氫化合物             | 土壤中總石油碳氫化合物檢測方法—氣相層析儀／火焰離子化偵測器法 | mg/kg    | 小數點以下<br>二位 | 三位     |

## 第二章 監測結果數據分析

本次土壤環境監測工作係依「六輕廠區土壤監測作業」辦理，土壤採樣地點於計畫區擇 30 處，每處 0~15 cm 採集重金屬土樣及 15~30 cm 採集揮發性有機物土樣，本計畫擬以行政院環境保護署土壤污染監測標準（中華民國 97 年 4 月 29 日環署土字第 0970031220A 號令修正發布）及土壤污染管制標準（中華民國 97 年 5 月 1 日行政院環境保護署環署土字第 0970031435 號令修正發布）進行比較，將本次土壤現場記錄整理如表 2.1，調查結果彙整於表 2.2~2.3，以下針對各測項依序進行討論如后：

### 1. 氫離子濃度 (pH)

本次 pH 測值介於 7.5~8.9 之間，土壤污染監測標準及土壤污染管制標準對 pH 並無規範。

### 2. 鋅 (Zn)

本次鋅測值介於 119~845 mg/kg 之間，符合土壤污染監測標準 ( $\leq 1000$  mg/kg)，及土壤污染管制標準 ( $\leq 2000$  mg/kg)。

### 3. 鎘 (Cd)

本次鎘測值均為 N.D.  $< 0.215$  mg/kg，符合土壤污染監測標準 ( $\leq 10$  mg/kg) 及土壤污染管制標準 ( $\leq 20$  mg/kg)。

### 4. 鉛 (Pb)

本次鉛測值介於 12.7~43.4 mg/kg 之間，符合土壤污染監測標準 ( $\leq 1000$  mg/kg) 及土壤污染管制標準 ( $\leq 2000$  mg/kg)。

### 5. 銅 (Cu)

本次銅測值介於 8.30~91.0 mg/kg 之間，符合土壤污染監測標準 ( $\leq 220$  mg/kg) 及土壤污染管制標準 ( $\leq 400$  mg/kg)。

### 6. 鉻 (Cr)

本次鉻測值介於 20.0~73.0 mg/kg 之間，符合土壤污染監測標準 ( $\leq 175$  mg/kg) 及土壤污染管制標準 ( $\leq 250$  mg/kg)。

## 7. 鎳 (Ni)

本次鎳測值介於 20.5~47.3 mg/kg 之間，符合土壤污染監測標準 ( $\leq 130$  mg/kg) 及土壤污染管制標準 ( $\leq 200$  mg/kg)。

## 8. 砷 (As)

本次砷測值介於 7.0~11.5 mg/kg 之間，符合土壤污染監測標準 ( $\leq 30$  mg/kg) 及土壤污染管制標準 ( $\leq 60$  mg/kg)。

## 9. 汞 (Hg)

本次汞測值介於  $ND < 0.311 \sim 1.4$  mg/kg 之間，符合土壤污染監測標準 ( $\leq 10$  mg/kg) 及土壤污染管制標準 ( $\leq 20$  mg/kg)。

## 10. 苯 (Benzene)

本次苯測值均為  $N.D. < 0.0054$  mg/kg，符合土壤污染管制基準 ( $\leq 5$  mg/kg)。

## 11. 甲苯 (Toluene)

本次甲苯測值均為  $N.D. < 0.0099$  mg/kg，符合土壤污染管制基準 ( $\leq 500$  mg/kg)。

## 12. 乙苯 (Ethylbenzene)

本次乙苯測值均為  $N.D. < 0.0057$  mg/kg，符合土壤污染管制基準 ( $\leq 250$  mg/kg)。

## 13. 二甲苯 (Xylenes)

本次二甲苯測值均為  $N.D. < 0.0082$  mg/kg，符合土壤污染管制基準 ( $\leq 500$  mg/kg)。

## 14. 1,3-二氯苯 (1,3-Dichlorobenzene)

本次 1,3-二氯苯測值均為  $N.D. < 0.0054$  mg/kg，符合土壤污染管制基準 ( $\leq 100$  mg/kg)。

## 15. 1,2-二氯苯 (1,2-Dichlorobenzene)

本次 1,2-二氯苯測值均為  $N.D. < 0.0058$  mg/kg，符合土壤污染管制基準 ( $\leq 100$  mg/kg)。

## 16. 四氯化碳 (Carbon tetrachloride)

本次四氯化碳測值均為  $N.D. < 0.0057$  mg/kg，符合土壤污染管制基準

( $\leq 5$  mg/kg)。

17. 氯仿 (Chloroform)

本次氯仿測值均為 N.D. < 0.0077 mg/kg，符合土壤污染管制基準 ( $\leq 100$  mg/kg)。

18. 1,2-二氯乙烷 (1,2-Dichloroethane)

本次 1,2-二氯乙烷測值均為 N.D. < 0.0053 mg/kg，符合土壤污染管制基準 ( $\leq 8$  mg/kg)。

19. 順-1,2-二氯乙烯 (cis-1,2-Dichloroethylene)

本次順-1,2-二氯乙烯測值均為 N.D. < 0.0073 mg/kg，符合土壤污染管制基準 ( $\leq 7$  mg/kg)。

20. 反-1,2-二氯乙烯 (trans -1,2-Dichloroethylene)

本次反-1,2-二氯乙烯測值均為 N.D. < 0.0054 mg/kg，符合土壤污染管制基準 ( $\leq 50$  mg/kg)。

21. 1,2-二氯丙烷 (1,2-Dichloropropane)

本次 1,2-二氯丙烷測值均為 N.D. < 0.0065 mg/kg，符合土壤污染管制基準 ( $\leq 0.5$  mg/kg)。

22. 四氯乙烯 (Tetrachloroethylene)

本次四氯乙烯測值均為 N.D. < 0.0056 mg/kg，符合土壤污染管制基準 ( $\leq 10$  mg/kg)。

23. 三氯乙烯 (Trichloroethylene)

本次三氯乙烯測值均為 N.D. < 0.0094 mg/kg，符合土壤污染管制基準 ( $\leq 60$  mg/kg)。

24. 氯乙烯 (Vinyl chloride)

本次氯乙烯測值均為 N.D. < 0.0059 mg/kg，符合土壤污染管制基準 ( $\leq 10$  mg/kg)。

25. 六氯苯 (Hexachlorobenzene)

本次六氯苯測值均為 N.D. < 0.0033 mg/kg，符合土壤污染管制基準 ( $\leq 500$  mg/kg)。

26. 3,3'-二氯聯苯胺 (3,3'-Dichlorobenzidine)

本次 3,3'-二氯聯苯胺測值均為 N.D. < 0.30 mg/kg，符合土壤污染管制基準 ( $\leq 2$  mg/kg)。

27. 2,4,6-三氯酚 (2,4,6-Trichlorophenol)

本次 2,4,6-三氯酚測值均為 N.D. < 0.20 mg/kg，符合土壤污染管制基準 ( $\leq 40$  mg/kg)。

28. 2,4,5-三氯酚 (2,4,5-Trichlorophenol)

本次 2,4,5-三氯酚測值均為 N.D. < 0.22 mg/kg，符合土壤污染管制基準 ( $\leq 350$  mg/kg)。

29. 五氯酚 (Pentachlorophenol)

本次五氯酚測值均為 N.D. < 0.44 mg/kg，符合土壤污染管制基準 ( $\leq 200$  mg/kg)。

30. 總石油碳氫化合物 (TPH) (Total petroleum hydrocarbons)

