

## **Australasian (iron and steel) Slag Association Inc.**

# **Material Classification of Iron and Steel Slag By-product Waste Classification Investigation Report 2004**

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Association Inc.**

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Slag By-product Waste Classification  
Investigation Report  
2004**

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## Glossary

<b>Term</b>	<b>Definition</b>
AS	Australian Standard
ASMS	Australian Steel Mill Services
BSL	BlueScope Steel Limited
Chain of Custody (COC)	Documentation which accompanies samples to reduce the potential for loss or erroneous labelling or analysis reporting
DEC	Department of Environment and Conservation of New South Wales replaced the Environment Protection Authority (EPA) and National Parks and Wildlife Service (NPWS) and Resource NSW.
EQL	Estimated quantitation limit – the minimum concentration the laboratory can analyse.
ISO	International Standards Organisation
leachate	The water solution containing the released substance.
mg/kg	Milligrams per kilogram or $1 \times 10^{-6}$ (i.e. one in one-million)
ug/l	Micrograms per Litre or $1 \times 10^{-6}$ if fluid is assumed to be density of 1mg/mL
NATA	National Association of Testing Authorities
ng/g	nano grams per gram or $1 \times 10^{-9}$ (i.e. one in one-thousand-million)
One Steel	One Steel – Rooty Hill plant for this report.
QA / QC	Quality Assurance. Quality Control
Smorgon Steel	Smorgon Steel – Newcastle plant for this report.
SteelStone Services	SteelStone Services – Newcastle for this report.
TCLP	Toxicity Characteristic Leaching Procedure – a method of determining the release of a substance via exposure to water solution.
USEPA	United States Environment Protection Agency

## Executive Summary

As part of its Research and Development Programme for 2003/2004 the Australasian (iron & steel) Slag Association Inc. (ASA) conducted an investigation into the chemical nature of iron and steel furnace slag's being by-products of three different metallurgical processes, namely, iron blast furnace, basic oxygen system furnace and electric arc furnace respectively.

Each of these by-products were analysed and the results assessed against the NSW Environment Protection Authority *Environmental Guidelines*. The aim of this investigation was the first step to collate and interpret the analytical knowledge on its members' iron and steel slag through a coordinated sampling, analysis and reporting programme.

The programme investigated the chemical characteristics of iron and steel slag generated and processed at sites only throughout NSW, namely BlueScope Steel and processed at Australian Steel Mill Services in Port Kembla, One Steel – Rooty Hill and Smorgon Steel – Newcastle processed at SteelStone Services in Newcastle.

The methodology consisted of collecting differently aged samples (in open air storage to +24 months) from the product range actively managed and distributed from each of the respective sites nominated above.

Prior to the programme's commencement consultation with the NSW Department of Environment and Conservation (DEC) which subsumed NSW EPA, clarified the applicability of the *Environmental Guidelines* and oral advice on two additional metals of interest not included in the guidelines. The metals Copper (Cu) and Zinc (Zn) are not listed because the guidelines have been developed for classifying waste for placement in landfill.

In total, sixty six (66) samples were collected and tested for total metal concentrations and those which exceeded the "*Inert*" category for total metals were subjected to leachate analysis according to the process contained in the *Environmental Guidelines* and assessed against acceptance criteria.

The majority of Stage one (1) results for total metals were within the initial total concentration acceptance levels. For those elements exceeding these initial acceptance levels (total concentration), Stage two (2) investigations were conducted using the TCLP method. Using the 95% UCI, all results were below the accepted concentration levels for ***Inert*** classification.

These results are consistent with previous leachate investigations by Golder Associates in the mid 1990's, further confirming the stable and consistent nature of these respective metallurgical processes.

Recommendations based on this report that ongoing investigations of this nature will assist regulatory authorities and the ASA in providing them with the scientific evidence required for the appropriate handling and application of iron and steel slag by-products. This reports demonstrates that iron and steel slag can be placed into landfills as ***Inert*** waste, however it more importantly forms an important element of a business case supporting the responsible and

environmental sustainability use of iron and steel slag by-products for productive and beneficial end use applications.

Figure 1 Distribution of Members



## 1 Introduction

The Australasian (iron and steel) Slag Association Inc. (ASA) has conducted an extensive analysis investigation into the species concentration and leachability of those species from Slag by-products using the NSW EPA *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes*<sup>1</sup>. The aim of this investigation is to collate and interpret the analytical knowledge on its members' products and determine the appropriate classification for each slag type.

The geographic distribution of Association members is in Figure 1 above.

Moeyan Management Pty. Limited, an independent consultancy, was commissioned to manage the sampling and analysis programme and prepare this report. In-kind assistance and samples were provided by BlueScope Steel (BSS), One Steel (OSL), Smorgon Steel (SSL), Australian Steel Mill Services (ASMS) and SteelStone Services (SSS) during the conduct of the programme.

The findings of this report will be used to underpin the ASA's justification for iron and steel slag by-product use in product or process applications.

### 1.1 Slag by-product Needs a Waste Classification

The *Environmental Guidelines* are a useful aid in both: distinguishing concentrations of substances and their mobility behaviour; and in the determination process for classification of a waste.

An extract from the *Environmental Guidelines* is included in 4.1 on page 13, showing the process for determination of the Waste Classification. Also shown are the key analytical tables, which indicate the acceptable concentrations of contaminants in the waste.

### 1.2 Objective of Scope of Work

This programme investigated the chemical characteristics of three main types of metallurgical slags, these being; Iron Blast Furnace Slag (BFS), Steel Furnace Slag (SFS) and Electric Arc Furnace Slag (EAFS). Samples for each of these by-products were selected over a range of inventory and age, which will assist the ASA in identifying appropriate uses to which iron and steel slag by-products can be used. Attachment 1 provides a brief description of the manufacturing process for each slag type.

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<sup>1</sup> NSW EPA - Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes 1999



### **1.3 Material Selection**

The specific iron and steel slag commodities, selected types and sizes for analysis from selected members product ranges included:

- Granulated Blast Furnace Slag (No 5)
- Granulated Blast Furnace Slag (No 6)
- Blast Furnace Slag – Air cooled (No 5)
- Blast Furnace Slag – Air cooled (No 6)
- Blast Furnace Slag - Dust (minus 6mm material from crushing process)
- Steel Furnace Slag - Dust (minus 6mm material from crushing process)
- Steel Furnace Slag Base (minus 20mm material from crushing process)
- Electric Arc Furnace Slag (minus 20mm material from crushing process)

Detailed sample key is listed in Attachment 3.

Slags can be processed into various forms. Molten slag can be poured into pits and allowed to solidify. This solid rock material (air-cooled slag) can then be processed and crushed into aggregates of various sizes. The manufacturing process for granulated slag will manifest different physical characteristics as compared to air-cooled slag.

The two forms of air-cooled Iron Blast Furnace slag were chosen for the following reasons.

- To determine that the slag in its pre crushed state whether from either No.5, or 6 Blast Furnaces were similar in characteristics.
- Air-cooled slag, when crushed to its smallest size, provides a greater surface area and potential for exposing contaminants.

Steel Furnace slag fractions tested were based on similar reasoning to air-cooled slag BFS.

- Steel furnace dust provided the potential to determine its contaminants with a product that provides the largest surface area.
- The steel furnace base was chosen as it also included a mixture of aggregates.

## 2 Legislation

### 2.1 *Slag by-product is a Waste (under NSW Legislation)*

The *NSW Protection of the Environment Operations Act 1997* has a range of objectives but those most pertinent to the treatment of slags is; to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote:

- the reduction or elimination of harmful wastes,
- the reduction in the use of materials and the re-use or recycling of materials,
- the monitoring and reporting of environmental quality on a regular basis,
- to assist in the achievement of the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

Manufacturing processors are now realising that the existing legislation in NSW recognises one product from a process but others, which were not the objective of the manufacturing activity are immediately deemed to be a waste.

*Waste:* As defined in the *Waste Minimisation and Management Act 1995* and the *Protection of the Environment Operations Act 1997*:

‘waste includes:

- (a) any substance (whether solid, liquid or gaseous) that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment, or
- (b) any discarded, rejected, unwanted, surplus or abandoned substance, or
- (c) any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, reprocessing, recovery or purification by a separate operation from that which produced the substance, or
- (d) any substance prescribed by the regulations to be waste for the purposes of this Act.

A substance is not precluded from being waste for the purposes of this Act merely because it can be reprocessed, re-used or recycled.’

The *Environmental Guidelines: Assessment, Classification & Management of Liquid and Non-liquid Wastes* is a combination of the:

- *Environmental Guidelines: Assessment, Classification and Management of Non-Liquid Wastes* (1997),

and the product of consultation on

- *Draft Environmental Guidelines for Assessment, Classification and Management of Liquid Wastes* (1998).

Its provisions take effect from 1 July 1999.

## **2.2 Reprocessed, Re-Used or Recycled Legislation**

There is little specific legislation for re-used wastes.

The *Environmental Guidelines* were developed to determine management required for the four classifications of waste (inert, solid, industrial, hazardous) on the presumption that the material was going to containment. It was not intended for re-use applications.

Indeed the EPA has already made a formal amendment to the *Environmental Guidelines* by issuing additional contaminants in August 2001 and when approached about this project, has orally<sup>2</sup> required the addition of metals Copper and Zinc (Cu and Zn) to be included in the analytical suite of chemical tests, citing European developments in by-products re-use.

The EPA necessarily operates within the legislative framework, but at present it sensibly makes the *Environmental Guidelines* apply in the absence of any other effective regulation to deal with re-use. This though, while helpful to re-use practitioners, should be used cautiously.

## **2.3 Producer does the Classification**

Both NSW and other state EPA's have expressed concern about the degree of production or manufacturing process control which is applied to waste streams (or by-products). EPA's understand corporations focus attention on the main product (for which the process was designed) and are sceptical about the amount of attention afforded to peripheral product streams which yield lower value materials. This places an additional burden for the generator to both prove the reliability, and to demonstrate diligence in monitoring by-product stream quality.

For the avoidance of doubt, in both direct correspondence and the *Environmental Guidelines* the NSW Environment Protection Authority (EPA) states it does not classify the waste – that is the responsibility of the generator. The generator determines waste classification according to the *Environmental Guidelines*.

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<sup>2</sup> Telephone conversation 8 April 2004, with Greg Cooper (EPA) suggested inclusion of Cu and Zn as these are elements of concern but are not at this stage included in the *Environmental Guidelines*

If any disputation were to occur, presumably the EPA would step in and after review of the analytical data (i.e. species and concentration present), and production process evidence (i.e. consistency), deem the material a *Waste Classification*.

To assess the waste, the Environmental Guidelines describe a process which:

- Qualitatively describes the sampling techniques and numbers of samples,
- Analyses contaminant concentration,
- Assesses concentrations in both Total and Available (leachable) forms.

Iron and steel slag quality is an important and measured parameter used in the iron and steel making processes, in particular as an indicator of the resultant iron and steel quality. In this study, historical analyses directly influenced the sampling programme. As can be seen in Attachment 4 the consistency of the major elements of slag as shown by the coefficient of variation (i.e. Standard Deviation divided by Mean) over an almost three year period from May 2001 to Feb 2004 is typically less than 15%.

Indeed the BlueScope Steel No 6. Blast Furnace was the only variation outside of these levels for Iron Oxide ( $\text{FeO}^2$ ) content particularly due to increases in the Nov – Dec 2001 & Jan 2002 period.

This shows that at least in the major species, the process is robust and consistently delivers reliable products.

## **2.4 Waste is Fit for Purpose**

Waste reprocessed, re-used or recycled needs to be assessed for its intended purpose.

The NSW EPA leaves these negotiations on whether the waste/by-product is “fit for purpose” to the supplier and user. However, while one of the EPA's interests is re-use or recycling of all manufactured products under its sustainability objective, it can and has, intervened to satisfy itself that a “product” is proven to be suitable for a re-use application.

Hence *waste classification* is a determining step in the landfill containment fate of a substance but forms only the initial part of the process required for a material to be reprocessed, re-used or recycled.

An *inert waste*, while suitable for low level landfill containment does not automatically mean that the material is environmentally benign and safe for any re-use application.

Having regard for the above and in the absence of appropriate legislative framework in NSW, the ASA indicated its has commitment to ongoing investigations which can be used to assist regulatory authorities in understanding scientific evidence supporting the appropriate handling and application of iron and steel slag by-products.

Although iron and steel slag can be placed into landfills as *inert waste*, more importantly steps towards the support of responsible and environmental sustainability of slag by-products for end use application must be the major end goal.

### **3 Sampling and Analysis Procedures**

#### **3.1 Site Sampling Procedures**

Slag by-product samples were taken in accordance with the following standards:

- AS 1199 Sampling procedures and tables for inspection by attributes
- AS 1399 Guide to AS 1199
- AS 1141.3.1 – Methods for Sampling and Testing Aggregates 1996 (Method 3.1- Sampling Aggregates: Section 6.9 - Sampling from Stockpiles)

A Chain of Custody form was filled in and despatched with the samples.

#### **3.2 Sample sizes**

Australian Steel Mill Services, Port Kembla coordinated the collection of sixty (60) samples across its product inventory. Steelstone Services Newcastle coordinated the collection of six (6) samples across its product inventory.

This provided a total of sixty six (66) samples for analysis.

Attachment 3 shows in detail that the materials ranged from fresh to greater than 24 months in age.

#### **3.3 Laboratory Procedures**

Laboratory procedures for analysis of total metals and TCLP were conducted by LabMark Pty Limited a NATA certified laboratory.

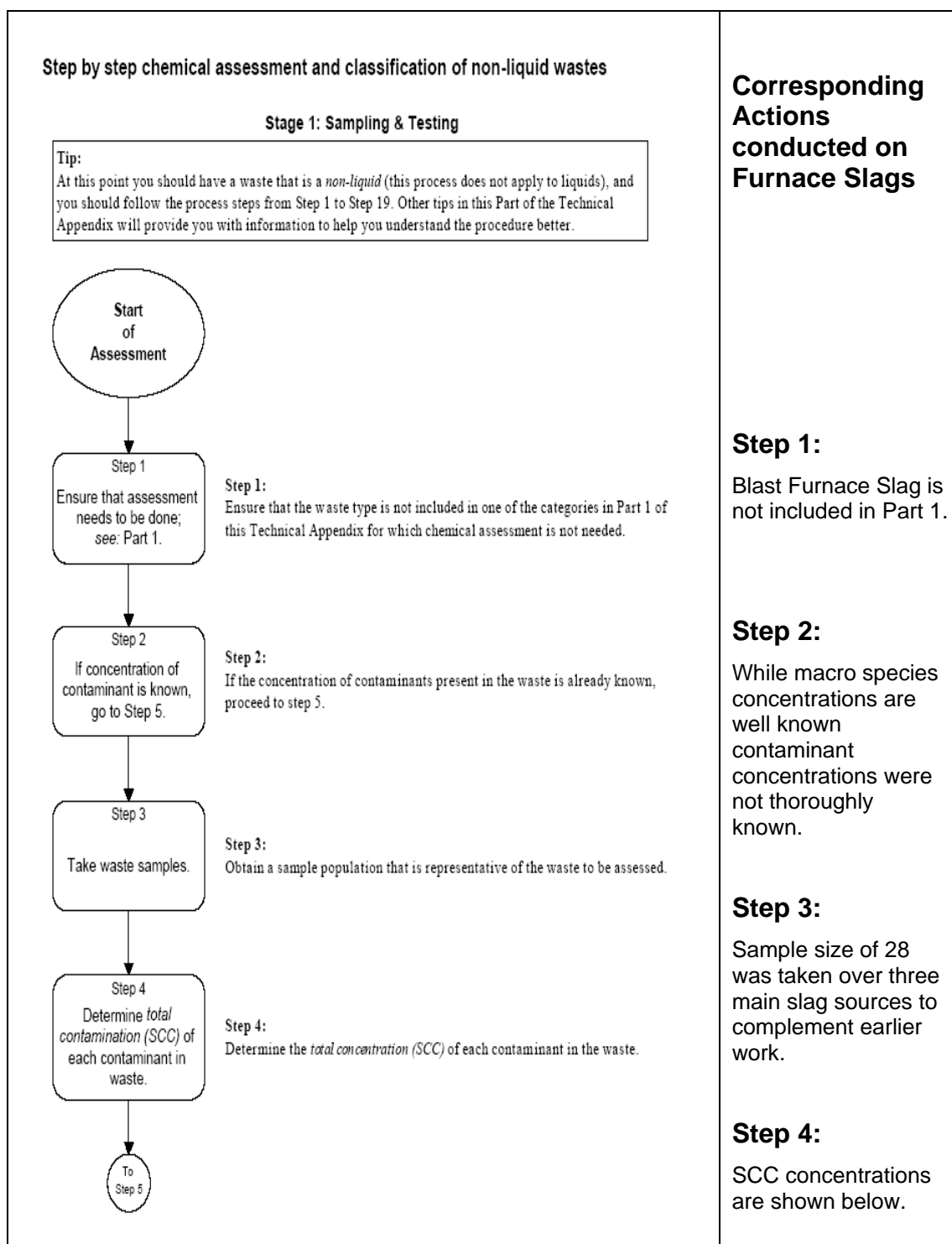
#### **3.4 Quality Control / Quality Assurance Procedures**

The full breakdown of the analytical results for the QA/QC for this analyses run can be seen at the end of the NATA laboratory reports.

They were satisfactory.

## 4 Assessment and Classification Procedures

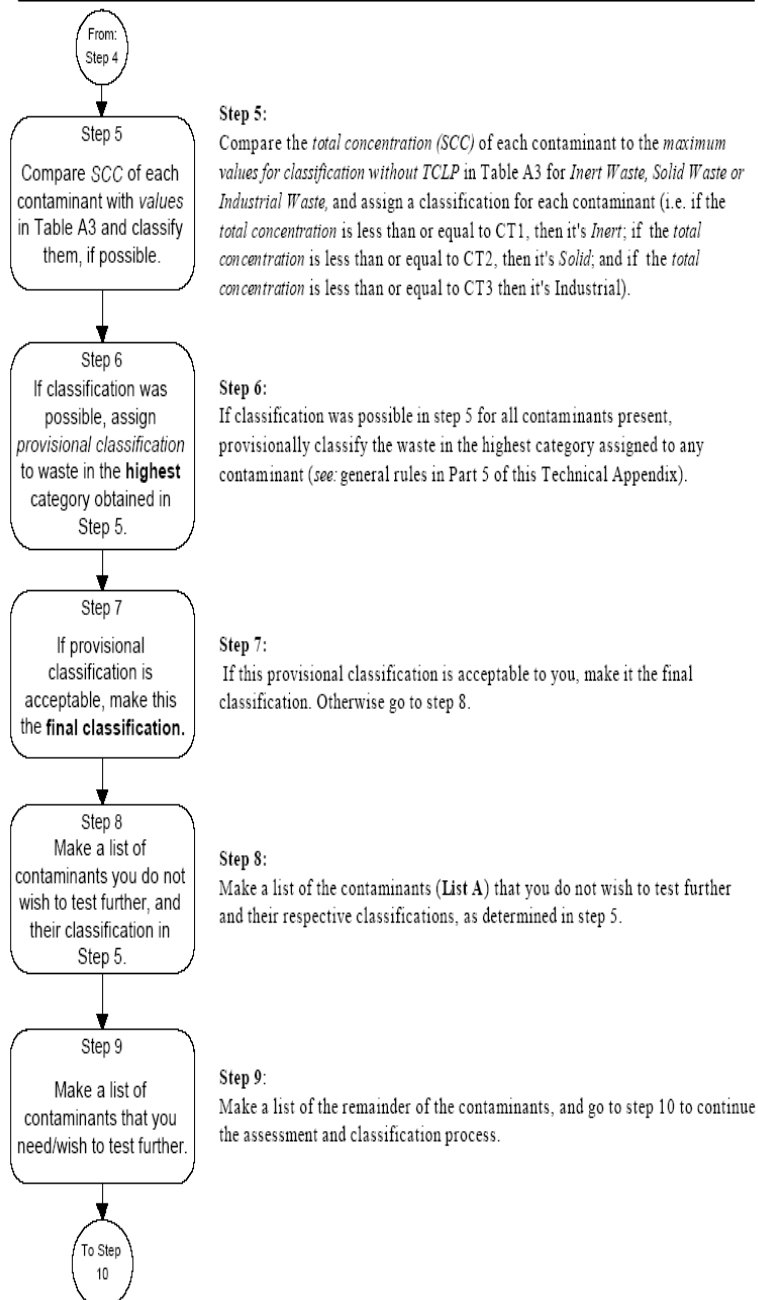
### 4.1 The Classification Process



**Stage 2: Classification without using leachable concentration (TCLP)****Tip:**

The determination of *total concentration (SCC)* is usually cheaper than the determination of *leachable concentration (TCLP)*. It is possible sometimes to classify the waste without determining the TCLP, as shown below.

The lists of the assessments for individual contaminants, namely List A at Step 8, List B at Step 14 and List C at Step 17, are combined at Step 19 in order to ensure that the highest assessment value will be used to determine the final classification of the waste [see: general rules in Part 5 of this Technical Appendix].



## Corresponding Actions conducted on Furnace Slags

**Step 5:**

Comparison with Table A3 indicates some metals for some samples above CT1. See Section 5

**Step 6:**

Provisional classification of wastes shown in Section 5

**Step 7:**

Provisional classification is not acceptable so proceed to Step 8.

**Step 8:**

List A is shown in Section 5

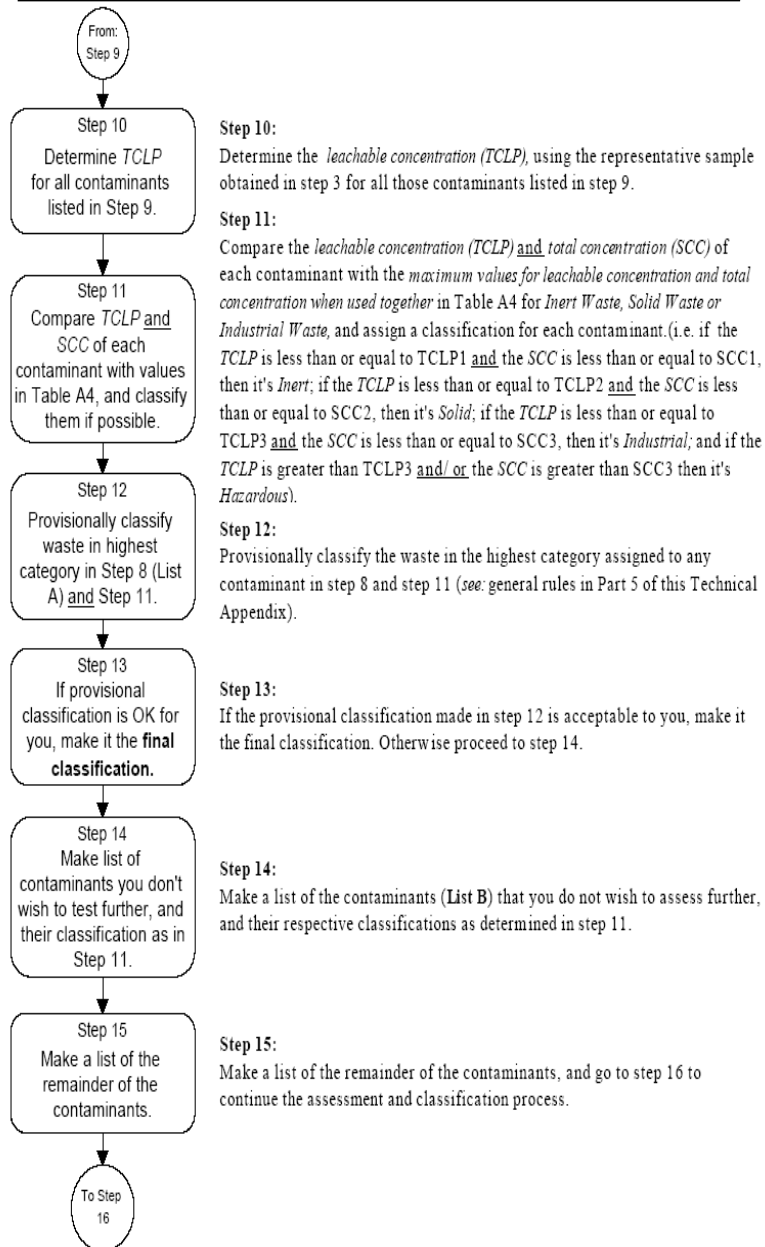
**Step 9:**

List of contaminants for further testing is shown in Section 5 i.e. Be, Mo, Ni, Pb, Se.

**Stage 3: Classification using *leachable concentration (TCLP)* and *total concentration (SCC)*****Tip:**

The need to use *leachable concentration (TCLP)* and *total concentration (SCC)* is either:

- (i) **unavoidable** if one or more contaminant in step 5 exceeded CT3, or
- (ii) **optional** if any *total concentration (SCC)* value lies between the CT and the SCC maximum values for either Inert Waste or Solid Waste in Table A4 since it may enable a lower classification to be made.



## Corresponding Actions conducted on Furnace Slags

**Step 10:**

Leachable concentrations of Be, Mo, Ni, Se and Cu & Zn determined.

**Step 11:**

Comparison with Table A4 shows overwhelming compliance with Inert category for all but one sample.

**Step 12:**

Waste Provisionally Classified.

**Step 13:**

Waste Provisionally Classified in Step 12.

**Step 14:**

Waste Provisionally Classified in Step 12.

**Step 15:**

Waste Provisionally Classified in Step 12.

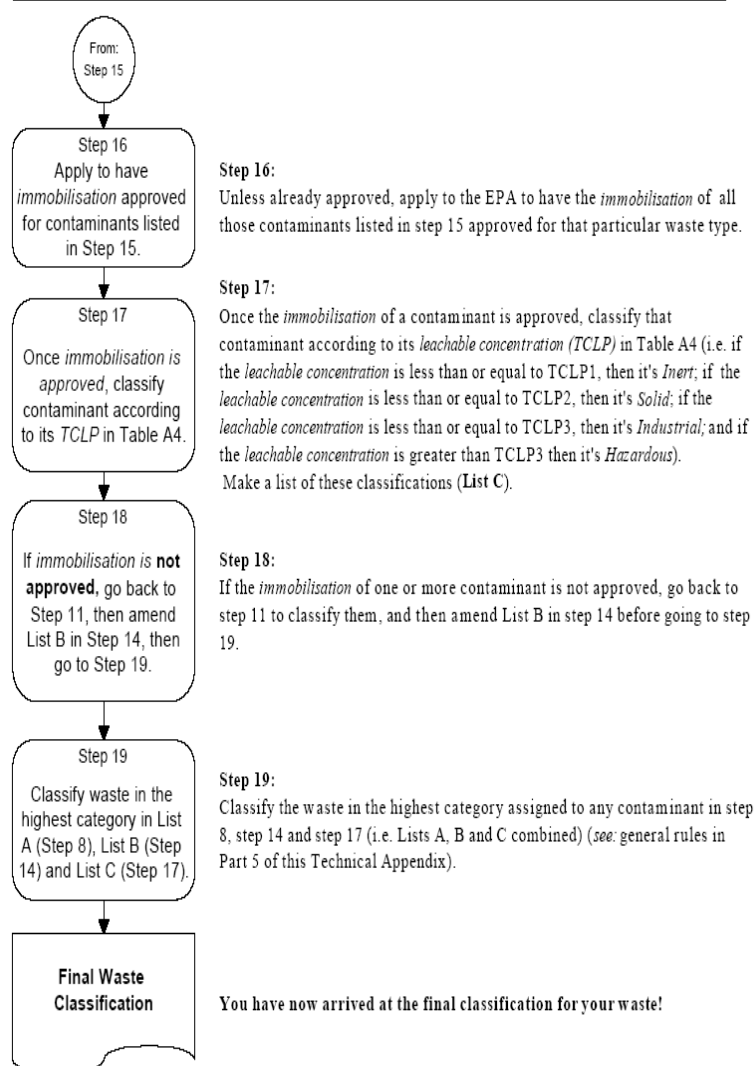


#### Stage 4: Classification using immobilisation and leachable concentration (TCLP)

##### Tip:

If the *total concentration (SCC)* of any contaminant exceeds the maximum values SCC1, SCC2 or SCC3 in Table A4, while the corresponding *leachable concentration (TCLP)* is less than or equal to TCLP1, TCLP2 or TCLP3, it is possible to apply to the EPA to have the *immobilisation* of that contaminant approved for that particular waste type.

Once the EPA has approved the *immobilisation* (of that contaminant for that particular waste type), the waste may be classified as outlined below. For example: approved *immobilisation* may allow a waste type with a *total concentration (SCC)* of a contaminant exceeding SCC3 but having a corresponding *leachable concentration (TCLP)* less than or equal to TCLP2 to be classified as *solid waste*. A fuller discussion of *immobilisation* may be found in Section 3.4.4 and Technical Appendix 2.



#### Corresponding Actions conducted on Furnace Slags

##### Step 16:

Not needed at this stage.

##### Step 17:

Not needed at this stage.

##### Step 18:

Not needed at this stage.

##### Step 19:

Not needed at this stage.

#### Final Waste Classification

Final Classification is ***Inert***

## 5 Comparison of Analytical Results with Environmental Guidelines

### 5.1 Waste Category Assessment

Using *Environmental Guidelines* table below we now assess the products as shown overleaf.

<b>Table A2: Summary of criteria for chemical contaminants in non-liquid waste classification (See also Table 6 in Section 3.4.3.)</b>		
<b>Waste classification<sup>1</sup></b>	<b>Criteria<sup>2</sup> for classification (any of the alternative options given)</b>	<b>Comments</b>
<b>Inert</b>	1. SCC test values $\leq$ CT1.	TCLP test not required.
	2. TCLP test values $\leq$ TCLP1 <u>and</u> SCC test values $\leq$ SCC1.	
	3. TCLP test values $\leq$ TCLP1 <u>and</u> SCC test values $>$ SCC1 <u>and</u> immobilisation <sup>3</sup> is EPA approved.	Without EPA approval of immobilisation, classify as solid, industrial or hazardous.
<b>Solid</b>	1. SCC test values $\leq$ CT2.	TCLP test not required.
	2. TCLP1 $<$ TCLP test values $\leq$ TCLP2 <u>and</u> SCC test values $\leq$ SCC2.	
	3. TCLP1 $<$ TCLP test values $\leq$ TCLP2 <u>and</u> SCC test values $>$ SCC2 <u>and</u> the immobilisation <sup>3</sup> is EPA approved.	Without EPA approval of immobilisation, classify as industrial or hazardous.
<b>Industrial</b>	1. SCC test values $\leq$ CT3.	TCLP test not required.
	2. TCLP2 $<$ TCLP test values $\leq$ TCLP3 <u>and</u> SCC test values $\leq$ SCC3.	
	3. TCLP test values $\leq$ TCLP3 <u>and</u> SCC2 $<$ SCC test values $\leq$ SCC3.	
	4. TCLP2 $<$ TCLP test values $\leq$ TCLP3 <u>and</u> SCC test values $>$ SCC3 <u>and</u> immobilisation <sup>3</sup> is EPA approved.	Without EPA approval of immobilisation, classify as hazardous.
<b>Hazardous</b>	1. TCLP test values $>$ TCLP3.	Store or treat waste as appropriate.
	2. TCLP test values $\leq$ TCLP3 <u>and</u> SCC test values $>$ SCC3 <u>and</u> immobilisation is not EPA approved.	Store or treat waste as appropriate.
<b>Notes:</b> 1. See also the general rules relating to waste classification (listed earlier in Part 5) for other criteria that must be satisfied before the waste can be classified. 2. These criteria apply to each toxic and ecotoxic contaminant present in the waste (see Tables A3 and A4). 3. In certain cases the EPA will consider specific conditions, such as the segregation of such waste from all other types of waste in a monofill or a monocell, in order to achieve a greater margin of safety against a possible failure of the immobilisation in the future. Information about the construction and operation of a monofill/monocell is available in the <i>Draft Environmental Guidelines for Industrial Waste Landfilling</i> , (EPA 1998a).		

Worked examples of this assessment and classification process are given later in this part of the Appendix.