本次總石油碳氫化合物測值介於 10.0~66.1 mg/kg 之間，符合土壤污染管制基準 ( $\leq 1000$  mg/kg)。

表 2.1 本計畫土壤採樣現場記錄

| 樣品現場<br>編號 | 座標     |         | 採樣深度    |          | 土壤外觀        |
|------------|--------|---------|---------|----------|-------------|
|            | E:     | N:      | 重金屬     | 有機物      | 顏色、質地、其它    |
| S1         | 166002 | 2628642 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S2         | 166267 | 2628748 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S3         | 166379 | 2629618 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S4         | 166782 | 2629708 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S5         | 166030 | 2630023 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S6         | 166993 | 2630147 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S7         | 167872 | 2630594 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S8         | 167310 | 2630770 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S9         | 166328 | 2630668 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S10        | 166564 | 2631173 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S11        | 167115 | 2631410 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S12        | 168346 | 2631426 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S13        | 168589 | 2631918 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S14        | 167521 | 2632198 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S15        | 168671 | 2632085 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S16        | 168657 | 2632429 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S17        | 169073 | 2632214 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S18        | 166110 | 2633349 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S19        | 166487 | 2633437 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S20        | 168124 | 2633432 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S21        | 169250 | 2633548 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S22        | 169967 | 2633419 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S23        | 170462 | 2633939 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S24        | 168500 | 2634219 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S25        | 169239 | 2634530 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S26        | 170031 | 2634492 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S27        | 170216 | 2634557 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S28        | 170863 | 2634613 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S29        | 169718 | 2634953 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |
| S30        | 170247 | 2634917 | 0~15 cm | 15~30 cm | 灰黑色、砂質壤土、固態 |

表 2.2 本年度土壤重金屬調查結果彙整表

| 樣品現場<br>編號   | pH  | 鋅<br>mg/kg | 鎘<br>mg/kg | 鉛<br>mg/kg | 銅<br>mg/kg | 鉻<br>mg/kg | 鎳<br>mg/kg | 砷<br>mg/kg | 汞<br>mg/kg     |
|--------------|-----|------------|------------|------------|------------|------------|------------|------------|----------------|
| S1           | 8.6 | 226        | N.D.       | 18.6       | 15.4       | 29.0       | 27.1       | 10.1       | N.D.           |
| S2           | 8.5 | 164        | N.D.       | 17.3       | 13.4       | 20.9       | 24.6       | 8.38       | N.D.           |
| S3           | 8.5 | 277        | N.D.       | 17.5       | 13.6       | 24.4       | 25.4       | 9.07       | N.D.           |
| S4           | 8.5 | 349        | N.D.       | 22.5       | 17.4       | 30.6       | 29.9       | 8.51       | 1.41           |
| S5           | 8.0 | 281        | N.D.       | 29.1       | 20.8       | 46.9       | 38.2       | 8.60       | 0.260          |
| S6           | 8.5 | 469        | N.D.       | 25.9       | 14.1       | 26.8       | 34.6       | 8.39       | <0.100(0.0372) |
| S7           | 8.3 | 120        | N.D.       | 13.4       | 10.2       | 20.0       | 22.5       | 7.88       | N.D.           |
| S8           | 8.3 | 342        | N.D.       | 19.7       | 15.3       | 25.4       | 33.6       | 7.66       | N.D.           |
| S9           | 8.9 | 257        | N.D.       | 14.7       | 11.1       | 23.3       | 24.4       | 7.86       | N.D.           |
| S10          | 8.6 | 320        | N.D.       | 19.1       | 13.8       | 27.6       | 47.3       | 7.01       | N.D.           |
| S11          | 8.6 | 145        | N.D.       | 15.0       | 11.3       | 21.0       | 24.4       | 8.10       | N.D.           |
| S12          | 8.6 | 244        | N.D.       | 17.4       | 14.4       | 25.6       | 28.1       | 7.57       | 0.463          |
| S13          | 8.2 | 150        | N.D.       | 17.4       | 14.8       | 23.1       | 25.2       | 8.32       | N.D.           |
| S14          | 8.2 | 155        | N.D.       | 14.7       | 12.3       | 20.4       | 22.6       | 7.69       | N.D.           |
| S15          | 8.6 | 119        | N.D.       | 12.7       | 11.0       | 20.6       | 23.5       | 8.45       | N.D.           |
| S16          | 8.6 | 457        | N.D.       | 22.0       | 14.8       | 27.2       | 24.5       | 8.44       | N.D.           |
| S17          | 8.9 | 215        | N.D.       | 19.1       | 13.7       | 24.1       | 25.6       | 9.64       | N.D.           |
| S18          | 8.3 | 214        | N.D.       | 31.1       | 15.8       | 34.8       | 31.5       | 9.60       | N.D.           |
| S19          | 8.0 | 205        | N.D.       | 15.6       | 12.3       | 20.3       | 20.5       | 10.2       | N.D.           |
| S20          | 8.8 | 196        | N.D.       | 28.1       | 18.3       | 32.4       | 29.4       | 11.5       | N.D.           |
| S21          | 8.4 | 651        | N.D.       | 23.8       | 17.2       | 39.9       | 35.9       | 9.06       | N.D.           |
| S22          | 8.5 | 371        | N.D.       | 21.0       | 18.0       | 30.8       | 28.6       | 8.40       | N.D.           |
| S23          | 8.2 | 743        | N.D.       | 34.1       | 91.0       | 73.0       | 44.8       | 9.53       | <0.100(0.0460) |
| S24          | 8.1 | 405        | N.D.       | 18.9       | 14.2       | 24.1       | 31.5       | 9.37       | N.D.           |
| S25          | 8.0 | 845        | N.D.       | 26.2       | 16.4       | 36.6       | 28.1       | 8.48       | N.D.           |
| S26          | 7.5 | 268        | N.D.       | 19.5       | 17.4       | 27.7       | 29.1       | 10.6       | N.D.           |
| S27          | 8.3 | 126        | N.D.       | 12.7       | 8.34       | 22.2       | 22.0       | 7.94       | N.D.           |
| S28          | 7.6 | 295        | N.D.       | 43.4       | 18.4       | 33.5       | 31.2       | 9.29       | N.D.           |
| S29          | 8.3 | 539        | N.D.       | 19.2       | 16.0       | 38.5       | 25.5       | 10.4       | N.D.           |
| S30          | 7.6 | 169        | N.D.       | 14.6       | 12.4       | 23.9       | 23.6       | 8.49       | N.D.           |
| MDL值         | —   | 2.61       | 0.215      | 1.28       | 0.633      | 1.75       | 1.24       | 0.311      | 0.031          |
| 土壤污染<br>監測標準 | —   | 1000       | 10         | 1000       | 220        | 175        | 130        | 30         | 10             |
| 土壤污染<br>管制標準 | —   | 2000       | 20         | 2000       | 400        | 250        | 200        | 60         | 20             |

註：“\*”表示超出土壤污染監測標準

表 2.3 本年度土壤揮發性有機物調查結果彙整表

| 檢 驗 項 目    | 方法偵測極<br>限值 | S1   | S2   | S3   | S4   | S5   | S6   | S7   | S8   | S9   | S10  | 土壤污染<br>管制標準 |
|------------|-------------|------|------|------|------|------|------|------|------|------|------|--------------|
| 苯          | 0.0054      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 5            |
| 甲苯         | 0.0099      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 500          |
| 乙苯         | 0.0057      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 250          |
| 二甲苯        | 0.0082      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 500          |
| 1,3-二氯苯    | 0.0054      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 100          |
| 1,2-二氯苯    | 0.0058      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 100          |
| 四氯化碳       | 0.0057      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 5            |
| 氯仿         | 0.0077      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 100          |
| 1,2-二氯乙烷   | 0.0053      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 8            |
| 順-1,2-二氯乙烯 | 0.0073      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 7            |
| 反-1,2-二氯乙烯 | 0.0054      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 50           |
| 1,2-二氯丙烷   | 0.0065      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 0.5          |
| 四氯乙烯       | 0.0056      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 10           |
| 三氯乙烯       | 0.0094      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 60           |
| 氯乙烯        | 0.0059      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 10           |
| 六氯苯        | 0.0033      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 500          |
| 3,3'-二氯聯苯胺 | 0.30        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 2            |
| 2,4,6-三氯酚  | 0.20        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 40           |
| 2,4,5-三氯酚  | 0.22        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 350          |
| 五氯酚        | 0.44        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 200          |
| 總碳氫化合物     | 4.10        | 16.2 | 15.7 | 13.4 | 23.0 | 25.9 | 26.9 | 21.1 | 38.8 | 27.1 | 24.9 | 1000         |

註：單位為 mg/kg

表 2.3 本計畫土壤揮發性有機物調查結果彙整表（續 1）

| 檢 驗 項 目    | 方法偵測極<br>限值 | S11  | S12  | S13  | S14  | S15  | S16  | S17  | S18  | S19  | S20  | 土壤污染<br>管制標準 |
|------------|-------------|------|------|------|------|------|------|------|------|------|------|--------------|
| 苯          | 0.0054      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 5            |
| 甲苯         | 0.0099      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 500          |
| 乙苯         | 0.0057      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 250          |
| 二甲苯        | 0.0082      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 500          |
| 1,3-二氯苯    | 0.0054      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 100          |
| 1,2-二氯苯    | 0.0058      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 100          |
| 四氯化碳       | 0.0057      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 5            |
| 氯仿         | 0.0077      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 100          |
| 1,2-二氯乙烷   | 0.0053      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 8            |
| 順-1,2-二氯乙烯 | 0.0073      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 7            |
| 反-1,2-二氯乙烯 | 0.0054      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 50           |
| 1,2-二氯丙烷   | 0.0065      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 0.5          |
| 四氯乙烯       | 0.0056      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 10           |
| 三氯乙烯       | 0.0094      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 60           |
| 氯乙烯        | 0.0059      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 10           |
| 六氯苯        | 0.0033      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 500          |
| 3,3'-二氯聯苯胺 | 0.30        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 2            |
| 2,4,6-三氯酚  | 0.20        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 40           |
| 2,4,5-三氯酚  | 0.22        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 350          |
| 五氯酚        | 0.44        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 200          |
| 總碳氫化合物     | 4.10        | 23.1 | 14.7 | 15.3 | 15.1 | 42.5 | 52.2 | 16.1 | 37.6 | 13.4 | 18.0 | 1000         |

註：單位為 mg/kg

表 2.3 本計畫土壤揮發性有機物調查結果彙整表 (續 2)

| 檢 驗 項 目    | 方法偵測極<br>限值 | S21  | S22  | S23  | S24  | S25  | S26  | S27  | S28  | S29  | S30  | 土壤污染<br>管制標準 |
|------------|-------------|------|------|------|------|------|------|------|------|------|------|--------------|
| 苯          | 0.0054      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 5            |
| 甲苯         | 0.0099      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 500          |
| 乙苯         | 0.0057      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 250          |
| 二甲苯        | 0.0082      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 500          |
| 1,3-二氯苯    | 0.0054      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 100          |
| 1,2-二氯苯    | 0.0058      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 100          |
| 四氯化碳       | 0.0057      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 5            |
| 氯仿         | 0.0077      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 100          |
| 1,2-二氯乙烷   | 0.0053      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 8            |
| 順-1,2-二氯乙烯 | 0.0073      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 7            |
| 反-1,2-二氯乙烯 | 0.0054      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 50           |
| 1,2-二氯丙烷   | 0.0065      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 0.5          |
| 四氯乙烯       | 0.0056      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 10           |
| 三氯乙烯       | 0.0094      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 60           |
| 氯乙烯        | 0.0059      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 10           |
| 六氯苯        | 0.0033      | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 500          |
| 3,3'-二氯聯苯胺 | 0.30        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 2            |
| 2,4,6-三氯酚  | 0.20        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 40           |
| 2,4,5-三氯酚  | 0.22        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 350          |
| 五氯酚        | 0.44        | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | 200          |
| 總碳氫化合物     | 4.10        | 10.1 | 13.7 | 28.3 | 24.3 | 49.6 | 30.5 | 16.9 | 18.1 | 21.0 | 66.6 | 1000         |

註：單位為 mg/kg



## 第三章 檢討與建議

### 3.1 監測結果與因應對策

#### 3.1.1 監測結果綜合檢討分析

本計畫彙整 99~100 年度之監測結果如表 3.1~3.2，本年度各測點測值均符合土壤污染監測標準及管制標準。99~100 年度土壤重金屬各測點測值比較如圖 3-1~3-8。

表 3.1 本計畫區 99~100 年重金屬監測結果比較表

| 樣品現場編號   | 監測日期  | pH  | 鋅<br>mg/kg | 鎘<br>mg/kg | 鉛<br>mg/kg | 銅<br>mg/kg | 鉻<br>mg/kg | 鎳<br>mg/kg | 砷<br>mg/kg | 汞<br>mg/kg         |
|----------|-------|-----|------------|------------|------------|------------|------------|------------|------------|--------------------|
| S1       | 99 年  | 7.4 | 300        | <0.67      | 67.4       | 16.7       | 35.3       | 28.1       | 8.60       | N.D.               |
|          | 100 年 | 8.6 | 226        | N.D.       | 18.6       | 15.4       | 29.0       | 27.1       | 10.1       | N.D.               |
| S2       | 99 年  | 7.7 | 111        | N.D.       | 15.0       | 14.0       | 21.9       | 25.2       | 8.93       | N.D.               |
|          | 100 年 | 8.5 | 164        | N.D.       | 17.3       | 13.4       | 20.9       | 24.6       | 8.38       | N.D.               |
| S3       | 99 年  | 7.6 | 382        | N.D.       | 18.5       | 15.2       | 30.1       | 26.7       | 8.92       | N.D.               |
|          | 100 年 | 8.5 | 277        | N.D.       | 17.5       | 13.6       | 24.4       | 25.4       | 9.07       | N.D.               |
| S4       | 99 年  | 7.6 | 213        | N.D.       | 16.6       | 19.7       | 24.8       | 27.6       | 10.2       | N.D.               |
|          | 100 年 | 8.5 | 349        | N.D.       | 22.5       | 17.4       | 30.6       | 29.9       | 8.51       | 1.4                |
| S5       | 99 年  | 7.4 | 489        | N.D.       | 20.8       | 16.0       | 31.3       | 29.4       | 8.62       | <0.1               |
|          | 100 年 | 8.0 | 281        | N.D.       | 29.1       | 20.8       | 46.9       | 38.2       | 8.60       | 0.3                |
| S6       | 99 年  | 7.3 | 727        | N.D.       | 29.5       | 15.1       | 32.6       | 39.5       | 6.54       | N.D.               |
|          | 100 年 | 8.5 | 469        | N.D.       | 25.9       | 14.1       | 26.8       | 34.6       | 8.39       | <0.100<br>(0.0372) |
| S7       | 99 年  | 7.5 | 147        | N.D.       | 12.4       | 10.5       | 24.4       | 25.9       | 6.98       | N.D.               |
|          | 100 年 | 8.3 | 120        | N.D.       | 13.4       | 10.2       | 20.0       | 22.5       | 7.88       | N.D.               |
| S8       | 99 年  | 7.0 | 271        | N.D.       | 16.9       | 14.0       | 22.0       | 33.4       | 8.39       | N.D.               |
|          | 100 年 | 8.3 | 342        | N.D.       | 19.7       | 15.3       | 25.4       | 33.6       | 7.66       | N.D.               |
| S9       | 99 年  | 7.7 | 120        | N.D.       | 10.6       | 9.34       | 20.2       | 21.9       | 7.97       | N.D.               |
|          | 100 年 | 8.9 | 257        | N.D.       | 14.7       | 11.1       | 23.3       | 24.4       | 7.86       | N.D.               |
| S10      | 99 年  | 7.6 | 285        | N.D.       | 21.8       | 14.3       | 25.5       | 48.5       | 8.00       | <0.1               |
|          | 100 年 | 8.6 | 320        | N.D.       | 19.1       | 13.8       | 27.6       | 47.3       | 7.01       | N.D.               |
| MDL 值    |       | —   | 2.61       | 0.215      | 1.28       | 0.633      | 1.75       | 1.24       | 0.311      | 0.031              |
| 土壤污染監測標準 |       | —   | 1000       | 10         | 1000       | 220        | 175        | 130        | 30         | 10                 |
| 土壤污染管制標準 |       | —   | 2000       | 20         | 2000       | 400        | 250        | 200        | 60         | 20                 |