## 5.2 No 5 Blast Furnace Granulate Assessment

No 5 Blast Furnace Granulate

			Stage 1				Stage 2			
			Max Values without TCLP				Max Values with TCLP			
mg/kg	Mean CT	95% UC	Inert	Solid	Industrial	Provisional Classification	Inert SCC1	Solid SCC2	Industrial SCC3	Final Classification
Beryllium	10.0	11.3	2	20	80	solid	100	100	400	inert
Copper	2.0	2.0				undefined				undefined
Nickel	4.2	6.3	4	40	160	solid	1050	1050	4200	inert
Selenium	2.0	2.0	2	20	80	solid	50	50	200	inert
Zinc	3.1	5.1				undefined				undefined
mg/L	Mean TCLP	95% UC					TCLP1	TCLP2	TCLP3	
Beryllium	0.005	0.005					0.1	1	4	inert
Copper	0.025	0.025								undefined
Nickel	0.010	0.010					0.2	2	8	inert
Selenium	0.010	0.010					0.1	1	4	inert
Zinc	0.025	0.025								undefined

As can be seen from this assessment the by-product is ***Inert***.

### 5.3 No 6 Blast Furnace Granulate Assessment

No 6 Blast Furnace Granulate

			Stage 1				Stage 2			
			Max Values without TCLP				Max Values with TCLP			
mg/kg	Mean CT	95% UC	Inert	Solid	Industrial	Provisional Classification	Inert SCC1	Solid SCC2	Industrial SCC3	Final Classification
Beryllium	10.3	14.1	2	20	80	solid	100	100	400	Inert
Copper	1.3	2.8				undefined				Undefined
Nickel	3.7	6.5	4	40	160	solid	1050	1050	4200	Inert
Selenium	2.0	2.0	2	20	80	solid	50	50	200	Inert
Zinc	5.8	13.1				undefined				Undefined
mg/L	Mean TCLP	95% UC					TCLP1	TCLP2	TCLP3	
Beryllium	0.005	0.005					0.1	1	4	Inert
Copper	0.025	0.025								Undefined
Nickel	0.021	0.026					0.2	2	8	Inert
Selenium	0.015	0.024					0.1	1	4	Inert
Zinc	0.025	0.025								Undefined

As can be seen from this assessment the by-product is ***Inert***.

#### 5.4 No 5 Blast Furnace Uncrushed Assessment

No 5 Blast Furnace Uncrushed

			Stage 1				Stage 2			
			Max Values without TCLP				Max Values with TCLP			
mg/kg	Mean CT	95% UC	Inert	Solid	Industrial	Provisional Classification	Inert SCC1	Solid SCC2	Industrial SCC3	Final Classification
Beryllium	8.7	12.5	2	20	80	solid	100	100	400	inert
Copper	3.7	15.1				undefined				undefined
Nickel	6.0	8.5	4	40	160	solid	1050	1050	4200	inert
Selenium	1.0	1.0	2	20	80	inert	50	50	200	inert
Zinc	19.7	66.2				undefined				undefined
mg/L	Mean TCLP	95% UC					TCLP1	TCLP2	TCLP3	
Beryllium	0.005	0.005					0.1	1	4	inert
Copper	0.025	0.025								undefined
Nickel	0.010	0.010					0.2	2	8	inert
Selenium	0.010	0.010					0.1	1	4	inert
Zinc	0.025	0.025								undefined

As can be seen from this assessment the by-product is ***Inert***.

### 5.5 No 6 Blast Furnace Uncrushed Assessment

No 6 Blast Furnace Uncrushed

			Stage 1				Stage 2			
			Max Values without TCLP				Max Values with TCLP			
mg/kg	Mean CT	95% UC	Inert	Solid	Industrial	Provisional Classification	Inert SCC1	Solid SCC2	Industrial SCC3	Final Classification
Beryllium	9.3	10.8	2	20	80	solid	100	100	400	inert
Copper	2.7	9.8				undefined				undefined
Nickel	6.7	9.5	4	40	160	solid	1050	1050	4200	inert
Selenium	1.0	1.0	2	20	80	inert	50	50	200	inert
Zinc	16.0	54.7				undefined				undefined
mg/L	Mean TCLP	95% UC					TCLP1	TCLP2	TCLP3	
Beryllium	0.005	0.005					0.1	1	4	inert
Copper	0.025	0.025								undefined
Nickel	0.043	0.051					0.2	2	8	inert
Selenium	0.012	0.016					0.1	1	4	inert
Zinc	0.025	0.025								undefined

As can be seen from this assessment the by-product is ***Inert***.

## 5.6 Blast Furnace Dust Assessment

Blast Furnace Dust			Stage 1				Stage 2			
mg/kg	Mean CT	95% UC	Max Values without TCLP				Max Values with TCLP			Final Classification
			Inert	Solid	Industrial	Provisional Classification	Inert SCC1	Solid SCC2	Industrial SCC3	
Beryllium	10.0	16.6	2	20	80	solid	100	100	400	inert
Copper	1.0	1.0				undefined				undefined
Nickel	4.7	6.1	4	40	160	solid	1050	1050	4200	inert
Selenium	1.0	1.0	2	20	80	inert	50	50	200	inert
Zinc	2.5	2.5				undefined				undefined

mg/L	Mean TCLP	95% UC	TCLP1	TCLP2	TCLP3	
Beryllium	0.005	0.005	0.1	1	4	inert
Copper	0.025	0.025				undefined
Nickel	0.043	0.053	0.2	2	8	inert
Selenium	0.017	0.027	0.1	1	4	inert
Zinc	0.025	0.025				undefined

As can be seen from this assessment the by-product is ***Inert***.

## 5.7 Steel Furnace Dust Assessment

Steel Furnace Dust			Stage 1				Stage 2			
mg/kg	Mean CT	95% UC	Max Values without TCLP				Max Values with TCLP			
			Inert	Solid	Industrial	Provisional Classification	Inert SCC1	Solid SCC2	Industrial SCC3	Final Classification
Copper	8.7	18.1				undefined				undefined
Molybdenum	12.7	21.4	10	100	400	inert	1000	1000	4000	inert
Nickel	14.7	34.9	4	40	160	solid	1050	1050	4200	inert
Selenium	1.0	1.0	2	20	80	inert	50	50	200	inert
Zinc	24.7	87.82				undefined				undefined
mg/L	Mean TCLP	95% UC					TCLP1	TCLP2	TCLP3	
Copper	0.025	0.025								undefined
Molybdenum	0.017	0.031					0.5	5	20	inert
Nickel	0.010	0.010					0.2	2	8	inert
Selenium	0.010	0.010					0.1	1	4	inert
Zinc	0.025	0.025								undefined

As can be seen from this assessment the by-product is ***Inert***.



## 5.8 Steel Furnace Road Base Assessment

Steel Furnace Road Base

			Stage 1				Stage 2			
			Max Values without TCLP				Max Values with TCLP			
mg/kg	Mean CT	95% UC	Inert	Solid	Industrial	Provisional Classification	Inert SCC1	Solid SCC2	Industrial SCC3	Final Classification
Copper	16.7	36.6				undefined				undefined
Molybdenum	12.0	20.6	10	100	400	solid	1000	1000	4000	inert
Nickel	28.0	68.9	4	40	160	Ind	1050	1050	4200	inert
Selenium	1.0	1.0	2	20	80	inert	50	50	200	inert
Zinc	259.7	1185.9				undefined				undefined
mg/L	Mean TCLP	95% UC					TCLP1	TCLP2	TCLP3	
Copper	0.025	0.025								undefined
Molybdenum	0.023	0.038					0.5	5	20	inert
Nickel	0.010	0.010					0.2	2	8	inert
Selenium	0.010	0.010					0.1	1	4	inert
Zinc	0.025	0.025								undefined

As can be seen from this assessment the by-product is ***Inert***.

### 5.9 Electric Arc Furnace Slag Assessment

			Stage 1				Stage 2			
			Max Values without TCLP				Max Values with TCLP			
mg/kg	Mean CT	95% UC	Inert	Solid	Industrial	Provisional Classification	Inert SCC1	Solid SCC2	Industrial SCC3	Final Classification
Copper	133.3	147.7				undefined				undefined
Lead	35.2	60.5	10	100	400	solid	1500	1500	6000	inert
Molybdenum	36.5	49.0	10	100	400	solid	1000	1000	4000	inert
Nickel	25.7	30.1	4	40	160	solid	1050	1050	4200	inert
Zinc	698.3	1184.3				undefined				undefined
mg/L	Mean TCLP	95% UC					TCLP1	TCLP2	TCLP3	
Copper	0.025	0.025								undefined
Lead	0.005	0.005					0.5	5	20	inert
Molybdenum	0.028	0.036					0.5	5	20	inert
Nickel	0.020	0.020					0.2	2	8	inert
Zinc	1.130	2.176								undefined

As can be seen from this assessment the by-product is ***Inert***.

## **6 Discussion of By-product Results**

### **6.1 Blast Furnace Slag**

The results indicate that regardless of the two separate blast furnace sites, the resulting by-products are consistent in the outcomes for this slag. Despite some variances for individual analytes the products from each of Number 5 and 6 Furnaces either crushed or uncrushed, resemble each other in the majority of analytes.

More sampling we believe would only further consolidate the consistent nature of these results.

The age of the samples ranged between Fresh (same day) to 24 months old and all were relatively consistent with similar levels reported on samples that were much younger - indicating exposure to weathering has little effect on these analytes.

### **6.2 Steel Furnace Slag**

Steel Furnace slag was differentiated from Iron Blast Furnace slag notably with its presence of Molybdenum.

### **6.3 Electric Arc Furnace Slag**

Electric Arc Furnace slag exhibited some elevated metals results which are discussed below. However a particular feature was the presence of lead though this met the *inert* category for TCLP.

Also of note was the relatively higher level of Copper (in the low 100's mg/kg) and Zinc (up to low 1000's mg/kg), although it should be noted that these elements are expressly excluded by Note 1 on Table 4 of the *Guidelines*.

They are however included here by oral request of the NSW EPA advising it would require these levels in an assessment of the waste - particularly for re-use applications.

### **6.4 Metal Analytes**

Total metals are within acceptable *Inert Waste* classification criteria at the first stage criteria (Table A3) except for:

- Beryllium (Be)
- Molybdenum (Mo)
- Nickel (Ni)
- Lead (Pb)
- Selenium (Se)

However, these elements when subjected to leachate testing (availability) comply with the *Inert Waste* category.

### **6.5 Volatile Total Petroleum Hydrocarbons (TPH)**

These TPHs are all below the limit of detection which would be expected with a furnace process.

### **6.6 Semi volatile (SVOC) & Volatile Organic Compounds (VOC)**

The SVOCs and VOCs are all below the 0.5mg/kg limit of detection which would be expected with a furnace process.

Benzo(a) pyrene [or B(a)p] is included in the SVOC screen but at an EQL (estimated quantitation limit) of 0.5 mg/kg. All samples showed B(a)p <0.5mg/kg but after concentration to meet the 0.05mg/kg detection level, 4 were detectable.

The *Inert Waste* category in Table A3 requires a CT1  $\leq$  0.08 mg/kg. Four samples as shown below are over that classification level.

Each of these samples including all six (6) of the EAF slags were subjected to TCLP as shown in Table 1 on page 28. All samples exhibit levels lower than the EQL and hence meet the *Inert Waste* classification.

This is consistent with (Attachment 5) the NSW EPA issued Immobilisation Approval declaring B(a)p immobilised in slag.

Similarly Vinyl chloride were re-run at a lower detection limit than the general SVOC level of 0.5mg/kg, and all samples were <0.1mg/kg meeting the 0.4 mg/kg level required for *Inert Waste*.

### **6.7 Polychlorinated Biphenyls (PCB)**

The PCBs are all below the limit of detection.

Table 1 Benzo(a)pyrene Testing

Description & Age	Sample No (Lab)	Benzo(a)pyrene		
		EQL= 0.5	EQL=0.05	TCLP ug/l
No. 5 Granulated Slag Fresh	17214	<0.5	<0.05	Not applicable
No. 5 Granulated Slag 2 Weeks	17215	<0.5	<0.05	Not applicable
No. 5 Granulated Slag 4 Weeks	17216	<0.5	<0.05	Not applicable
No. 5 Granulated Slag 8 Weeks	17217	<0.5	<0.05	Not applicable
No. 6 Granulated Slag Fresh	17218	<0.5	<0.05	Not applicable
No. 6 Granulated Slag 3 Weeks	17219	<0.5	<0.05	Not applicable
No. 6 Granulated Slag 6 Months	17220	<0.5	<0.05	Not applicable
Blast Furnace Dust Fresh	17221	<0.5	<0.05	Not applicable
Blast Furnace Dust 3 Months	17222	<0.5	<0.05	Not applicable
Blast Furnace Dust +24 Months	17223	<0.5	<0.05	Not applicable
Steel Furnace Dust Fresh	17224	<0.5	<0.05	Not applicable
Steel Furnace Dust 3 Weeks	17225	<0.5	<0.05	Not applicable
Steel Furnace Dust 6 Weeks	17226	<0.5	<0.05	Not applicable
20*0 Steel Furnace Roadbase Fresh	17227	<0.5	<0.05	Not applicable
20*0 Steel Furnace Roadbase 12 Months	17228	<0.5	0.26	<2
20*0 Steel Furnace Roadbase +24 Months	17229	<0.5	<0.05	Not applicable
No. 5 Rock Slag Fresh	17230	<0.5	<0.05	Not applicable
No. 5 Rock Slag 6 Months	17231	<0.5	<0.05	Not applicable
No. 5 Rock Slag +12 Months	17232	<0.5	0.81	<2
No. 6 Rock Slag Fresh	17233	<0.5	<0.05	Not applicable
No. 6 Rock Slag 6 Months	17234	<0.5	<0.05	Not applicable
No. 6 Rock Slag +12 Months	17235	<0.5	0.52	<2
EAF Rooty Hill Sydney Fresh	24336	<0.5	<0.05	<2
EAF Rooty Hill Sydney 3 Weeks	24337	<0.5	<0.05	<2
EAF Rooty Hill Sydney 12 Months	24338	<0.5	0.77	<2
EAF Smorgon Newcastle Fresh	24339	<0.5	<0.05	<2
EAF Smorgon Newcastle 11 Weeks	24340	<0.5	<0.05	<2
EAF Smorgon Newcastle 12 Months	24341	<0.5	<0.05	<2

## 6.8 Limitations

This report has been produced by assessing the samples taken, analysed and assessed against the *Environmental Guidelines*. The number of samples taken was considered appropriate:

- for a screening evaluation of the product range to determine the degree of compliance with the accepted standard, and
- to investigate the consistency of the product.

The sixty six (66) samples taken of iron and steel slag by-products complimented with the major species historical analyses shown in Attachment 4 on page 41, have shown to be an indicator of overall product quality, and are very consistent when assessed in conjunction with the previous Consultant reports (Golder Associates in the 1990's) already provided to the NSW EPA.

- Ecotoxicity & Chemical Characterisation of Experimentally Generated Leachate from Unbond Rock Blast Furnace Slag – 1994
- Ecotoxicity & Chemical Characterisation of Experimentally Generated Leachate from Unbound Basic Oxygen Steel Slag – 1996
- Ecotoxicity & Chemical Characterisation of Experimentally Generated Leachate from Unbond Electric Arc Furnace Steel Slag – 1997

Despite some sample numbers for selected individual products being low in a statistical sense, we feel that the consistency exhibited so far will, under further investigation only confirm the findings of this report.

## 7 Conclusions

### 7.1 Compliance with Acceptance Criteria

Based on the acceptance criteria established in the guidelines, each of the following products as assessed within this report are classified as ***Inert***:

- No 5 Blast Furnace Granulated Slag
- No 6 Blast Furnace Granulated Slag
- No 5 Blast Furnace Air Cooled Slag
- No 6 Blast Furnace Air Cooled Slag
- Blast Furnace Dust (minus 6mm material from the crushing process)
- Steel Furnace Dust (minus 6mm material from the crushing process)
- Steel Furnace Base (minus 20mm material from the crushing process)
- Electric Arc Furnace slag (from 2 independent sites)

### 7.2 Sustainable Development

Where application circumstances support the application of iron and steel slag by-product the environmental benefits of re-use as opposed to landfill containment, are significant and extend beyond the obvious:

- saving in greenhouse gas emissions,
- unnecessary:
  - consumption of landfill space,
  - energy consumption and destruction of natural landscapes by the removal of virgin excavated natural materials (VENM) mining,

Substantial amounts of this material have been stockpiled ready for deployment to appropriate applications.

## **8 Recommendations**

To achieve this re-use benefit the following steps are suggested:

### **8.1 Development of a Monitoring Programme**

The ASA develop and manage an ongoing testing and monitoring programme with the assistance of its members.