表 3.1 本計畫區 99~100 年重金屬監測結果比較表 (續 1)

| 樣品現場<br>編號 | 監測<br>日期 | pH  | 鋅<br>mg/kg | 鎘<br>mg/kg | 鉛<br>mg/kg | 銅<br>mg/kg | 鉻<br>mg/kg | 鎳<br>mg/kg | 砷<br>mg/kg | 汞<br>mg/kg |
|------------|----------|-----|------------|------------|------------|------------|------------|------------|------------|------------|
| S11        | 99 年     | 7.6 | 214        | N.D.       | 14.5       | 12.3       | 23.4       | 26.0       | 8.36       | N.D.       |
|            | 100 年    | 8.6 | 145        | N.D.       | 15.0       | 11.3       | 21.0       | 24.4       | 8.10       | N.D.       |
| S12        | 99 年     | 7.7 | 1010       | N.D.       | 15.0       | 11.2       | 25.4       | 28.5       | 10.7       | N.D.       |
|            | 100 年    | 8.6 | 244        | N.D.       | 17.4       | 14.4       | 25.6       | 28.1       | 7.57       | 0.5        |
| S13        | 99 年     | 7.7 | 261        | N.D.       | 22.3       | 15.0       | 24.5       | 27.6       | 7.91       | N.D.       |
|            | 100 年    | 8.2 | 150        | N.D.       | 17.4       | 14.8       | 23.1       | 25.2       | 8.30       | N.D.       |
| S14        | 99 年     | 7.2 | 197        | N.D.       | 15.2       | 13.5       | 21.0       | 23.9       | 8.11       | N.D.       |
|            | 100 年    | 8.2 | 155        | N.D.       | 14.7       | 12.3       | 20.4       | 22.6       | 7.69       | N.D.       |
| S15        | 99 年     | 7.8 | 192        | N.D.       | 12.0       | 11.4       | 21.3       | 25.3       | 7.59       | N.D.       |
|            | 100 年    | 8.6 | 119        | N.D.       | 12.7       | 11.0       | 20.6       | 23.5       | 8.45       | N.D.       |
| S16        | 99 年     | 8.0 | 684        | N.D.       | 23.2       | 15.8       | 35.7       | 32.2       | 8.11       | N.D.       |
|            | 100 年    | 8.6 | 457        | N.D.       | 22.0       | 14.8       | 27.2       | 24.5       | 8.44       | N.D.       |
| S17        | 99 年     | 7.8 | 330        | N.D.       | 21.1       | 14.8       | 26.8       | 28.0       | 8.15       | N.D.       |
|            | 100 年    | 8.9 | 215        | N.D.       | 19.1       | 13.7       | 24.1       | 25.6       | 9.64       | N.D.       |
| S18        | 99 年     | 7.5 | 317        | N.D.       | 18.7       | 12.2       | 28.6       | 27.4       | 8.13       | N.D.       |
|            | 100 年    | 8.3 | 214        | N.D.       | 31.1       | 15.8       | 34.8       | 31.5       | 9.60       | N.D.       |
| S19        | 99 年     | 7.6 | 103        | N.D.       | 13.5       | 13.3       | 18.0       | 22.7       | 7.60       | N.D.       |
|            | 100 年    | 8.0 | 205        | N.D.       | 15.6       | 12.3       | 20.3       | 20.5       | 10.2       | N.D.       |
| S20        | 99 年     | 8.1 | 631        | N.D.       | 24.3       | 20.5       | 25.0       | 26.0       | 11.1       | N.D.       |
|            | 100 年    | 8.8 | 196        | N.D.       | 28.1       | 18.3       | 32.4       | 29.4       | 11.5       | N.D.       |
| MDL 值      |          | —   | 2.61       | 0.215      | 1.28       | 0.633      | 1.75       | 1.24       | 0.311      | 0.031      |
| 土壤污染監測標準   |          | —   | 1000       | 10         | 1000       | 220        | 175        | 130        | 30         | 10         |
| 土壤污染管制標準   |          | —   | 2000       | 20         | 2000       | 400        | 250        | 200        | 60         | 20         |

表 3.1 本計畫區 99~100 年重金屬監測結果比較表 (續)

| 樣品現場<br>編號 | 監測<br>日期 | pH  | 鋅<br>mg/kg | 鎘<br>mg/kg | 鉛<br>mg/kg | 銅<br>mg/kg | 鉻<br>mg/kg | 鎳<br>mg/kg | 砷<br>mg/kg | 汞<br>mg/kg     |
|------------|----------|-----|------------|------------|------------|------------|------------|------------|------------|----------------|
| S21        | 99 年     | 7.7 | 816        | N.D.       | 23.3       | 17.9       | 39.6       | 35.4       | 10.8       | N.D.           |
|            | 100 年    | 8.4 | 651        | N.D.       | 23.8       | 17.2       | 39.9       | 35.9       | 9.06       | N.D.           |
| S22        | 99 年     | 7.5 | 330        | N.D.       | 17.0       | 17.1       | 25.0       | 26.2       | 6.60       | N.D.           |
|            | 100 年    | 8.5 | 371        | N.D.       | 21.0       | 18.0       | 30.8       | 28.6       | 8.40       | N.D.           |
| S23        | 99 年     | 8.0 | 532        | N.D.       | 26.1       | 47.3       | 52.6       | 42.8       | 10.6       | N.D.           |
|            | 100 年    | 8.2 | 743        | N.D.       | 34.1       | 91.0       | 73.0       | 44.8       | 9.53       | <0.100(0.0460) |
| S24        | 99 年     | 8.2 | 732        | N.D.       | 13.0       | 13.4       | 23.6       | 25.8       | 8.98       | N.D.           |
|            | 100 年    | 8.1 | 405        | N.D.       | 18.9       | 14.2       | 24.1       | 31.5       | 9.37       | N.D.           |
| S25        | 99 年     | 7.0 | 451        | N.D.       | 16.6       | 13.5       | 28.2       | 26.1       | 7.20       | N.D.           |
|            | 100 年    | 8.0 | 845        | N.D.       | 26.2       | 16.4       | 36.6       | 28.1       | 8.48       | N.D.           |
| S26        | 99 年     | 7.4 | 469        | N.D.       | 27.4       | 24.6       | 33.7       | 35.8       | 12.4       | N.D.           |
|            | 100 年    | 7.5 | 268        | N.D.       | 19.5       | 17.4       | 27.7       | 29.1       | 10.6       | N.D.           |
| S27        | 99 年     | 7.5 | 126        | N.D.       | 18.0       | 8.37       | 26.1       | 25.4       | 7.23       | N.D.           |
|            | 100 年    | 8.3 | 126        | N.D.       | 12.7       | 8.3        | 22.2       | 22.0       | 7.94       | N.D.           |
| S28        | 99 年     | 7.4 | 314        | N.D.       | 33.0       | 17.6       | 29.1       | 28.0       | 7.30       | N.D.           |
|            | 100 年    | 7.6 | 295        | N.D.       | 43.4       | 18.4       | 33.5       | 31.2       | 9.29       | N.D.           |
| S29        | 99 年     | 7.5 | 360        | N.D.       | 17.7       | 14.9       | 29.3       | 24.9       | 9.08       | N.D.           |
|            | 100 年    | 8.3 | 539        | N.D.       | 19.2       | 16.0       | 38.5       | 25.5       | 10.4       | N.D.           |
| S30        | 99 年     | 7.4 | 204        | N.D.       | 18.3       | 14.6       | 30.2       | 26.4       | 7.87       | N.D.           |
|            | 100 年    | 7.6 | 169        | N.D.       | 14.6       | 12.4       | 23.9       | 23.6       | 8.49       | N.D.           |
| MDL 值      |          | —   | 2.61       | 0.215      | 1.28       | 0.633      | 1.75       | 1.24       | 0.311      | 0.031          |
| 土壤污染監測標準   |          | —   | 1000       | 10         | 1000       | 220        | 175        | 130        | 30         | 10             |
| 土壤污染管制標準   |          | —   | 2000       | 20         | 2000       | 400        | 250        | 200        | 60         | 20             |