This may be of the order of a similar set of analyses to this investigation quarterly for about a year on specific species of concern, e.g. Selenium. Then when sufficient statistical evidence has been accumulated, modify those analyses in accordance with a yet to be agreed (with the EPA) protocol.

### **8.2 Evaluation of Previous Placement Sites**

Further work could concentrate on evaluation of previously placed iron and steel slag by-products to determine whether any adverse environmental impacts can be observed months or years after placement.

One example of an apparently successful utilisation is the filling of the Casting Basin in Port Kembla Harbour. A follow up Biodiversity and Ecotoxicity study at and around that construction site would admirably complement the chemical analysis conducted in this and previous (Golder Associates) reports.

### **8.3 Development of Product Application Scenarios**

The *Environmental Guidelines* offer a section on environmentally sensitive areas which is an indicative direction of where wastes should not be utilised. This should be one aspect of determining by-product suitability applications.



## 9 Related Documents

1. **Ecotoxicity & Chemical Characterisation of Experimentally Generated Leachate from Unbound Rock Blast Furnace Slag**, May 1993, 92620109(A), by Golder Associates. Issued January 1994.
2. **Ecotoxicity & Chemical Characterisation of Experimentally Generated Leachate from Unbound Basic Oxygen Steel Slag**, April 1996, 95623062.I, by Golder Associates.
3. **Ecotoxicity & Chemical Characterisation of Experimentally Generated Leachate from Unbound Electric Arc Furnace Steel Slag**, January 1997, 96623018.P, by Golder Associates.

## **Attachment 1      Slag by-product Manufacturing Process**

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### **PORT KEMBLA**

#### **BLUESCOPE – AUSTRALIAN STEEL MILL SERVICES OPERATION.**

Australian Steel Mill Services Pty Limited (ASMS) processes slags produced from the iron and steel processes at the BlueScope Steel (BSL) site located in Port Kembla. There are two sources of slag and these sources produce a different type of slag. The first process is from the Blast Furnace and the second is from the BOS or Basic Oxygen Steel making furnace process.

These slags under the Protection of the Environment Operations Act 1997 No156 (POEA) are considered to be a waste. ASMS is now, through the “Assessment, Classification & Management of Liquid & Non Liquid Wastes” will provide a classification for this so called waste.

#### **Blast Furnace Slag**

BlueScope Steel produces blast furnace slag as a co product of the iron making process, which is very consistent. BSL operates two blast furnaces that are known as 5 and 6 Blast Furnace. At each blast furnace slag is removed from the iron stream in exactly the same method. At both furnaces molten slag is processed to produce either air-cooled slag or granulated slag.

#### **Air Cooled Slag**

The first step in the production of steel is to manufacture iron. Iron ore, a mixture of oxides of iron, silica and alumina, together with a fuel consisting of coke, natural gas, oxygen and pulverised coal and also limestone as a fluxing agent, are fed into a blast furnace which consists of a large vertical chamber through which large volumes of hot air are blasted.

The liquid blast furnace slag flows into pits where it is predominantly air cooled and sprayed with a small quantity of water. The cooled slag is then transported to a crushing and screening plant where it is further processed into various products including aggregates

Air-cooled slag is produced when molten blast furnace slag is placed into a slag pit. The slag is allowed to cool for a period of time and water is sprayed over it to increase the rate of solidification among other reasons. This solidified slag can be known as Rock Slag or Air Cooled Slag.

#### **Granulated Blast Furnace Slag**

Granulated slag is produced when molten blast furnace slag is introduced to a high-pressure water stream. The effect of this process is to blast the slag stream apart making small globules of slag that are almost instantaneously solidified. The slag created from this process is typically smaller than 6 mm.

On examination of the macro components of blast furnace slag it can be determined that it is very consistent. (Attachment 4, page 41)

Both air cooled and granulated slag are reclaimed by loader, transported by truck to the BlueScope Steel Recycling area where it is stockpiled in appropriate areas.

### **Steel Furnace BOS (Basic Oxygen System process) Slag**

In the BOS process, a large open-top vessel is generally used into which molten iron, steel scrap and lime are placed. High pressure oxygen is blown into the vessel and a violent chemical reaction takes place. On the completion of the reaction, the steel is drained into one ladle and the slag is poured into another.

BlueScope Steel produces steel furnace slag as a co product the steel making process, which is very consistent. The molten steel furnace slag is poured into a slag pit where it is allowed to cool.

The steel furnace slag is reclaimed by loader, transported by truck to the BlueScope Steel recycling area where it is reprocessed and stockpiled in appropriate areas for despatch.

### **Electric Arc Furnace Slag**

In the EAF process, steel scrap and fluxes are added to a refractory lined cup-shaped vessel. This vessel has a lid through which carbon electrodes are passed. An arc is induced between the scrap and electrodes and the resultant heat generated melts scrap and fluxes which react similarly to the BOS process. Steel and slag are also separated similarly.

## Attachment 2 Environmental Guidelines extract: Tables A3 and A4

*Assessment, Classification & Management of Liquid & Non-liquid Wastes*

[See additional contaminants for tables A3 and A4](#) gazetted 3 August 2001.

<b>Table A3: Contaminant threshold values for waste classification of non-liquid wastes without doing the leaching test<sup>1</sup></b>				
	Maximum values of total concentration for classification <b>without</b> TCLP.			
Contaminant	Inert waste	Solid waste	Industrial waste	CAS registry number
	CT1 (mg/kg)	CT2 (mg/kg)	CT3 (mg/kg)	
Arsenic	10	100	400	
Benzene	1	10	40	71-43-2
Benzo(a)pyrene <sup>2</sup>	0.08	0.8	3.2	50-32-8
Beryllium	2	20	80	
Cadmium	2	20	80	
Carbon tetrachloride	1	10	40	56-23-5
Chlorobenzene	200	2000	8000	108-90-7
Chloroform	12	120	480	67-66-3
Chromium (VI) <sup>3</sup>	10	100	400	
m-Cresol	400	4000	16000	108-39-4
o-Cresol	400	4000	16000	95-48-7
p-Cresol	400	4000	16000	106-44-5
Cresol (total)	400	4000	16000	1319-77-3
Cyanide (amenable) <sup>4</sup>	7	70	280	
Cyanide (total)	32	320	1280	
2,4-D	20	200	800	94-75-7
1,2-Dichlorobenzene	8.6	86	34.4	95-50-1
1,4-Dichlorobenzene	15	150	600	106-46-7
1,2-Dichloroethane	1	10	40	107-06-2
1,1-Dichloroethylene	1.4	14	56	75-35-4
Dichloromethane	17.2	172	688	75-09-2
2,4-Dinitrotoluene	0.26	2.6	10.4	121-14-2
Ethylbenzene	60	600	2400	100-41-4
Fluoride	300	3000	12000	
Lead	10	100	400	
Mercury	0.4	4	16	
Methyl ethyl ketone	400	4000	16000	78-93-3
Molybdenum	10	100	400	
Nickel	4	40	160	
Nitrobenzene	4	40	160	98-95-3
C6-C9 petroleum hydrocarbons	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	–
C10-C36 petroleum hydrocarbons	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	–
Phenol (non-halogenated)	28.8	288	1152	108-95-2
Polychlorinated biphenyls <sup>5</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	1336-36-3

## Assessment, Classification &amp; Management of Liquid &amp; Non-liquid Wastes

<b>Table A3: Contaminant threshold values for waste classification of non-liquid wastes without doing the leaching test<sup>1</sup></b>				
	Maximum values of <i>total concentration</i> for classification <b>without</b> TCLP.			
Contaminant	Inert waste	Solid waste	Industrial waste	CAS registry number
	CT1 (mg/kg)	CT2 (mg/kg)	CT3 (mg/kg)	
Polycyclic aromatic hydrocarbons (total) <sup>5</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	–
Scheduled chemicals <sup>5</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	Refer to Appendix 5
Selenium	2	20	80	
Silver	10	100	400	
Styrene (vinyl benzene)	6	60	240	100-42-5
1,1,1,2-Tetrachloroethane	20	200	800	630-20-6
1,1,2,2-Tetrachloroethane	2.6	26	104	79-34-5
Tetrachloroethylene	1.4	14	56	127-18-4
Toluene	28.8	288	1152	108-88-3
1,1,1-Trichloroethane	60	600	2400	71-55-6
1,1,2-Trichloroethane	2.4	24	96	79-00-5
Trichloroethylene	1	10	40	79-01-6
2,4,5-Trichlorophenol	800	8000	32000	95-95-4
2,4,6-Trichlorophenol	4	40	160	88-06-2
Vinyl chloride	0.4	4	16	75-01-4
Xylenes (total)	100	1000	4000	1330-20-7

## Notes to Table A3:

1. For organic and inorganic chemical contaminants not listed in Table A3, contact the EPA for disposal requirements. Note that aluminium, barium, boron, chromium (0 and III oxidation states), cobalt, copper, iron, manganese, vanadium and zinc have deliberately not been listed in this table and need not be tested for.
2. There may be a need for the laboratory to concentrate the sample to achieve the TCLP limit value for benzo(a)pyrene with confidence.
3. These limits apply to chromium in the +6 oxidation state only.
4. Analysis for cyanide (amenable) is the established method used to assess potentially leachable cyanide. Other methods may be considered by the EPA if it can be demonstrated that these methods yield the same information.
5. Scheduled chemicals, polycyclic aromatic hydrocarbons and polychlorinated biphenyls are assessed by using SCC1, SCC2 and SCC3. No TCLP analysis is required.
6. N/A means not applicable, but, see Table A4 for SCC criteria.

[See additional contaminants for tables A3 and A4](#) gazetted 3 August 2001.

Table A4: Leachable concentration (TCLP) and total concentration (SCC) values for non-liquid waste classification <sup>1</sup>							
		Maximum values for <i>leachable concentration</i> and <i>total concentration</i> when used <b>together</b> .					
		Inert waste		Solid waste		Industrial waste	
Contaminant	Leachable concentration	Total concentration	Leachable concentration	Total concentration	Leachable concentration	Total concentration	CAS registry number
	TCLP1 (mg/L)	SCC1 (mg/kg)	TCLP2 (mg/L)	SCC2 (mg/kg)	TCLP3 (mg/L)	SCC3 (mg/kg)	
Arsenic	0.5	500	5.0 <sup>2</sup>	500	20	2000	
Benzene	0.05	18	0.5 <sup>2</sup>	18	2	72	71-43-2
Benzo(a)pyrene <sup>3</sup>	0.004 <sup>3</sup>	1	0.04 <sup>4</sup>	10	0.16	23	50-32-8
Beryllium	0.1	100	1.0 <sup>5</sup>	100	4	400	
Cadmium	0.1	100	1.0 <sup>2</sup>	100	4	400	
Carbon tetrachloride	0.05	18	0.5 <sup>2</sup>	18	2	72	56-23-5
Chlorobenzene	10	3600	100 <sup>2</sup>	3600	400	14400	108-90-7
Chloroform	0.6	216	6 <sup>2</sup>	216	24	864	67-66-3
Chromium (VI) <sup>7</sup>	0.5	1900	5 <sup>2</sup>	1900	20	7600	
m-Cresol	20	7200	200 <sup>2</sup>	7200	800	28800	108-39-4
o-Cresol	20	7200	200 <sup>2</sup>	7200	800	28800	95-48-7
p-Cresol	20	7200	200 <sup>2</sup>	7200	800	28800	106-44-5
Cresol (total)	20	7200	200 <sup>2</sup>	7200	800	28800	1319-77-3
Cyanide (amenable) <sup>8,9</sup>	0.35	300	3.5 <sup>8</sup>	300	14	1200	
Cyanide (total) <sup>8</sup>	1.6	5900	16 <sup>8</sup>	5900	64	23600	
2,4-D	1	360	10 <sup>2</sup>	360	40	1440	94-75-7
1,2-Dichlorobenzene	0.43	155	4.3 <sup>2</sup>	155	17.2	620	95-50-1
1,4-Dichlorobenzene	0.75	270	7.5 <sup>2</sup>	270	30	1080	106-46-7
1,2-Dichloroethane	0.05	18	0.5 <sup>2</sup>	18	2	72	107-06-2
1,1-Dichloroethylene	0.07	25	0.7 <sup>2</sup>	25	2.8	100	75-35-4
Dichloromethane	0.86	310	8.6 <sup>2</sup>	310	34.4	1240	75-09-2
2,4-Dinitrotoluene	0.013	4.68	0.13 <sup>2</sup>	4.68	0.52	18.7	121-14-2
Ethylbenzene	3	1080	30 <sup>6</sup>	1080	120	4320	100-41-4
Fluoride	15	10000	150 <sup>6</sup>	10000	600	40000	
Lead	0.5	1500	5 <sup>2</sup>	1500	20	6000	
Mercury	0.02	50	0.2 <sup>2</sup>	50	0.8	200	
Methyl ethyl ketone	20	7200	200 <sup>2</sup>	7200	800	28800	78-93-3
Molybdenum	0.5	1000	5 <sup>6</sup>	1000	20	4000	
Nickel	0.2	1050	2 <sup>6</sup>	1050	8	4200	
Nitrobenzene	0.2	72	2 <sup>2</sup>	72	8	288	98-95-3
C6-C9 petroleum hydrocarbons <sup>14</sup>	N/A <sup>14</sup>	650	N/A <sup>14</sup>	650	N/A <sup>14</sup>	2600	–
C10-C36 petroleum hydrocarbons <sup>14</sup>	N/A <sup>14</sup>	5000	N/A <sup>14</sup>	10000	N/A <sup>14</sup>	40000	–

Table A4: Leachable concentration (TCLP) and total concentration (SCC) values for non-liquid waste classification <sup>1</sup>							
Contaminant	Maximum values for <i>leachable concentration</i> and <i>total concentration</i> when used <b>together</b> .						CAS registry number
	Inert waste		Solid waste		Industrial waste		
	Leachable concentration	Total concentration	Leachable concentration	Total concentration	Leachable concentration	Total concentration	
	TCLP1 (mg/L)	SCC1 (mg/kg)	TCLP2 (mg/L)	SCC2 (mg/kg)	TCLP3 (mg/L)	SCC3 (mg/kg)	
Phenol (non-halogenated)	1.44	518	14.4 <sup>10</sup>	518	57.6	2073	108-95-2
Polychlorinated biphenyls <sup>11</sup>	N/A <sup>11</sup>	2	N/A <sup>11</sup>	<50	N/A <sup>11</sup>	<50	1336-36-3
Polycyclic aromatic hydrocarbons(total) <sup>11,12</sup>	N/A <sup>11</sup>	200	N/A <sup>11</sup>	200	N/A <sup>11</sup>	800	-
Scheduled chemicals <sup>11, 13</sup>	N/A <sup>11</sup>	1	N/A <sup>11</sup>	<50	N/A <sup>11</sup>	<50	Refer to Appendix 5
Selenium	0.1	50	1 <sup>2</sup>	50	4	200	
Silver	0.5	180	5.0 <sup>2</sup>	180	20	720	
Styrene (vinyl benzene)	0.3	108	3 <sup>6</sup>	108	12	432	100-42-5
1,1,1,2 – Tetrachloroethane	1	360	10 <sup>2</sup>	360	40	1440	630-20-6
1,1,2,2-Tetrachloroethane	0.13	46.8	1.3 <sup>2</sup>	46.8	5.2	187.2	79-34-5
Tetrachloroethylene	0.07	25.2	0.7 <sup>2</sup>	25.2	2.8	100.8	127-18-4
Toluene	1.44	518	14.4 <sup>10</sup>	518	57.6	2073	108-88-3
1,1,1-Trichloroethane	3	1080	30 <sup>2</sup>	1080	120	4320	71-55-6
1,1,2-Trichloroethane	0.12	43.2	1.2 <sup>2</sup>	43.2	4.8	172.8	79-00-5
Trichloroethylene	0.05	18	0.5 <sup>2</sup>	18	2	72	79-01-6
2,4,5-Trichlorophenol	40	14400	400 <sup>2</sup>	14400	1600	57600	95-95-4
2,4,6-Trichlorophenol	0.2	72	2 <sup>2</sup>	72	8	288	88-06-2
Vinyl chloride	0.02	7.2	0.2 <sup>2</sup>	7.2	0.8	28.8	75-01-4
Xylenes (total)	5	1800	50 <sup>15</sup>	1800	200	7200	1330-20-7

**Notes to Table A4:**

- For organic and inorganic chemical contaminants not listed in Table A4, contact the EPA for disposal requirements. Note that aluminium, barium, boron, chromium (0 and III oxidation states), cobalt, copper, iron, manganese, vanadium and zinc have deliberately not been listed in this table and need not be tested for.
- USEPA final rule for TCLP levels (USEPA 1990a).
- There may be a need for the laboratory to concentrate the sample to achieve the TCLP limit value for benzo(a)pyrene with confidence.
- Calculated from: *Hazardous Waste: Identification and Listing; Proposed Rule* (USEPA 1995).
- Calculated from: DiMarco & Buckett (1996); Imray & Langley (1996).

### Attachment 3 Sample Key and Data for Statistical Analysis

Date	Sample No (Field)	Product Code	Description	Age	Sample No (Lab)
22/04/2004	1478 A/04	GBF 006	No. 5 Granulated Slag	Fresh	17214
22/04/2004	1478 B/04	GBF 006	No. 5 Granulated Slag	2 Weeks	17215
22/04/2004	1478 C/04	GBF 006	No. 5 Granulated Slag	4 Weeks	17216
22/04/2004	1478 D/04	GBF 006	No. 5 Granulated Slag	8 Weeks	17217
22/04/2004	1479 A/04	GBF 006	No. 6 Granulated Slag	Fresh	17218
22/04/2004	1479 B/04	GBF 006	No. 6 Granulated Slag	3 Weeks	17219
22/04/2004	1479 C/04	GBF 006	No. 6 Granulated Slag	6 Months	17220
22/04/2004	1480 A/04	ABF 200	Blast Furnace Dust	Fresh	17221
22/04/2004	1480 B/04	ABF 200	Blast Furnace Dust	3 Months	17222
22/04/2004	1480 C/04	ABF 200	Blast Furnace Dust	+24 Months	17223
22/04/2004	1481 A/04	SFS 500	Steel Furnace Dust	Fresh	17224
22/04/2004	1481 B/04	SFS 500	Steel Furnace Dust	3 Weeks	17225
22/04/2004	1481 C/04	SFS 500	Steel Furnace Dust	6 Weeks	17226
22/04/2004	1482 A/04	SFS 530	20*0 Steel Furnace Roadbase	Fresh	17227
22/04/2004	1482 B/04	SFS 530	20*0 Steel Furnace Roadbase	12 Months	17228
22/04/2004	1482 C/04	SFS 530	20*0 Steel Furnace Roadbase	+24 Months	17229
22/04/2004	1483 A/04	ABF 280	No. 5 Rock Slag	Fresh	17230
22/04/2004	1483 B/04	ABF 280	No. 5 Rock Slag	6 Months	17231
22/04/2004	1483 C/04	ABF 280	No. 5 Rock Slag	+12 Months	17232
22/04/2004	1484 A/04	ABF 280	No. 6 Rock Slag	Fresh	17233
22/04/2004	1484 B/04	ABF 280	No. 6 Rock Slag	6 Months	17234
22/04/2004	1484 C/04	ABF 280	No. 6 Rock Slag	+12 Months	17235
10/06/2004	1500 A/04	EAF020	EAF Rooty Hill Sydney	Fresh	24336
10/06/2004	1500 B/04	EAF020	EAF Rooty Hill Sydney	3 Weeks	24337
10/06/2004	1500 C/04	EAF020	EAF Rooty Hill Sydney	12 Months	24338
10/06/2004	1501 A/04	EAF020	EAF Smorgon Newcastle	Fresh	24339
10/06/2004	1501 B/04	EAF020	EAF Smorgon Newcastle	11 Weeks	24340
10/06/2004	1501 C/04	EAF020	EAF Smorgon Newcastle	12 Months	24341
24/09/2004	3735/04 A	GBF 006	6 Blast Furnace Granulate	Fresh	37740
24/09/2004	3735/04 B	GBF 006	6 Blast Furnace Granulate	Fresh	37741
24/09/2004	3735/04 C	GBF 006	6 Blast Furnace Granulate	Fresh	37777
24/09/2004	3735/04 D	GBF 006	6 Blast Furnace Granulate	Fresh	37742
24/09/2004	3735/04 E	GBF 006	6 Blast Furnace Granulate	Fresh	37743
24/09/2004	3735/04 F	GBF 006	6 Blast Furnace Granulate	Fresh	37744
24/09/2004	3735/04 G	GBF 006	6 Blast Furnace Granulate	Fresh	37745
24/09/2004	3735/04 H	GBF 006	6 Blast Furnace Granulate	Fresh	37746
24/09/2004	3735/04 I	GBF 006	6 Blast Furnace Granulate	Fresh	37747
24/09/2004	3735/04 J	GBF 006	6 Blast Furnace Granulate	Fresh	37748
24/09/2004	3736/04 A	ABF 280	6 Rock Slag	Fresh	37749
24/09/2004	3736/04 B	ABF 280	6 Rock Slag	Fresh	37750
24/09/2004	3736/04 C	ABF 280	6 Rock Slag	Fresh	37751
24/09/2004	3736/04 D	ABF 280	6 Rock Slag	Fresh	37752
24/09/2004	3737/04 A	ABF 280	6 Rock Slag	6 Months	37753
24/09/2004	3737/04 B	ABF 280	6 Rock Slag	6 Months	37754
24/09/2004	3737/04 C	ABF 280	6 Rock Slag	6 Months	37755
24/09/2004	3737/04 D	ABF 280	6 Rock Slag	6 Months	37756
24/09/2004	3737/04 E	ABF 280	6 Rock Slag	6 Months	37757
24/09/2004	3737/04 F	ABF 280	6 Rock Slag	6 Months	37758
24/09/2004	3737/04 G	ABF 280	6 Rock Slag	6 Months	37759
24/09/2004	3737/04 H	ABF 280	6 Rock Slag	6 Months	37760
24/09/2004	3737/04 I	ABF 280	6 Rock Slag	6 Months	37761
24/09/2004	3737/04 J	ABF 280	6 Rock Slag	6 Months	37762
24/09/2004	3738/04 A	ABF 200	Blast Furnace Dust	Fresh	37763
24/09/2004	3738/04 B	ABF 200	Blast Furnace Dust	Fresh	37764
24/09/2004	3738/04 C	ABF 200	Blast Furnace Dust	Fresh	37765
24/09/2004	3738/04 D	ABF 200	Blast Furnace Dust	Fresh	37766
24/09/2004	3739/04 A	ABF 200	Blast Furnace Dust	12 months	37767
24/09/2004	3739/04 B	ABF 200	Blast Furnace Dust	12 months	37768
24/09/2004	3739/04 C	ABF 200	Blast Furnace Dust	12 months	37769
24/09/2004	3739/04 D	ABF 200	Blast Furnace Dust	12 months	37770
24/09/2004	3739/04 E	ABF 200	Blast Furnace Dust	12 months	37771
24/09/2004	3739/04 F	ABF 200	Blast Furnace Dust	12 months	37772
24/09/2004	3739/04 G	ABF 200	Blast Furnace Dust	12 months	37773
24/09/2004	3739/04 H	ABF 200	Blast Furnace Dust	12 months	37774
24/09/2004	3739/04 I	ABF 200	Blast Furnace Dust	12 months	37775
24/09/2004	3739/04 J	ABF 200	Blast Furnace Dust	12 months	37776





## Attachment 4 Granulated Blast Furnace Slag Historical Analyses

### No 5 Blast Furnace

	(%) Concentration of Compound/Element Monthly Ave								
	FeO	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	MnO	MgO	K <sub>2</sub> O	S	TiO <sub>2</sub>
May-01	0.23	35.3	14.1	41.3	0.42	5.8	0.37	0.58	0.85
Jun-01	0.24	34.9	14.3	41.7	0.46	5.4	0.3	0.57	0.83
Jul-01	0.21	34.7	14.4	41.3	0.45	6	0.3	0.63	0.87
Aug-01	0.2	35.1	14.2	40.8	0.43	6.2	0.29	0.59	0.9
Sep-01	0.21	35	14.1	40.4	0.43	6.6	0.31	0.62	1.01
Oct-01	0.21	35.3	14	40.2	0.43	6.7	0.32	0.6	1.06
Nov-01	0.23	35.5	14	40.6	0.47	6.5	0.31	0.58	1.08
Dec-01	0.24	35.1	13.9	40.7	0.48	6.5	0.32	0.54	1.16
Jan-02	0.21	35	14	40.7	0.45	6.6	0.32	0.55	1.03
Feb-02	0.24	35.5	14	40.1	0.37	6.7	0.31	0.57	1.04
Mar-02	0.21	35.3	13.9	39.9	0.39	7.1	0.32	0.58	1.07
Apr-02	0.2	36	13.7	39.7	0.42	6.9	0.35	0.59	0.98
May-02	0.22	35	13.7	40.3	0.48	7	0.37	0.65	1.1
Jun-02	0.24	34.6	13.6	40.9	0.47	7	0.38	0.66	1.16
Jul-02	0.25	34.6	13.65	41.28	0.475	6.86	0.36	0.65	1.19
Aug-02	0.24	35.66	13.79	40.68	0.453	6.45	0.329	0.58	1.17
Sep-02	0.24	35.05	14.16	41.18	0.411	6.27	0.354	0.58	1.12
Oct-02	0.23	34.4	14.3	41.5	0.447	6.3	0.35	0.61	1.23
Nov-02	0.22	34	14.4	41.8	0.435	6.3	0.338	0.71	1.23
Dec-02	0.25	34.08	14.16	41.7	0.481	6.34	0.371	0.67	0.69
Jan-03	0.24	34.22	14.3	41.98	0.438	6.17	0.342	0.69	1.17
Feb-03	0.22	34.3	14.1	41.4	0.442	6.17	0.38	0.78	1.14
Mar-03	0.2	34.86	13.85	41.55	0.498	6.09	0.329	0.74	1.14
Apr-03	0.23	34.52	13.93	41.17	0.476	6.2	0.368	0.75	1.21
May-03	0.24	34.28	14.51	41.38	0.438	6.26	0.352	0.78	1.17
Jun-03	0.23	34.11	14.32	41.77	0.413	6.27	0.363	0.8	1.22
Jul-03	0.22	34.93	13.66	41.67	0.476	6.22	0.38	0.73	1.19
Aug-03	0.24	34.7	13.68	41.53	0.482	6.47	0.346	0.75	1.22
Sep-03	0.24	34.42	13.84	41.71	0.487	6.41	0.352	0.71	1.26
Oct-03	0.25	34.3	13.9	41.9	0.487	6.3	0.321	0.73	1.28
Nov-03	0.25	34.2	13.9	41.7	0.435	6.3	0.305	0.75	1.2
Dec-03	0.23	34.7	13.35	41.8	0.454	6.4	0.321	0.75	1.13
Jan-04	0.23	34.7	13.35	41.8	0.454	6.4	0.321	0.75	1.13
Feb-04	0.23	34.7	13.35	41.8	0.454	6.4	0.321	0.75	1.13

SD	0.015	0.490	0.306	0.639	0.029	0.343	0.026	0.080	0.137
Max	0.25	36	14.51	41.98	0.498	7.1	0.38	0.8	1.28
Min	0.2	34	13.35	39.7	0.37	5.4	0.29	0.54	0.69
Range	0.05	2	1.16	2.28	0.128	1.7	0.09	0.26	0.59
Mean	0.229	34.795	13.953	41.174	0.450	6.399	0.337	0.664	1.099
Coeff. of Variation	7%	1%	2%	2%	7%	5%	8%	12%	12%

## No 6 Blast Furnace

	(%) Concentration of Compound/Element Monthly Ave								
	FeO	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	CaO	MnO	MgO	K <sub>2</sub> O	S	TiO <sub>2</sub>
May-01	0.27	35.8	13.9	41.1	0.49	5.6	0.34	0.57	0.85
Jun-01	0.32	35.3	14.2	41.3	0.43	5.5	0.28	0.56	0.8
Jul-01	0.35	35.7	13.9	40.8	0.44	6	0.28	0.59	0.85
Aug-01	0.34	35.4	13.9	40.7	0.39	6.2	0.25	0.6	0.94
Sep-01	0.31	35	13.7	40.7	0.39	6.6	0.28	0.62	1.06
Oct-01	0.26	35.3	13.9	40.2	0.41	6.5	0.29	0.63	1.08
Nov-01	0.63	36.3	13.7	40.1	0.44	6.4	0.29	0.58	0.99
Dec-01	0.49	37.1	13.3	40	0.44	6.2	0.3	0.5	0.98
Jan-02	0.46	37.4	13.4	39.3	0.42	6.3	0.3	0.52	0.87
Feb-02	0.27	36.7	13.5	39.7	0.41	6.5	0.28	0.53	1.02
Mar-02	0.24	35.5	13.6	40.2	0.39	7	0.28	0.57	1.07
Apr-02	0.23	35	13.4	40.6	0.46	7.1	0.36	0.64	1.14
May-02	0.23	35	13.4	40.7	0.41	7	0.39	0.63	1.15
Jun-02	0.21	35.1	13.5	40.8	0.41	7	0.39	0.65	1.19
Jul-02	0.21	35.2	13.29	41.3	0.47	6.78	0.32	0.62	1.21
Aug-02	0.23	35	13.61	41.6	0.41	6.48	0.3	0.57	1.23
Sep-02	0.23	35	13.59	41.9	0.44	6.18	0.37	0.57	1.22
Oct-02	0.24	34.6	13.9	41.8	0.44	6.11	0.34	0.6	1.28
Nov-02	0.26	34.4	14	41.9	0.44	6.25	0.35	0.68	1.29
Dec-02									
Jan-03	0.25	34.3	14.17	41.5	0.42	6.28	0.36	0.68	1.25
Feb-03	0.25	34.8	14	41.3	0.4	6.21	0.37	0.77	1.15
Mar-03	0.23	34.7	13.81	41.4	0.44	6.09	0.32	0.73	1.16
Apr-03	0.24	34.5	13.6	41.6	0.43	6.14	0.34	0.76	1.27
May-03	0.26	35.6	13.83	41.2	0.39	5.99	0.32	0.72	1.14
Jun-03	0.22	35.3	13.47	42.1	0.38	5.91	0.32	0.76	1.14
Jul-03	0.23	35.5	13.47	41.5	0.43	6.13	0.35	0.73	1.16
Aug-03	0.24	35.1	13.38	41.7	0.45	6.34	0.34	0.74	1.25
Sep-03	0.24	34.6	13.47	42.1	0.45	6.24	0.34	0.72	1.3
Oct-03	0.25	34.7	13.8	41.8	0.44	6.21	0.32	0.73	1.26
Nov-03	0.25	34.6	13.8	41.7	0.41	6.21	0.28	0.74	1.22
Dec-03	0.26	34.5	13.3	42	0.42	6.33	0.3	0.78	1.24
Jan-04	0.26	34.5	13.3	42	0.42	6.33	0.3	0.78	1.24
Feb-04	0.26	34.5	13.3	42	0.42	6.33	0.3	0.78	1.24

SD	0.089	0.756	0.266	0.755	0.025	0.363	0.036	0.086	0.143
Max	0.63	37.4	14.2	42.1	0.49	7.1	0.39	0.78	1.3
Min	0.21	34.3	13.29	39.3	0.38	5.5	0.25	0.5	0.8
Range	0.42	3.1	0.91	2.8	0.11	1.6	0.14	0.28	0.5
Mean	0.28	35.2	13.6	41.2	0.43	6.32	0.32	0.66	1.13
Coeff. of Variation	32%	2%	2%	2%	6%	6%	11%	13%	13%

## Attachment 5      General Approval of the Immobilisation of Contaminants in Waste

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### GENERAL APPROVAL OF THE IMMOBILISATION OF CONTAMINANTS IN WASTE

Pursuant to the provisions in Clause 28 of the *Protection of the Environment Operations (Waste) Regulation 1996* the New South Wales Environment Protection Authority has authorised the following general approval of the immobilisation of contaminants in waste:

#### A) APPROVAL NUMBER

1999/07

#### B) SPECIFICATION OF WASTE STREAM

Metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials.

#### C) CONTAMINANTS APPROVED AS IMMOBILISED

Chromium (VI), Lead, Nickel, Polycyclic Aromatic Hydrocarbons (PAHs) and Benzo(a)pyrene (BaP).