表 3.2 本計畫區 99~100 年揮發性有機物監測結果比較表

| 檢 驗 項 目    | 方法偵測極<br>限值 |        | S1   |       | S2   |       | S3   |       | S4   |       | S5   |       | S6   |       | 土壤污染<br>管制標準 |
|------------|-------------|--------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|--------------|
|            | 99 年        | 100 年  | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 |              |
| 苯          | 0.0045      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 甲苯         | 0.0089      | 0.0099 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.09 | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 乙苯         | 0.0060      | 0.0057 | N.D. | N.D.  | 0.01 | N.D.  | N.D. | N.D.  | 0.02 | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 250          |
| 二甲苯        | 0.0077      | 0.0082 | N.D. | N.D.  | 0.04 | N.D.  | N.D. | N.D.  | 0.09 | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 1,3-二氯苯    | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯苯    | 0.0043      | 0.0058 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 四氯化碳       | 0.0056      | 0.0057 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 氯仿         | 0.0049      | 0.0077 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯乙烷   | 0.0034      | 0.0053 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 8            |
| 順-1,2-二氯乙烷 | 0.0061      | 0.0073 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 7            |
| 反-1,2-二氯乙烷 | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 50           |
| 1,2-二氯丙烷   | 0.0049      | 0.0065 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.5          |
| 四氯乙烯       | 0.0051      | 0.0056 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 10           |
| 三氯乙烯       | 0.0090      | 0.0094 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 60           |
| 六氯苯        | 0.0032      | 0.0033 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 3,3'-二氯聯苯胺 | 0.38        | 0.30   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 2            |
| 2,4,6-三氯酚  | 0.23        | 0.20   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 40           |
| 2,4,5-三氯酚  | 0.23        | 0.22   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 350          |
| 五氯酚        | 0.31        | 0.44   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 200          |
| 總碳氫化合物     | 4.282       | 4.10   | 43.2 | 16.2  | 60.5 | 15.7  | 26.3 | 13.4  | 53.2 | 23.0  | 20.7 | 25.9  | 32.9 | 26.9  | 1000         |

註：單位為 mg/kg

表 3.2 本計畫區 99~100 年揮發性有機物監測結果比較表 (續 1)

| 檢 驗 項 目    | 方法偵測極<br>限值 |        | S7   |       | S8   |       | S9   |       | S10  |       | S11  |       | S12  |       | 土壤污染<br>管制標準 |
|------------|-------------|--------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|--------------|
|            | 99 年        | 100 年  | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 |              |
| 苯          | 0.0045      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 甲苯         | 0.0089      | 0.0099 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 乙苯         | 0.0060      | 0.0057 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.01 | N.D.  | 250          |
| 二甲苯        | 0.0077      | 0.0082 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.04 | N.D.  | 500          |
| 1,3-二氯苯    | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯苯    | 0.0043      | 0.0058 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 四氯化碳       | 0.0056      | 0.0057 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 氯仿         | 0.0049      | 0.0077 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯乙烷   | 0.0034      | 0.0053 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 8            |
| 順-1,2-二氯乙烷 | 0.0061      | 0.0073 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 7            |
| 反-1,2-二氯乙烷 | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 50           |
| 1,2-二氯丙烷   | 0.0049      | 0.0065 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.5          |
| 四氯乙烯       | 0.0051      | 0.0056 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 10           |
| 三氯乙烯       | 0.0090      | 0.0094 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 60           |
| 六氯苯        | 0.0032      | 0.0033 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 3,3'-二氯聯苯胺 | 0.38        | 0.30   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 2            |
| 2,4,6-三氯酚  | 0.23        | 0.20   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 40           |
| 2,4,5-三氯酚  | 0.23        | 0.22   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 350          |
| 五氯酚        | 0.31        | 0.44   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 200          |
| 總碳氫化合物     | 4.282       | 4.10   | 19.0 | 21.1  | 105  | 38.8  | 32.5 | 27.1  | 158  | 24.9  | 30.0 | 23.1  | 28.0 | 14.7  | 1000         |

註：單位為 mg/kg

表 3.2 本計畫區 99~100 年揮發性有機物監測結果比較表 (續 2)

| 檢 驗 項 目    | 方法偵測極<br>限值 |        | S13  |       | S14  |       | S15  |       | S16  |       | S17  |       | S18  |       | 土壤污染<br>管制標準 |
|------------|-------------|--------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|--------------|
|            | 99 年        | 100 年  | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 |              |
| 苯          | 0.0045      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 甲苯         | 0.0089      | 0.0099 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 乙苯         | 0.0060      | 0.0057 | 0.01 | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.01 | N.D.  | N.D. | N.D.  | 250          |
| 二甲苯        | 0.0077      | 0.0082 | 0.04 | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.08 | N.D.  | N.D. | N.D.  | 500          |
| 1,3-二氯苯    | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯苯    | 0.0043      | 0.0058 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 四氯化碳       | 0.0056      | 0.0057 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 氯仿         | 0.0049      | 0.0077 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯乙烷   | 0.0034      | 0.0053 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 8            |
| 順-1,2-二氯乙烯 | 0.0061      | 0.0073 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 7            |
| 反-1,2-二氯乙烯 | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 50           |
| 1,2-二氯丙烷   | 0.0049      | 0.0065 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.5          |
| 四氯乙烯       | 0.0051      | 0.0056 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 10           |
| 三氯乙烯       | 0.0090      | 0.0094 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 60           |
| 六氯苯        | 0.0032      | 0.0033 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 3,3'-二氯聯苯胺 | 0.38        | 0.30   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 2            |
| 2,4,6-三氯酚  | 0.23        | 0.20   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 40           |
| 2,4,5-三氯酚  | 0.23        | 0.22   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 350          |
| 五氯酚        | 0.31        | 0.44   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 200          |
| 總碳氫化合物     | 4.282       | 4.10   | 43.1 | 15.3  | 36.7 | 15.1  | 36.7 | 42.5  | 31.2 | 52.2  | 31.8 | 16.1  | 24.8 | 37.6  | 1000         |

註：單位為 mg/kg

表 3.2 本計畫區 99~100 年揮發性有機物監測結果比較表 (續 3)

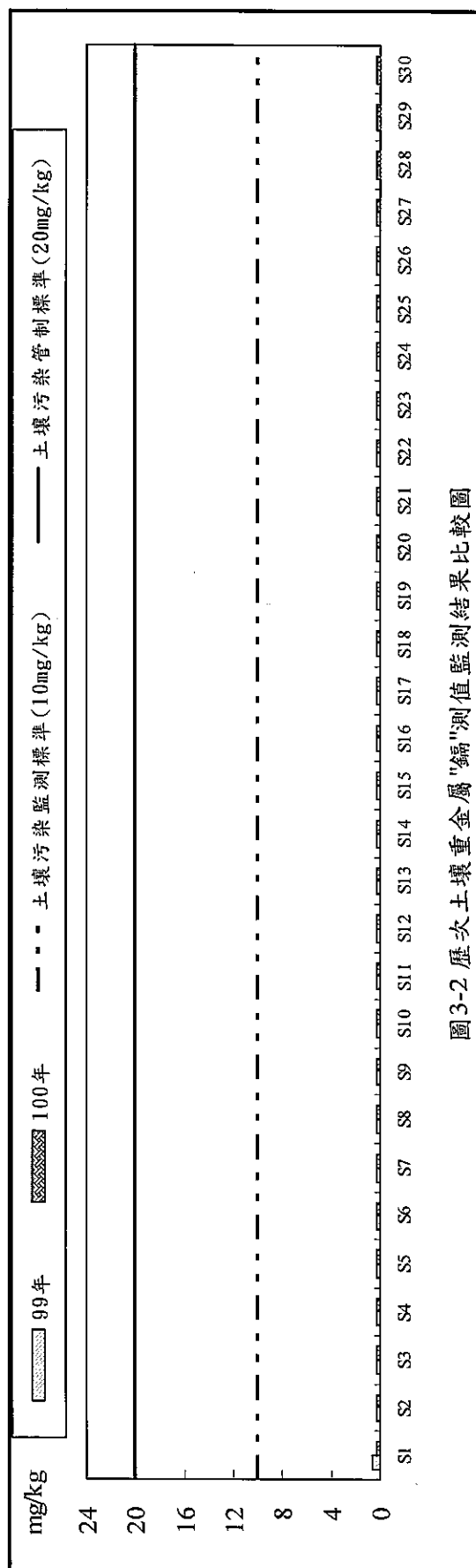
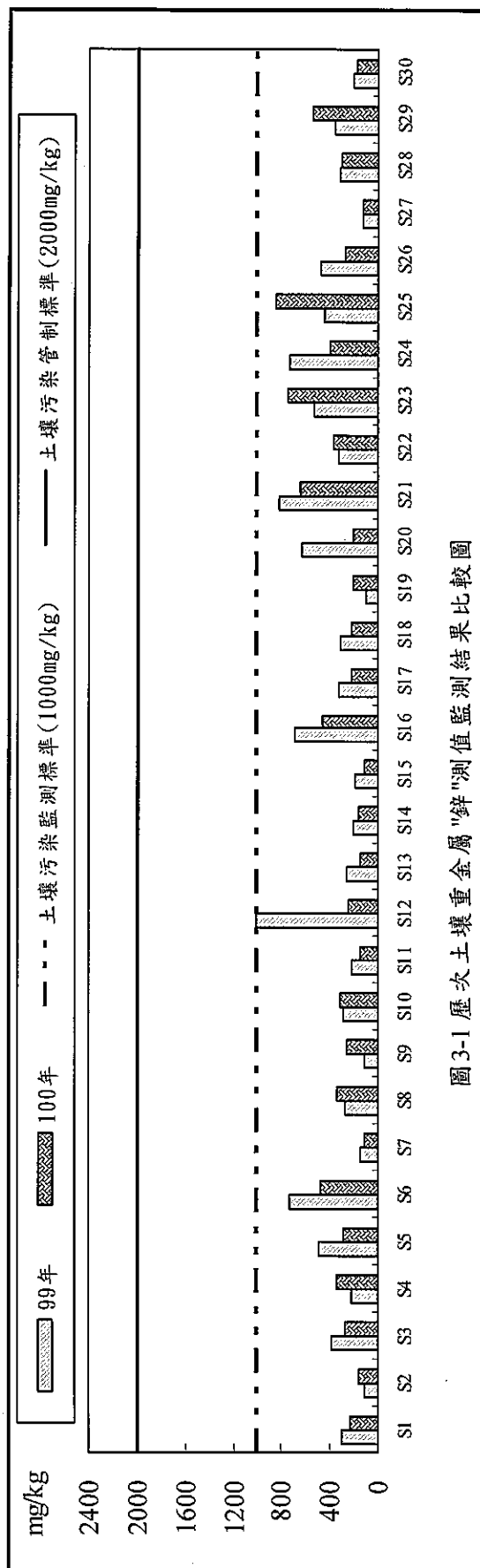
| 檢 驗 項 目    | 方法偵測極<br>限值 |        | S19  |       | S20  |       | S21  |       | S22  |       | S23  |       | S24  |       | 土壤污染<br>管制標準 |
|------------|-------------|--------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|--------------|
|            | 99 年        | 100 年  | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 |              |
| 苯          | 0.0045      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 甲苯         | 0.0089      | 0.0099 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 乙苯         | 0.0060      | 0.0057 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.01 | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 250          |
| 二甲苯        | 0.0077      | 0.0082 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.04 | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 1,3-二氯苯    | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯苯    | 0.0043      | 0.0058 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 四氯化碳       | 0.0056      | 0.0057 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 氯仿         | 0.0049      | 0.0077 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯乙烷   | 0.0034      | 0.0053 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 8            |
| 順-1,2-二氯乙烯 | 0.0061      | 0.0073 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 7            |
| 反-1,2-二氯乙烯 | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 50           |
| 1,2-二氯丙烷   | 0.0049      | 0.0065 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.5          |
| 四氯乙烯       | 0.0051      | 0.0056 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 10           |
| 三氯乙烯       | 0.0090      | 0.0094 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 60           |
| 六氯苯        | 0.0032      | 0.0033 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 3,3'-二氯聯苯胺 | 0.38        | 0.30   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 2            |
| 2,4,6-三氯酚  | 0.23        | 0.20   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 40           |
| 2,4,5-三氯酚  | 0.23        | 0.22   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 350          |
| 五氯酚        | 0.31        | 0.44   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 200          |
| 總碳氫化合物     | 4.282       | 4.10   | 27.6 | 13.4  | 32.3 | 18.0  | 35.9 | 10.1  | 39.3 | 13.7  | 60.8 | 28.3  | 26.2 | 24.3  | 1000         |

註：單位為 mg/kg

表 3.2 本計畫區 99~100 年揮發性有機物監測結果比較表 (續 4)

| 檢 驗 項 目    | 方法偵測極<br>限值 |        | S25  |       | S26  |       | S27  |       | S28  |       | S29  |       | S30  |       | 土壤污染<br>管制標準 |
|------------|-------------|--------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|--------------|
|            | 99 年        | 100 年  | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 | 99 年 | 100 年 |              |
| 苯          | 0.0045      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 甲苯         | 0.0089      | 0.0099 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 乙苯         | 0.0060      | 0.0057 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 250          |
| 二甲苯        | 0.0077      | 0.0082 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 1,3-二氯苯    | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯苯    | 0.0043      | 0.0058 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 四氯化碳       | 0.0056      | 0.0057 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 5            |
| 氯仿         | 0.0049      | 0.0077 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 100          |
| 1,2-二氯乙烷   | 0.0034      | 0.0053 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 8            |
| 順-1,2-二氯乙烯 | 0.0061      | 0.0073 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 7            |
| 反-1,2-二氯乙烯 | 0.0042      | 0.0054 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 50           |
| 1,2-二氯丙烷   | 0.0049      | 0.0065 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 0.5          |
| 四氯乙烯       | 0.0051      | 0.0056 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 10           |
| 三氯乙烯       | 0.0090      | 0.0094 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 60           |
| 六氯苯        | 0.0032      | 0.0033 | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 500          |
| 3,3'-二氯聯苯胺 | 0.38        | 0.30   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 2            |
| 2,4,6-三氯酚  | 0.23        | 0.20   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 40           |
| 2,4,5-三氯酚  | 0.23        | 0.22   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 350          |
| 五氯酚        | 0.31        | 0.44   | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | N.D. | N.D.  | 200          |
| 總碳氮化合物     | 4.282       | 4.10   | 51.4 | 49.6  | 38.4 | 30.5  | 552  | 16.9  | 79.0 | 18.1  | 263  | 21.0  | 107  | 66.6  | 1000         |