#### D) TYPE OF IMMOBILISATION

Natural

#### E) MECHANISM OF IMMOBILISATION

Chromium, Lead or Nickel metals and their metal compounds as well as PAHs and BaP are encapsulated within the furnace slag during its formation at elevated temperature exceeding 1,000 degrees Celsius. These metals, metal and organic compounds and their silicate compounds are bonded within a vitrified solid mass.

#### F) CONDITIONS OF APPROVAL

- *Packaging Requirements*

None

- *Waste Assessment Requirements*

The total concentration (SCC) limits for Chromium (VI), Lead, Nickel, PAHs and BaP listed in Table A4 of the *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* (Waste Guidelines – EPA 1999) do not apply to the assessment of metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials. With respect to Chromium (VI), Lead, Nickel and BaP, metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials can be classified according to their leachable concentration (TCLP) values alone.

Any contaminants listed in Table A4 of the Waste Guidelines (other than Chromium (VI), Lead, Nickel, PAHs and BaP) that are contained within the metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials must be assessed in accordance with Technical Appendix 1 of the Waste Guidelines.

The metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials must not contain any free liquids as defined in the Waste Guidelines.

- *Disposal Restrictions*

None.

Note: The classified metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials may be disposed of to waste facilities which can legally receive them.

- *Record keeping requirements*

The responsible person is required to keep records of the management and disposal metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials that are classified as hazardous or industrial waste for a period of at least 3 years from the date which these wastes are disposed of off site.

- *Waste Management Requirements*

None.

#### **G) RESPONSIBLE PERSON**

The person or class of persons to whom this general approval relates is the person who carries out the assessment and classification for the purpose of this approval. The responsible person must comply with the conditions of this approval.

#### **Environment Protection Authority**

Per: Roz Hall  
Manager Waste Policy

By Delegation

## Attachment 6      Nata Laboratory Reports

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The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement. This document shall not be reproduced, except in full.



No. 13542

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CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

## FINAL CERTIFICATE OF ANALYSIS

**Laboratory Report No:** 017730  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Client Reference:** Slag Products  
**Contact Name:** Paul Theodossiadis  
**Chain of Custody No:** na  
**Sample Matrix:** SOIL

Cover Page 1 of 4  
plus Sample Results

Date Received: 3/5/04  
Date Reported: 31/5/04

This Final Certificate of Analysis consists of sample results, DQI's, method descriptions, laboratory definitions, and internationally recognised NATA accreditation and endorsement. The DQO compliance relates specifically to QA/QC results as performed as part of the sample analysis, and may provide an indication of sample result quality. Transfer of report ownership from Labmark to the client shall only occur once full & final payment has been settled and verified. All report copies may be retracted where full payment has not occurred within the agreed settlement period.

### QUALITY ASSURANCE CRITERIA

**Accuracy:** matrix spike: 1 in first 5-20, then 1 every 20 samples  
lcs, crm, method: 1 per analytical batch  
surrogate spike: addition per target organic method

**Precision:** laboratory duplicate: 1 in first 5-10, then 1 every 10 samples  
laboratory triplicate: re-extracted & reported when duplicate RPD values exceed acceptance criteria

**Holding Times:** soils, waters: Refer to LabMark Preservation & THT table  
VOC's 14 days water / soil  
VAC's 7 days water or 14 days acidified  
VAC's 14 days soil  
SVOC's 7 days water, 14 days soil  
Pesticides 7 days water, 14 days soil  
Metals 6 months general elements  
Mercury 28 days

**Confirmation:** target organic analysis: GC/MS, or confirmatory column

**Sensitivity:** EQL: Typically 2-5 x Method Detection Limit (MDL)

### QUALITY CONTROL

#### GLOBAL ACCEPTANCE CRITERIA (GAC)

**Accuracy:** spike, lcs, crm general analytes 70% - 130% recovery  
surrogate: phenol analytes 50% - 130% recovery  
organophosphorous pesticide analytes 60% - 130% recovery

anion/cation bal: +/- 10% (0-3 meq/l),  
+/- 5% (>3 meq/l)

**Precision:** method blank: not detected >95% of the reported EQL

duplicate lab 0-30% (>10xEQL), 0-75% (5-10xEQL)  
RPD (metals): 0-100% (<5xEQL)

duplicate lab 0-50% (>10xEQL), 0-75% (5-10xEQL)  
RPD: 0-100% (<5xEQL)

### QUALITY CONTROL

#### ANALYTE SPECIFIC ACCEPTANCE CRITERIA (ASAC)

**Accuracy:** spike, lcs, crm analyte specific recovery data  
surrogate: <3xstd of historical mean

**Uncertainty:** spike, lcs: measurement calculated from historical analyte specific control charts

### RESULT ANNOTATION

DQO:	Data Quality Objective	s:	matrix spike recovery	p:	pending
DQI:	Data Quality Indicator	d:	laboratory duplicate	lcs:	laboratory control sample
EQL:	Estimated Quantitation Limit	t:	laboratory triplicate	crm:	certified reference material
- - :	not applicable	r:	RPD relative % difference	mb:	method blank

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## NEPC GUIDELINE COMPLIANCE - DQO

### 1. GENERAL

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- A. Results relate specifically to samples as received. Sample results are not corrected for matrix spike, lcs, or surrogate recovery data.
- B. EQL's are matrix dependant and may be increased due to sample dilution or matrix interference.
- C. Laboratory QA/QC samples are specific to this project.
- D. Inter-laboratory proficiency results are available upon request. NATA accreditation details available at [www.nata.asn.au](http://www.nata.asn.au).
- E. VOC spikes & surrogates added to samples during extraction, SVOC spikes & surrogates added prior to extraction.
- F. Recovery data outside GAC limits shall be investigated and compared to ASAC (historical mean +/- 3sd). If recovery data <20%, then the relevant results for that compound are considered not reliable.
- G. Recovery data (ms, surrogate, crm, lcs) outside ASAC limits shall initiate an investigative action. Anomalous QC data is examined in conjunction with other QC samples and a final decision whether to accept or reject results is provided by the professional judgement of the senior analyst. The USEPA-CLP National Functional Guidelines are referred to for specific recommendations.
- H. Extraction (preparation) date refers to the date that sample preparation was initiated. Note that certain methods not requiring sample preparation (eg. VOCs in water, etc) may report a common extraction and analysis date.
- I. LabMark shall maintain an official copy of this Certificate of Analysis for all traceable reference purposes.

### 2. CHAIN OF CUSTODY (COC) & SAMPLE RECEIPT NOTICE (SRN) REQUIREMENTS

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- A. SRN issued to client upon sample receipt & login verification.
- B. Preservation & sampling date details specified on COC and SRN, unless noted.
- C. Sample Integrity & Validated Time of Sample Receipt (VTSR) Holding Times verified (preservation may extend holding time, refer to preservation chart).

### 3. NATA ACCREDITED METHODS

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- A. NATA accreditation held for each method and sample matrix type reported, unless noted below.
- B. NATA accredited in-house laboratory methods are referenced from NEPC, ASTM, modified USEPA / APHA documents.
- C. Subcontracted analyses:
  - Not reported contracted by Australian Government Analytical Laboratories, NATA accreditation No. 198





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**4. QA/QC FREQUENCY COMPLIANCE TABLE SPECIFIC TO THIS REPORT**

Matrix: **SOIL**

Page:	Method:	Totals:	#d	%d-ratio	#t	#s	%s-ratio
1	Volatile TPH by P&T (vTPH)	22	3	14%	0	2	9%
3	Petroleum Hydrocarbons (TPH)	22	3	14%	0	2	9%
7	Volatile Organic Compounds (VOC)	22	3	14%	0	2	9%
19	Polychlorinated Biphenyls (PCB)	22	3	14%	0	2	9%
23	Semivolatile Organic Compounds (SVOC)	22	3	14%	0	2	9%
50	Acid extractable mercury	22	3	14%	0	2	9%
52	Acid extractable metals	22	3	14%	0	2	9%
56	Polynuclear Aromatic Hydrocarbons	22	3	14%	0	2	9%
64	Chromium-VI	22	3	14%	0	2	9%
66	Fluoride	22	3	14%	0	2	9%
68	Total Cyanide	22	3	14%	0	2	9%
70	CN Amenable to Chlorination	22	3	14%	0	0	0%
72	Volatile Organic Compounds (VOC)	22	3	14%	0	2	9%

Matrix: **SOIL-LEACHATE**

Page:	Method:	Totals:	#d	%d-ratio	#t	#s	%s-ratio
47	TCLP Preparation	22	0	0%	0	0	0%
60	TCLP metals	22	3	14%	0	3	14%

NEPC guideline for laboratory duplicates is 1 in 10 samples (10%).  
USEPA guideline for laboratory matrix spikes is 1 in 20 samples (5%).

**5. ADDITIONAL COMMENTS SPECIFIC TO THIS REPORT**

- A. AGAL reference RN429357, see attached report.
- B. VOC (soil) sample lab # 17235s compound dichloromethane reported recovery of 43%, corresponding lcs 86%.
- C. Metals (soil) sample lab # 17235s reported Nickel recovery of 131%, corresponding lcs 104%.
- D. SVOC (soil) sample lab # 17215s reported recovery range of 39%-108%, corresponding lcs 26%-128%.
- E. SVOC (soil) sample lab # 17235s reported recovery range of 20%-105%, corresponding lcs 26%-128%.
- F. Refer to LabMark historical control chart recovery range data. QA/QC (SVOC) results reported within 3sd of the historical analyte specific mean results, and therefore considered acceptable for laboratory release.



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Laboratory QA/QC Self Assessment data shall relate specifically to this report, and may only provide an indication of sample result quality. Acceptance of this Self Assessment certificate does not preclude any requirement for a QA/QC review by a accredited contaminated site EPA auditor, when and wherever necessary. Laboratory QA/QC Self Assessment references available upon request.

## Analyte mean and standard deviation

### SVOC\_S

For the period: 20/01/03 12:00:00 AM to 20/12/03 11:59:59 PM

### SPIKES

Analyte Name	Mean	1 SD	Range	2 SD	Range	3 SD	Range
1,2,4,5-tetrachlorobenzene	98	17	81 to 115	34	64 to 132	51	47 to 149
1,2,4-trichlorobenzene	91	14	77 to 105	28	63 to 119	42	49 to 133
1,2-dichlorobenzene	92	14	78 to 106	28	64 to 120	42	50 to 134
1,3-dichlorobenzene	92	14	78 to 106	28	64 to 120	42	50 to 134
1,4-dichlorobenzene	90	14	76 to 104	28	62 to 118	42	48 to 132
1,4-dinitrobenzene	83	20	63 to 103	40	43 to 123	60	23 to 143
1-naphthylamine	86	29	57 to 115	58	28 to 144	87	0 to 173
2,3,4,6-tetrachlorophenol	81	26	55 to 107	52	29 to 133	78	3 to 159
2,4,5-trichlorophenol	86	19	67 to 105	38	48 to 124	57	29 to 143
2,4,6-TBP (Surr @ 5mg/kg)	90	17	73 to 107	34	56 to 124	51	39 to 141
2,4,6-trichlorophenol	86	17	69 to 103	34	52 to 120	51	35 to 137
2,4-dichlorophenol	87	17	70 to 104	34	53 to 121	51	36 to 138
2,4-dimethylphenol	83	17	66 to 100	34	49 to 117	51	32 to 134
2,4-dinitrotoluene	77	19	58 to 96	38	39 to 115	57	20 to 134
2,6-dichlorophenol	96	17	79 to 113	34	62 to 130	51	45 to 147
2,6-dinitrotoluene	82	18	64 to 100	36	46 to 118	54	28 to 136
2-(acetylamino) fluorene	81	28	53 to 109	56	25 to 137	84	0 to 165
2-chloronaphthalene	91	15	76 to 106	30	61 to 121	45	46 to 136
2-chlorophenol	90	16	74 to 106	32	58 to 122	48	42 to 138
2-FBP (Surr @ 5mg/kg)	95	13	82 to 108	26	69 to 121	39	56 to 134
2-FP (Surr @ 5mg/kg)	92	12	80 to 104	24	68 to 116	36	56 to 128
2-methylnaphthalene	93	17	76 to 110	34	59 to 127	51	42 to 144
2-methylphenol	82	21	61 to 103	42	40 to 124	63	19 to 145
2-naphthylamine	86	32	54 to 118	64	22 to 150	96	0 to 182
2-nitroaniline	79	18	61 to 97	36	43 to 115	54	25 to 133
2-nitrophenol	83	17	66 to 100	34	49 to 117	51	32 to 134
3-&4-methylphenol	93	17	76 to 110	34	59 to 127	51	42 to 144
3-methylcholanthrene	105	17	88 to 122	34	71 to 139	51	54 to 156
3-nitroaniline	80	24	56 to 104	48	32 to 128	72	8 to 152
4-(dimethylamino) azobenzene	88	21	67 to 109	42	46 to 130	63	25 to 151
4-aminobiphenyl	97	18	79 to 115	36	61 to 133	54	43 to 151
4-bromophenyl phenyl ether	90	16	74 to 106	32	58 to 122	48	42 to 138
4-chloro-3-methylphenol	83	14	69 to 97	28	55 to 111	42	41 to 125
4-chloroaniline	90	17	73 to 107	34	56 to 124	51	39 to 141
4-chlorophenyl phenyl ether	90	15	75 to 105	30	60 to 120	45	45 to 135
4-nitroaniline	85	19	66 to 104	38	47 to 123	57	28 to 142
4-nitrophenol	72	30	42 to 102	60	12 to 132	90	0 to 162
5-nitro-o-toluidine	94	16	78 to 110	32	62 to 126	48	46 to 142
7,12-dimethylbenz(a)anthracene	81	31	50 to 112	62	19 to 143	93	0 to 174
Acenaphthene	93	16	77 to 109	32	61 to 125	48	45 to 141
Acenaphthylene	91	15	76 to 106	30	61 to 121	45	46 to 136
Acetophenone	99	16	83 to 115	32	67 to 131	48	51 to 147
Aniline	97	23	74 to 120	46	51 to 143	69	28 to 166
Anthracene	94	16	78 to 110	32	62 to 126	48	46 to 142
Azinophos methyl	75		to		to		to

Azobenzene	90	16	74 to 106	32	58 to 122	48	42 to 138
Benz(a)anthracene	93	18	75 to 111	36	57 to 129	54	39 to 147
Benzo(a) pyrene	93	17	76 to 110	34	59 to 127	51	42 to 144
Benzo(b)&(k)fluoranthene	93	18	75 to 111	36	57 to 129	54	39 to 147
Benzo(g,h,i)perylene	87	16	71 to 103	32	55 to 119	48	39 to 135
Benzyl alcohol	72	23	49 to 95	46	26 to 118	69	3 to 141
Bis(2-chloroethoxy) methane	91	15	76 to 106	30	61 to 121	45	46 to 136
Bis(2-chloroethyl)ether	94	17	77 to 111	34	60 to 128	51	43 to 145
Bis(2-chloroisopropyl) ether	93	15	78 to 108	30	63 to 123	45	48 to 138
Bis(2-ethylhexyl) phthalate	93	19	74 to 112	38	55 to 131	57	36 to 150
Butyl benzyl phthalate	89	19	70 to 108	38	51 to 127	57	32 to 146
Carbazole	90	15	75 to 105	30	60 to 120	45	45 to 135
Chrysene	96	17	79 to 113	34	62 to 130	51	45 to 147
Di-n-butyl phthalate	93	17	76 to 110	34	59 to 127	51	42 to 144
Di-n-octyl phthalate	90	19	71 to 109	38	52 to 128	57	33 to 147
Dibenz(a,h)anthracene	86	16	70 to 102	32	54 to 118	48	38 to 134
Dibenzofuran	92	16	76 to 108	32	60 to 124	48	44 to 140
Diethylphthalate	89	16	73 to 105	32	57 to 121	48	41 to 137
Dimethyl phthalate	88	16	72 to 104	32	56 to 120	48	40 to 136
Diphenylamine	97	18	79 to 115	36	61 to 133	54	43 to 151
Ethyl methanesulfonate	99	18	81 to 117	36	63 to 135	54	45 to 153
Fluoranthene	94	18	76 to 112	36	58 to 130	54	40 to 148
Fluorene	92	16	76 to 108	32	60 to 124	48	44 to 140
Hexachlorobenzene (HCB)	72	26	46 to 98	52	20 to 124	78	0 to 150
Hexachlorobutadiene	91	15	76 to 106	30	61 to 121	45	46 to 136
Hexachlorocyclopentadiene	48	24	24 to 72	48	0 to 96	72	0 to 120
Hexachloroethane	89	15	74 to 104	30	59 to 119	45	44 to 134
Hexachloropropene	89	19	70 to 108	38	51 to 127	57	32 to 146
Indeno(1,2,3-c,d)pyrene	87	16	71 to 103	32	55 to 119	48	39 to 135
Isophorone	89	15	74 to 104	30	59 to 119	45	44 to 134
Isosafrole	95	18	77 to 113	36	59 to 131	54	41 to 149
Methoxychlor	116		to		to		to
Methyl methanesulfonate	98	22	76 to 120	44	54 to 142	66	32 to 164
N-nitrosodi-n-butylamine	97	16	81 to 113	32	65 to 129	48	49 to 145
N-nitrosodi-n-propylamine	85	17	68 to 102	34	51 to 119	51	34 to 136
N-nitrosodiethylamine	91	27	64 to 118	54	37 to 145	81	10 to 172
N-nitrosomorpholine	99	18	81 to 117	36	63 to 135	54	45 to 153
N-nitrosopiperidine	98	17	81 to 115	34	64 to 132	51	47 to 149
N-nitrosopyrrolidine	102	16	86 to 118	32	70 to 134	48	54 to 150
Naphthalene	94	15	79 to 109	30	64 to 124	45	49 to 139
NB-d5 (Surr @ 5mg/kg)	94	11	83 to 105	22	72 to 116	33	61 to 127
Nitrobenzene	94	14	80 to 108	28	66 to 122	42	52 to 136
o-toluidine	105	20	85 to 125	40	65 to 145	60	45 to 165
Pentachlorobenzene	99	18	81 to 117	36	63 to 135	54	45 to 153
Pentachloroethane	99	16	83 to 115	32	67 to 131	48	51 to 147
Pentachloronitrobenzene	91	21	70 to 112	42	49 to 133	63	28 to 154
Pentachlorophenol	62	35	27 to 97	70	0 to 132	105	0 to 167
Phenacetin	86	21	65 to 107	42	44 to 128	63	23 to 149
Phenanthrene	94	17	77 to 111	34	60 to 128	51	43 to 145
Phenol	87	14	73 to 101	28	59 to 115	42	45 to 129
Phenol-d5 (Surr @ 5mg/kg)	92	13	79 to 105	26	66 to 118	39	53 to 131
Pyrene	94	18	76 to 112	36	58 to 130	54	40 to 148