註：單位為 mg/kg



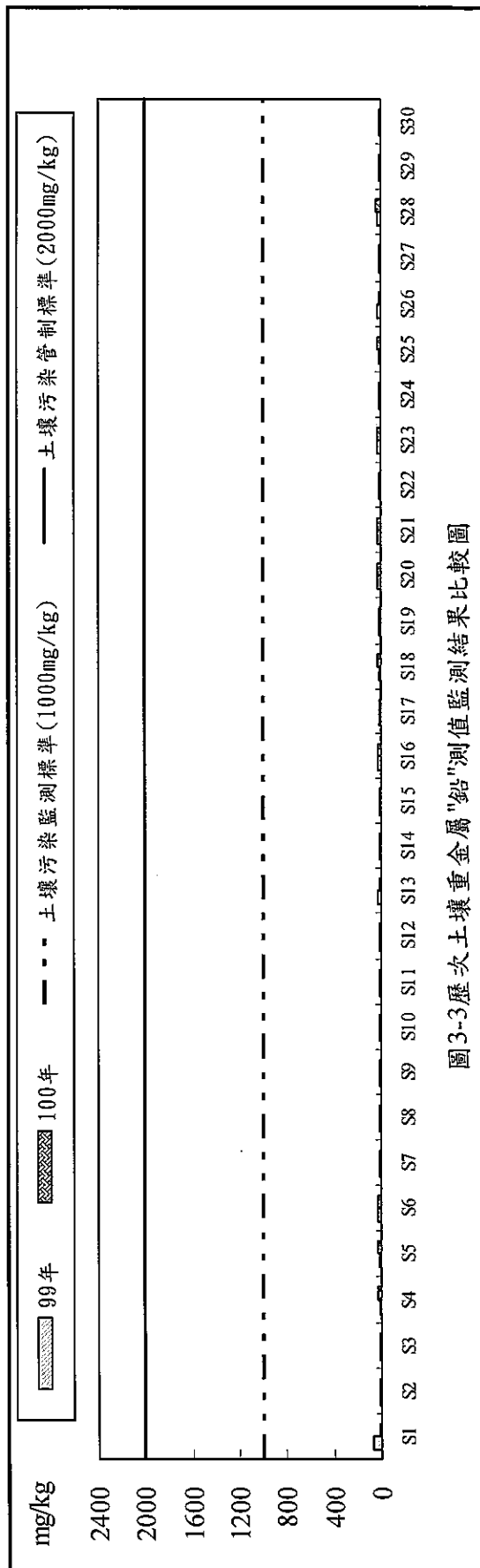


圖3-3歷次土壤重金屬"鉛"測值監測結果比較圖

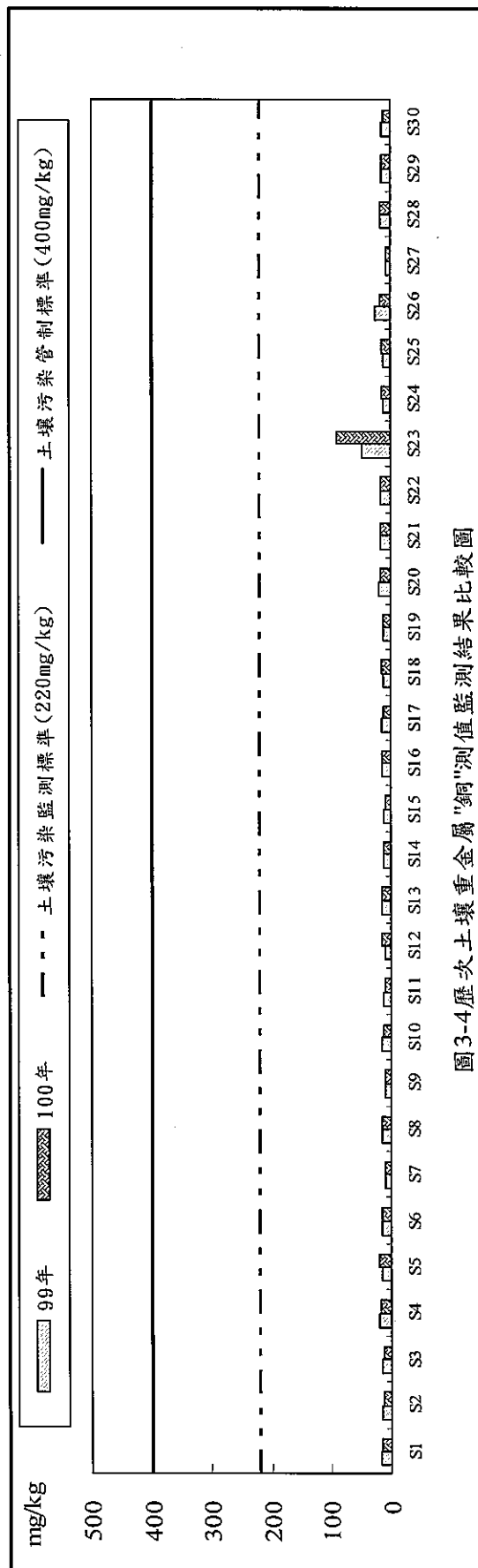
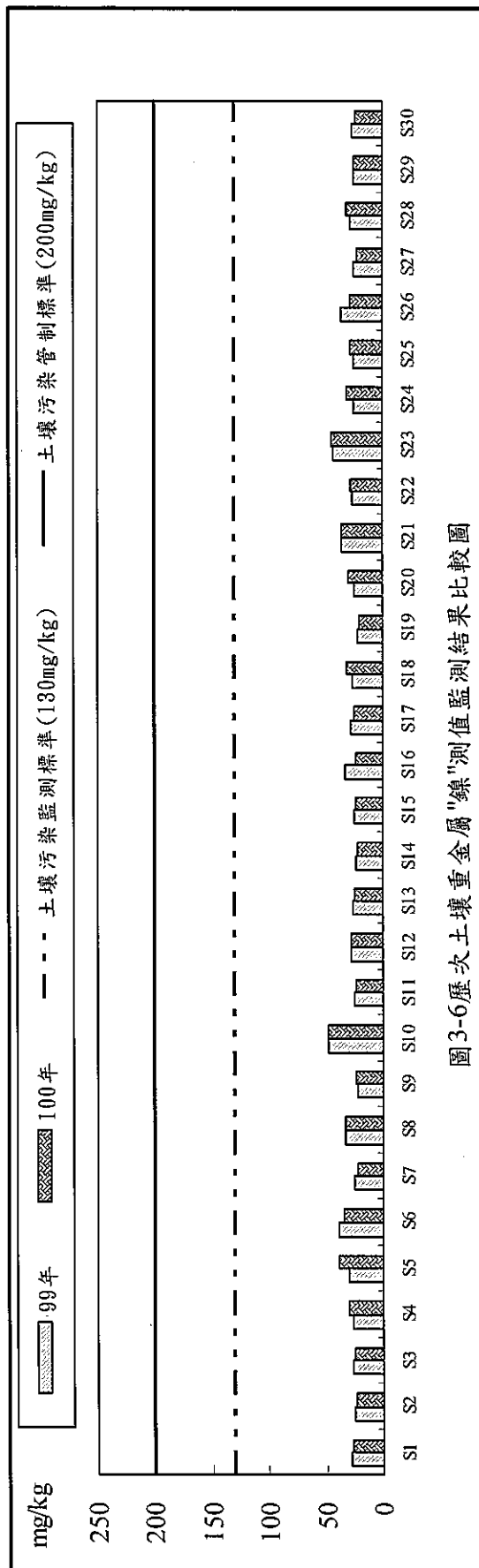
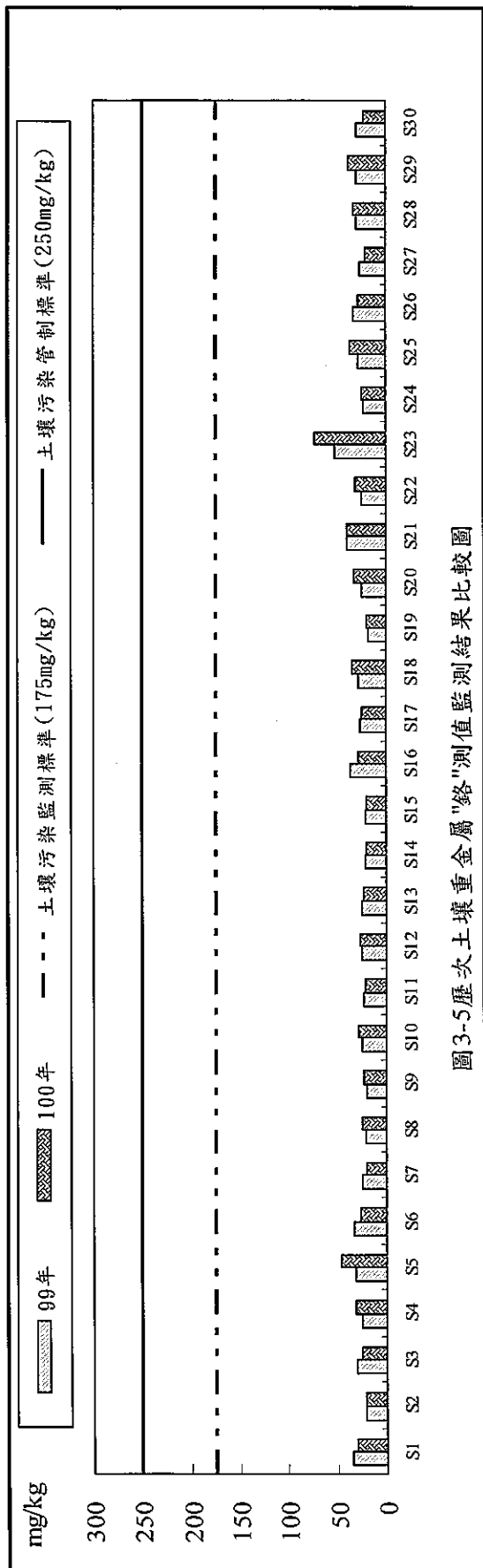
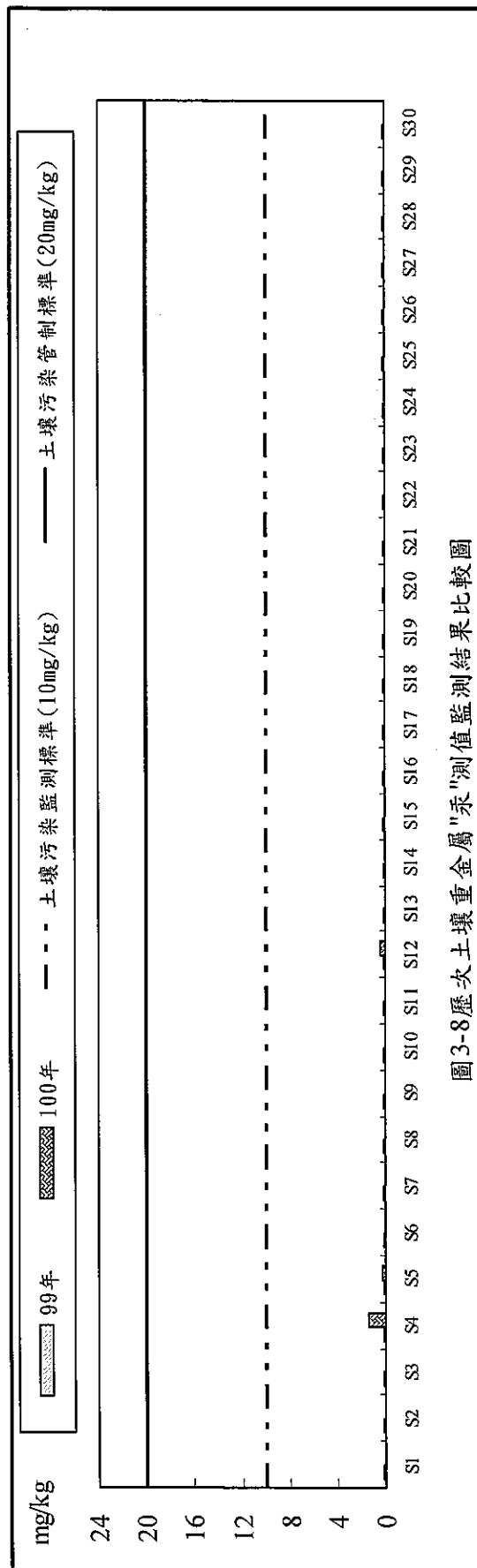
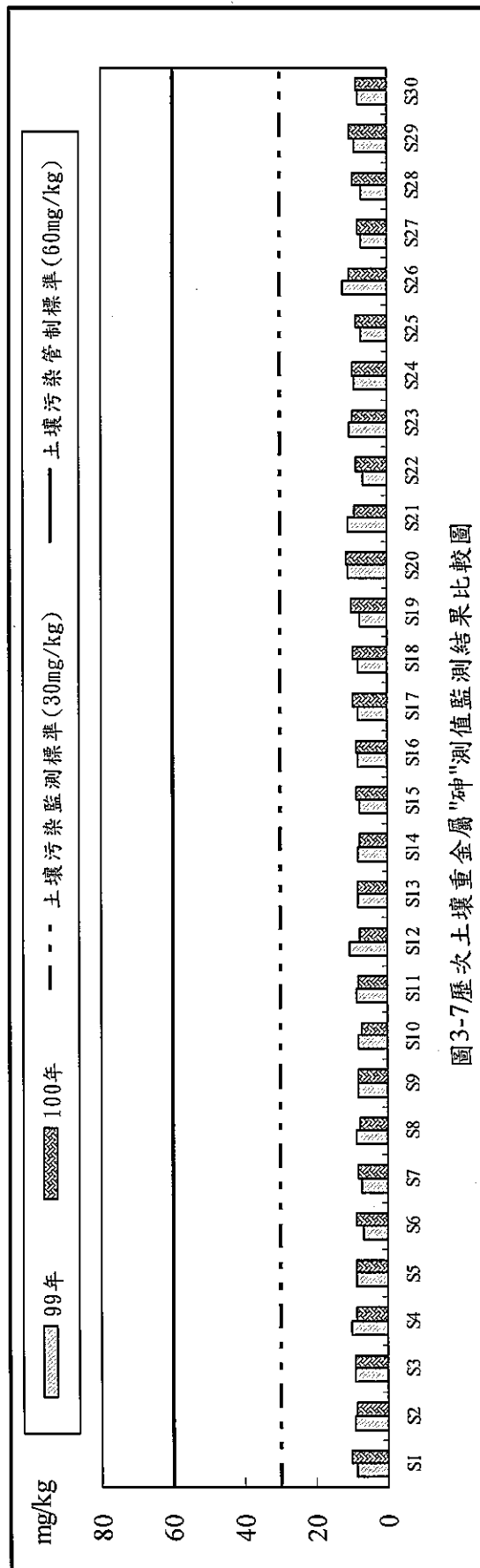


圖3-4歷次土壤重金屬"銅"測值監測結果比較圖





### 3.1.2 監測結果異常現象因應

本年度(100 年度)監測之異常狀況及處理情形整理如表 3.3

表 3.3 本年度(100 年)監測之異常狀況及處理情形

| 異 常 狀 況                           | 因應對策與效果 |
|-----------------------------------|---------|
| 本年度各測點均符合土壤<br>污染監測標準及土壤管制<br>標準。 | 持續監測。   |

### 3.2 建議事項

本計畫進行土壤之監測，本年度各測項均符合土壤污染監測標準及管制標準，為維持環境品質，建議持續監測掌握土壤變化。