Safrole	<b>97</b>	17	80 to 114	34	63 to 131	51	46 to 148
TP-d14 (Surr @ 5mg/kg)	<b>96</b>	11	85 to 107	22	74 to 118	33	63 to 129

## LCS\_S

Analyte Name	<u>Mean</u>	<u>1 SD</u>	<u>Range</u>	<u>2 SD</u>	<u>Range</u>	<u>3 SD</u>	<u>Range</u>
1,2,4,5-tetrachlorobenzene	<b>97</b>	15	82 to 112	30	67 to 127	45	52 to 142
1,2,4-trichlorobenzene	<b>95</b>	13	82 to 108	26	69 to 121	39	56 to 134
1,2-dichlorobenzene	<b>94</b>	11	83 to 105	22	72 to 116	33	61 to 127
1,3-dichlorobenzene	<b>96</b>	12	84 to 108	24	72 to 120	36	60 to 132
1,4-dichlorobenzene	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
1,4-dinitrobenzene	<b>83</b>	18	65 to 101	36	47 to 119	54	29 to 137
1-naphthylamine	<b>94</b>	27	67 to 121	54	40 to 148	81	13 to 175
2,3,4,6-tetrachlorophenol	<b>77</b>	22	55 to 99	44	33 to 121	66	11 to 143
2,4,5-trichlorophenol	<b>83</b>	13	70 to 96	26	57 to 109	39	44 to 122
2,4,6-TBP (Surr @ 5mg/kg)	<b>85</b>	17	68 to 102	34	51 to 119	51	34 to 136
2,4,6-trichlorophenol	<b>82</b>	15	67 to 97	30	52 to 112	45	37 to 127
2,4-dichlorophenol	<b>88</b>	14	74 to 102	28	60 to 116	42	46 to 130
2,4-dimethylphenol	<b>88</b>	18	70 to 106	36	52 to 124	54	34 to 142
2,4-dinitrotoluene	<b>81</b>	16	65 to 97	32	49 to 113	48	33 to 129
2,6-dichlorophenol	<b>90</b>	19	71 to 109	38	52 to 128	57	33 to 147
2,6-dinitrotoluene	<b>85</b>	15	70 to 100	30	55 to 115	45	40 to 130
2-(acetylamino) fluorene	<b>79</b>	20	59 to 99	40	39 to 119	60	19 to 139
2-chloronaphthalene	<b>93</b>	11	82 to 104	22	71 to 115	33	60 to 126
2-chlorophenol	<b>94</b>	15	79 to 109	30	64 to 124	45	49 to 139
2-FBP (Surr @ 5mg/kg)	<b>91</b>	11	80 to 102	22	69 to 113	33	58 to 124
2-FP (Surr @ 5mg/kg)	<b>91</b>	15	76 to 106	30	61 to 121	45	46 to 136
2-methylnaphthalene	<b>95</b>	12	83 to 107	24	71 to 119	36	59 to 131
2-methylphenol	<b>88</b>	16	72 to 104	32	56 to 120	48	40 to 136
2-naphthylamine	<b>86</b>	33	53 to 119	66	20 to 152	99	0 to 185
2-nitroaniline	<b>82</b>	13	69 to 95	26	56 to 108	39	43 to 121
2-nitrophenol	<b>83</b>	21	62 to 104	42	41 to 125	63	20 to 146
3-&4-methylphenol	<b>91</b>	16	75 to 107	32	59 to 123	48	43 to 139
3-methylcholanthrene	<b>96</b>	18	78 to 114	36	60 to 132	54	42 to 150
3-nitroaniline	<b>76</b>	20	56 to 96	40	36 to 116	60	16 to 136
4,4-DDD	<b>96</b>	13	83 to 109	26	70 to 122	39	57 to 135
4,4-DDE	<b>97</b>	13	84 to 110	26	71 to 123	39	58 to 136
4,4-DDT	<b>80</b>	18	62 to 98	36	44 to 116	54	26 to 134
4-(dimethylamino) azobenzene	<b>86</b>	20	66 to 106	40	46 to 126	60	26 to 146
4-aminobiphenyl	<b>93</b>	19	74 to 112	38	55 to 131	57	36 to 150
4-bromophenyl phenyl ether	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
4-chloro-3-methylphenol	<b>88</b>	12	76 to 100	24	64 to 112	36	52 to 124
4-chloroaniline	<b>91</b>	17	74 to 108	34	57 to 125	51	40 to 142
4-chlorophenyl phenyl ether	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
4-nitroaniline	<b>84</b>	17	67 to 101	34	50 to 118	51	33 to 135
4-nitrophenol	<b>69</b>	27	42 to 96	54	15 to 123	81	0 to 150
5-nitro-o-toluidine	<b>95</b>	11	84 to 106	22	73 to 117	33	62 to 128
7,12-dimethylbenz(a)anthracene	<b>74</b>	29	45 to 103	58	16 to 132	87	0 to 161
a-BHC	<b>97</b>	15	82 to 112	30	67 to 127	45	52 to 142
Acenaphthene	<b>94</b>	13	81 to 107	26	68 to 120	39	55 to 133
Acenaphthylene	<b>92</b>	11	81 to 103	22	70 to 114	33	59 to 125
Acetophenone	<b>97</b>	15	82 to 112	30	67 to 127	45	52 to 142
Aldrin	<b>94</b>	12	82 to 106	24	70 to 118	36	58 to 130

Aniline	<b>99</b>	20	79 to 119	40	59 to 139	60	39 to 159
Anthracene	<b>94</b>	12	82 to 106	24	70 to 118	36	58 to 130
Azinophos methyl	<b>68</b>	14	54 to 82	28	40 to 96	42	26 to 110
Azobenzene	<b>92</b>	14	78 to 106	28	64 to 120	42	50 to 134
b-BHC	<b>93</b>	14	79 to 107	28	65 to 121	42	51 to 135
Benz(a)anthracene	<b>94</b>	14	80 to 108	28	66 to 122	42	52 to 136
Benzo(a) pyrene	<b>92</b>	12	80 to 104	24	68 to 116	36	56 to 128
Benzo(b)&(k)fluoranthene	<b>94</b>	13	81 to 107	26	68 to 120	39	55 to 133
Benzo(g,h,i)perylene	<b>90</b>	11	79 to 101	22	68 to 112	33	57 to 123
Benzyl alcohol	<b>88</b>	21	67 to 109	42	46 to 130	63	25 to 151
Bis(2-chloroethoxy) methane	<b>95</b>	14	81 to 109	28	67 to 123	42	53 to 137
Bis(2-chloroethyl)ether	<b>97</b>	14	83 to 111	28	69 to 125	42	55 to 139
Bis(2-chloroisopropyl) ether	<b>97</b>	12	85 to 109	24	73 to 121	36	61 to 133
Bis(2-ethylhexyl) phthalate	<b>92</b>	17	75 to 109	34	58 to 126	51	41 to 143
Butyl benzyl phthalate	<b>90</b>	14	76 to 104	28	62 to 118	42	48 to 132
Carbazole	<b>94</b>	12	82 to 106	24	70 to 118	36	58 to 130
Chlorpyrifos	<b>88</b>	12	76 to 100	24	64 to 112	36	52 to 124
Chrysene	<b>96</b>	13	83 to 109	26	70 to 122	39	57 to 135
cis-chlordane	<b>94</b>	13	81 to 107	26	68 to 120	39	55 to 133
Coumaphos	<b>80</b>	11	69 to 91	22	58 to 102	33	47 to 113
d-BHC	<b>92</b>	11	81 to 103	22	70 to 114	33	59 to 125
Demeton-O	<b>81</b>	9	72 to 90	18	63 to 99	27	54 to 108
Demeton-S	<b>86</b>	9	77 to 95	18	68 to 104	27	59 to 113
Di-n-butyl phthalate	<b>96</b>	13	83 to 109	26	70 to 122	39	57 to 135
Di-n-octyl phthalate	<b>88</b>	15	73 to 103	30	58 to 118	45	43 to 133
Diazinon	<b>89</b>	12	77 to 101	24	65 to 113	36	53 to 125
Dibenz(a,h)anthracene	<b>89</b>	11	78 to 100	22	67 to 111	33	56 to 122
Dibenzofuran	<b>93</b>	12	81 to 105	24	69 to 117	36	57 to 129
Dichlorvos	<b>80</b>	13	67 to 93	26	54 to 106	39	41 to 119
Dieldrin	<b>98</b>	15	83 to 113	30	68 to 128	45	53 to 143
Diethylphthalate	<b>92</b>	12	80 to 104	24	68 to 116	36	56 to 128
Dimethoate	<b>81</b>	9	72 to 90	18	63 to 99	27	54 to 108
Dimethyl phthalate	<b>91</b>	12	79 to 103	24	67 to 115	36	55 to 127
Diphenylamine	<b>93</b>	20	73 to 113	40	53 to 133	60	33 to 153
Disulfoton	<b>86</b>	8	78 to 94	16	70 to 102	24	62 to 110
Endosulfan I	<b>93</b>	14	79 to 107	28	65 to 121	42	51 to 135
Endosulfan II	<b>96</b>	12	84 to 108	24	72 to 120	36	60 to 132
Endosulfan sulphate	<b>92</b>	13	79 to 105	26	66 to 118	39	53 to 131
Endrin	<b>87</b>	21	66 to 108	42	45 to 129	63	24 to 150
Endrin aldehyde	<b>83</b>	17	66 to 100	34	49 to 117	51	32 to 134
Endrin ketone	<b>83</b>	17	66 to 100	34	49 to 117	51	32 to 134
EPN	<b>72</b>	13	59 to 85	26	46 to 98	39	33 to 111
Ethoprop	<b>83</b>	10	73 to 93	20	63 to 103	30	53 to 113
Ethyl methanesulfonate	<b>98</b>	18	80 to 116	36	62 to 134	54	44 to 152
Fenitrothion	<b>77</b>	11	66 to 88	22	55 to 99	33	44 to 110
Fensulfothion	<b>59</b>	12	47 to 71	24	35 to 83	36	23 to 95
Fenthion	<b>89</b>	11	78 to 100	22	67 to 111	33	56 to 122
Fluoranthene	<b>94</b>	12	82 to 106	24	70 to 118	36	58 to 130
Fluorene	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
g-BHC (Lindane)	<b>93</b>	16	77 to 109	32	61 to 125	48	45 to 141
Heptachlor	<b>85</b>	18	67 to 103	36	49 to 121	54	31 to 139
Heptachlor epoxide	<b>93</b>	16	77 to 109	32	61 to 125	48	45 to 141

Hexachlorobenzene (HCB)	<b>86</b>	22	64 to 108	44	42 to 130	66	20 to 152
Hexachlorobutadiene	<b>95</b>	13	82 to 108	26	69 to 121	39	56 to 134
Hexachlorocyclopentadiene	<b>52</b>	20	32 to 72	40	12 to 92	60	0 to 112
Hexachloroethane	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
Hexachloropropene	<b>90</b>	18	72 to 108	36	54 to 126	54	36 to 144
Indeno(1,2,3-c,d)pyrene	<b>88</b>	11	77 to 99	22	66 to 110	33	55 to 121
Isophorone	<b>93</b>	14	79 to 107	28	65 to 121	42	51 to 135
Isosafrole	<b>93</b>	16	77 to 109	32	61 to 125	48	45 to 141
Malathion	<b>87</b>	9	78 to 96	18	69 to 105	27	60 to 114
Methoxychlor	<b>83</b>	24	59 to 107	48	35 to 131	72	11 to 155
Methyl methanesulfonate	<b>98</b>	19	79 to 117	38	60 to 136	57	41 to 155
Methyl parathion	<b>69</b>	10	59 to 79	20	49 to 89	30	39 to 99
Mevinphos (Phosdrin)	<b>78</b>	11	67 to 89	22	56 to 100	33	45 to 111
Monocrotophos	<b>64</b>	16	48 to 80	32	32 to 96	48	16 to 112
N-nitrosodi-n-butylamine	<b>96</b>	15	81 to 111	30	66 to 126	45	51 to 141
N-nitrosodi-n-propylamine	<b>88</b>	16	72 to 104	32	56 to 120	48	40 to 136
N-nitrosodiethylamine	<b>92</b>	25	67 to 117	50	42 to 142	75	17 to 167
N-nitrosomorpholine	<b>98</b>	17	81 to 115	34	64 to 132	51	47 to 149
N-nitrosopiperidine	<b>97</b>	17	80 to 114	34	63 to 131	51	46 to 148
N-nitrosopyrrolidine	<b>98</b>	17	81 to 115	34	64 to 132	51	47 to 149
Naled (Dibrom)	<b>64</b>	16	48 to 80	32	32 to 96	48	16 to 112
Naphthalene	<b>95</b>	12	83 to 107	24	71 to 119	36	59 to 131
NB-d5 (Surr @ 5mg/kg)	<b>89</b>	10	79 to 99	20	69 to 109	30	59 to 119
Nitrobenzene	<b>95</b>	14	81 to 109	28	67 to 123	42	53 to 137
o-toluidine	<b>102</b>	20	82 to 122	40	62 to 142	60	42 to 162
Parathion	<b>81</b>	17	64 to 98	34	47 to 115	51	30 to 132
Pentachlorobenzene	<b>97</b>	16	81 to 113	32	65 to 129	48	49 to 145
Pentachloroethane	<b>97</b>	14	83 to 111	28	69 to 125	42	55 to 139
Pentachloronitrobenzene	<b>90</b>	18	72 to 108	36	54 to 126	54	36 to 144
Pentachlorophenol	<b>64</b>	21	43 to 85	42	22 to 106	63	1 to 127
Phenacetin	<b>87</b>	20	67 to 107	40	47 to 127	60	27 to 147
Phenanthrene	<b>95</b>	12	83 to 107	24	71 to 119	36	59 to 131
Phenol	<b>92</b>	12	80 to 104	24	68 to 116	36	56 to 128
Phenol-d5 (Surr @ 5mg/kg)	<b>90</b>	14	76 to 104	28	62 to 118	42	48 to 132
Phorate	<b>83</b>	9	74 to 92	18	65 to 101	27	56 to 110
Profenofos	<b>82</b>	14	68 to 96	28	54 to 110	42	40 to 124
Prothiofos	<b>87</b>	11	76 to 98	22	65 to 109	33	54 to 120
Pyrene	<b>94</b>	13	81 to 107	26	68 to 120	39	55 to 133
Ronnel	<b>89</b>	11	78 to 100	22	67 to 111	33	56 to 122
Safrole	<b>95</b>	16	79 to 111	32	63 to 127	48	47 to 143
Stirophos	<b>76</b>	10	66 to 86	20	56 to 96	30	46 to 106
Sulfotepp	<b>86</b>	10	76 to 96	20	66 to 106	30	56 to 116
TP-d14 (Surr @ 5mg/kg)	<b>92</b>	11	81 to 103	22	70 to 114	33	59 to 125
trans-chlordane	<b>96</b>	16	80 to 112	32	64 to 128	48	48 to 144
Trichloronate	<b>90</b>	12	78 to 102	24	66 to 114	36	54 to 126



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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04
<b>Method</b>	<b>Volatile TPH by P&amp;T (vTPH)</b>	<b>EQL</b>										
E003.2	C6 - C9 Fraction	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

Results expressed in mg/kg unless otherwise specified

Comments:

E003.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/FID.

Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04
<b>Method</b>	<b>Volatile TPH by P&amp;T (vTPH)</b>	<b>EQL</b>										
E003.2	C6 - C9 Fraction	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

Results expressed in mg/kg unless otherwise specified

Comments:

E003.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/FID.





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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	--	13/5/04	--	13/5/04	--	13/5/04	13/5/04
<b>Method</b>	<b>Volatile TPH by P&amp;T (vTPH)</b>	<b>EQL</b>										
E003.2	C6 - C9 Fraction	10	<10	<10	<10	--	<10	--	<10	--	99%	106%

Results expressed in mg/kg unless otherwise specified

Comments:

E003.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/FID.

Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			11/5/04	11/5/04							
<b>Method</b>	<b>Volatile TPH by P&amp;T (vTPH)</b>	<b>EQL</b>									
E003.2	C6 - C9 Fraction	10	109%	<10							

Results expressed in mg/kg unless otherwise specified

Comments:

E003.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/FID.



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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04
Method	Petroleum Hydrocarbons (TPH)	EQL										
E006.2	C10 - C14 Fraction	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C15 - C28 Fraction	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C29 - C36 Fraction	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	Sum of TPH C10 - C36	--	--	--	--	--	--	--	--	--	--	--

Results expressed in mg/kg unless otherwise specified

Comments:

E006.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/FID.



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Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04
Method	Petroleum Hydrocarbons (TPH)	EQL										
E006.2	C10 - C14 Fraction	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	C15 - C28 Fraction	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C29 - C36 Fraction	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	Sum of TPH C10 - C36	--	--	--	--	--	--	--	--	--	--	--

Results expressed in mg/kg unless otherwise specified

Comments:

E006.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/FID.



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			14/5/04	14/5/04	14/5/04	--	14/5/04	--	14/5/04	--	14/5/04	14/5/04
Method	Petroleum Hydrocarbons (TPH)	EQL										
E006.2	C10 - C14 Fraction	50	<50	<50	<50	--	<50	--	<50	--	78%	79%
	C15 - C28 Fraction	100	<100	<100	<100	--	<100	--	<100	--	--	--
	C29 - C36 Fraction	100	<100	<100	<100	--	<100	--	<100	--	--	--
	Sum of TPH C10 - C36	--	--	--	--	--	--	--	--	--	--	--

Results expressed in mg/kg unless otherwise specified

Comments:

E006.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/FID.



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Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			11/5/04	11/5/04							
Method	Petroleum Hydrocarbons (TPH)	EQL									
E006.2	C10 - C14 Fraction	50	91%	<50							
	C15 - C28 Fraction	100	--	<100							
	C29 - C36 Fraction	100	--	<100							
	Sum of TPH C10 - C36	--	--	--							

Results expressed in mg/kg unless otherwise specified

Comments:

E006.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/FID.

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Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	1,2-dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	n-butylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2-dibromo-3-chloropropane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,4-trichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobutadiene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,3-trichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	CTFCB (Surr @ 20mg/l)	--	103%	98%	88%	122%	110%	115%	92%	101%	107%	118%
	BCP (Surr @ 20mg/kg)	--	84%	84%	72%	93%	87%	93%	71%	81%	80%	88%
	DCFB (Surr @ 20mg/kg)	--	101%	100%	90%	118%	99%	111%	88%	101%	108%	108%

Results expressed in mg/kg unless otherwise specified

Comments: -

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.





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Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	1,2-dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	n-butylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2-dibromo-3-chloropropane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,4-trichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Naphthalene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Hexachlorobutadiene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1,2,3-trichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	CTFCB (Surr @ 20mg/l)	--	109%	108%	110%	115%	109%	123%	122%	128%	116%	115%
	BCP (Surr @ 20mg/kg)	--	86%	85%	87%	92%	86%	97%	95%	98%	85%	89%
	DCFB (Surr @ 20mg/kg)	--	109%	97%	94%	100%	95%	110%	106%	112%	102%	99%

Results expressed in mg/kg unless otherwise specified

Comments: -

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.



**Laboratory Report No:** 017730  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products

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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	--	13/5/04	--	13/5/04	--	13/5/04	13/5/04
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	Dichlorodifluoromethane	5	<5	<5	<5	--	<5	--	<5	--	97%	81%
	Chloromethane	5	<5	<5	<5	--	<5	--	<5	--	113%	115%
	Vinyl chloride	5	<5	<5	<5	--	<5	--	<5	--	120%	96%
	Bromomethane	5	<5	<5	<5	--	<5	--	<5	--	81%	107%
	Chloroethane	5	<5	<5	<5	--	<5	--	<5	--	87%	81%
	Trichlorofluoromethane	5	<5	<5	<5	--	<5	--	<5	--	120%	124%
	1,1-dichloroethene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	86%	79%
	Vinyl acetate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	109%	76%
	Dichloromethane	5	<10	<10	<10	--	<10	--	<10	--	119%	43%
	Carbon disulfide	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	79%	70%
	trans-1,2-dichloroethene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	81%	73%
	Tributylmethylether (TBME)	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	87%	74%
	1,1-dichloroethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	106%	99%
	2-butanone (MEK)	5	<10	<10	<10	--	<10	--	<10	--	120%	104%
	cis-1,2-dichloroethene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	103%	93%
	2,2-dichloropropane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	85%	79%
	Ethyl acetate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	119%	104%
	Chloroform	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	104%	96%
	1,1,1-trichloroethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	106%	96%
	1,2-dichloroethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	111%	100%
	1,1-dichloropropene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	102%	96%
	Carbon tetrachloride	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	105%	95%
	Benzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	102%	93%
	Trichloroethene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	95%	96%
	1,2-dichloropropane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	105%	97%
	Dibromomethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	105%	99%
	Bromodichloromethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	97%	98%
	cis-1,3-dichloropropene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	99%	102%



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**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products

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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	--	13/5/04	--	13/5/04	--	13/5/04	13/5/04
Method	Volatle Organic Compounds (VOC)	EQL										
E016.2	Toluene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	101%	101%
	trans-1,3-dichloropropene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	104%	95%
	1,1,2-trichloroethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	106%	97%
	1,3-dichloropropane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	109%	102%
	Chlorodibromomethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	108%	97%
	Tetrachloroethene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	92%	97%
	1,2-dibromoethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	113%	100%
	Chlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	107%	106%
	1,1,1,2-tetrachloroethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	102%	103%
	Ethylbenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	104%	105%
	m- & p-xylene	1	<1	<1	<1	--	<1	--	<1	--	102%	102%
	Styrene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	98%	96%
	Bromoform	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	111%	107%
	o-xylene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	105%	106%
	1,1,2,2-tetrachloroethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	103%	100%
	Isopropylbenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	103%	98%
	1,2,3-trichloropropane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	111%	112%
	Bromobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	105%	104%
	n-propylbenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	98%	95%
	2-chlorotoluene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	101%	104%
	4-chlorotoluene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	107%	104%
	1,3,5-trimethylbenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	101%	98%
	tert-butylbenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	106%	98%
	1,2,4-trimethylbenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	103%	96%
	sec-butylbenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	102%	99%
	1,3-dichlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	103%	101%
	1,4-dichlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	96%	97%
	p-isopropyltoluene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	96%	90%



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**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products

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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	--	13/5/04	--	13/5/04	--	13/5/04	13/5/04
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	1,2-dichlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	101%	107%
	n-butylbenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	97%	95%
	1,2-dibromo-3-chloropropane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	125%	116%
	1,2,4-trichlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	106%	94%
	Naphthalene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	119%	114%
	Hexachlorobutadiene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	87%	87%
	1,2,3-trichlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	113%	106%
	CTFCB (Surr @ 20mg/l)	--	116%	111%	103%	0%	110%	1%	112%	4%	72%	70%
	BCP (Surr @ 20mg/kg)	--	87%	97%	86%	2%	83%	4%	88%	1%	98%	96%
	DCFB (Surr @ 20mg/kg)	--	100%	97%	102%	1%	99%	10%	107%	7%	92%	97%

Results expressed in mg/kg unless otherwise specified

Comments: -

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.



**Laboratory Report No:** 017730  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products

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Laboratory Identification			lcs	mb								
Sample Identification			QC	QC								
Depth (m)			--	--								
Sampling Date recorded on COC			--	--								
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04								
Laboratory Analysis Date			12/5/04	12/5/04								
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	Dichlorodifluoromethane	5	97%	<5								
	Chloromethane	5	117%	<5								
	Vinyl chloride	5	99%	<5								
	Bromomethane	5	105%	<5								
	Chloroethane	5	101%	<5								
	Trichlorofluoromethane	5	87%	<5								
	1,1-dichloroethene	0.5	100%	<0.5								
	Vinyl acetate	0.5	114%	<0.5								
	Dichloromethane	5	86%	<10								
	Carbon disulfide	0.5	110%	<0.5								
	trans-1,2-dichloroethene	0.5	110%	<0.5								
	Tributylmethylether (TBME)	0.5	118%	<0.5								
	1,1-dichloroethane	0.5	110%	<0.5								
	2-butanone (MEK)	5	115%	<10								
	cis-1,2-dichloroethene	0.5	112%	<0.5								
	2,2-dichloropropane	0.5	108%	<0.5								
	Ethyl acetate	0.5	115%	<0.5								
	Chloroform	0.5	108%	<0.5								
	1,1,1-trichloroethane	0.5	106%	<0.5								
	1,2-dichloroethane	0.5	107%	<0.5								
	1,1-dichloropropene	0.5	101%	<0.5								
	Carbon tetrachloride	0.5	104%	<0.5								
	Benzene	0.5	108%	<0.5								
	Trichloroethene	0.5	107%	<0.5								
	1,2-dichloropropane	0.5	111%	<0.5								
	Dibromomethane	0.5	111%	<0.5								
	Bromodichloromethane	0.5	113%	<0.5								
	cis-1,3-dichloropropene	0.5	99%	<0.5								



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Laboratory Identification			lcs	mb								
Sample Identification			QC	QC								
Depth (m)			--	--								
Sampling Date recorded on COC			--	--								
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04								
Laboratory Analysis Date			12/5/04	12/5/04								
Method	Volatle Organic Compounds (VOC)	EQL										
E016.2	Toluene	0.5	110%	<0.5								
	trans-1,3-dichloropropene	0.5	113%	<0.5								
	1,1,2-trichloroethane	0.5	107%	<0.5								
	1,3-dichloropropane	0.5	112%	<0.5								
	Chlorodibromomethane	0.5	108%	<0.5								
	Tetrachloroethene	0.5	96%	<0.5								
	1,2-dibromoethane	0.5	108%	<0.5								
	Chlorobenzene	0.5	103%	<0.5								
	1,1,1,2-tetrachloroethane	0.5	107%	<0.5								
	Ethylbenzene	0.5	106%	<0.5								
	m- & p-xylene	1	109%	<1								
	Styrene	0.5	107%	<0.5								
	Bromoform	0.5	110%	<0.5								
	o-xylene	0.5	107%	<0.5								
	1,1,2,2-tetrachloroethane	0.5	104%	<0.5								
	Isopropylbenzene	0.5	107%	<0.5								
	1,2,3-trichloropropane	0.5	109%	<0.5								
	Bromobenzene	0.5	104%	<0.5								
	n-propylbenzene	0.5	99%	<0.5								
	2-chlorotoluene	0.5	101%	<0.5								
	4-chlorotoluene	0.5	103%	<0.5								
	1,3,5-trimethylbenzene	0.5	106%	<0.5								
	tert-butylbenzene	0.5	109%	<0.5								
	1,2,4-trimethylbenzene	0.5	109%	<0.5								
	sec-butylbenzene	0.5	105%	<0.5								
	1,3-dichlorobenzene	0.5	105%	<0.5								
	1,4-dichlorobenzene	0.5	105%	<0.5								
	p-isopropyltoluene	0.5	105%	<0.5								





**Laboratory Report No:** 017730  
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**Contact Name:** Paul Theodossiadis  
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Laboratory Identification			lcs	mb								
Sample Identification			QC	QC								
Depth (m)			--	--								
Sampling Date recorded on COC			--	--								
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04								
Laboratory Analysis Date			12/5/04	12/5/04								
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	1,2-dichlorobenzene	0.5	107%	<0.5								
	n-butylbenzene	0.5	104%	<0.5								
	1,2-dibromo-3-chloropropane	0.5	108%	<0.5								
	1,2,4-trichlorobenzene	0.5	111%	<0.5								
	Naphthalene	0.5	109%	<0.5								
	Hexachlorobutadiene	0.5	103%	<0.5								
	1,2,3-trichlorobenzene	0.5	116%	<0.5								
	CTFCB (Surr @ 20mg/l)	--	99%	120%								
	BCP (Surr @ 20mg/kg)	--	107%	113%								
	DCFB (Surr @ 20mg/kg)	--	103%	102%								

Results expressed in mg/kg unless otherwise specified

Comments: -

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.



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**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference:** Slag Products

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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04
Method	Polychlorinated Biphenyls (PCB)	EQL										
E013.2	Arochlor 1016	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1232	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1242	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1248	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1254	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1260	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Sum of reported PCBs	--	--	--	--	--	--	--	--	--	--	--
	DBC (Surr @ 0.2mg/kg)	--	97%	108%	108%	111%	112%	109%	105%	120%	118%	124%

Results expressed in mg/kg unless otherwise specified

Comments:

E013.2: 8-10g soil extracted with 20ml hexane/acetone (1:1). Analysis by GC/dual ECD.



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**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference:** Slag Products

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Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04	15/5/04
Method	Polychlorinated Biphenyls (PCB)	EQL										
E013.2	Arochlor 1016	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1232	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1242	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1248	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1254	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Arochlor 1260	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Sum of reported PCBs	--	--	--	--	--	--	--	--	--	--	--
	DBC (Surr @ 0.2mg/kg)	--	109%	95%	105%	92%	100%	111%	105%	125%	121%	126%

Results expressed in mg/kg unless otherwise specified

Comments:

E013.2: 8-10g soil extracted with 20ml hexane/acetone (1:1). Analysis by GC/dual ECD.



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**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference:** Slag Products

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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			15/5/04	15/5/04	15/5/04	--	15/5/04	--	15/5/04	--	15/5/04	15/5/04
Method	Polychlorinated Biphenyls (PCB)	EQL										
E013.2	Arochlor 1016	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Arochlor 1232	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Arochlor 1242	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Arochlor 1248	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Arochlor 1254	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	120%	78%
	Arochlor 1260	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Sum of reported PCBs	--	--	--	--	--	--	--	--	--	--	--
	DBC (Surr @ 0.2mg/kg)	--	125%	130%	109%	12%	106%	3%	127%	2%	126%	72%

Results expressed in mg/kg unless otherwise specified

Comments:

E013.2: 8-10g soil extracted with 20ml hexane/acetone (1:1). Analysis by GC/dual ECD.



**Laboratory Report No:** 017730  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference:** Slag Products

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Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			11/5/04	11/5/04							
Method	Polychlorinated Biphenyls (PCB)	EQL									
E013.2	Arochlor 1016	0.5	--	<0.5							
	Arochlor 1232	0.5	--	<0.5							
	Arochlor 1242	0.5	--	<0.5							
	Arochlor 1248	0.5	--	<0.5							
	Arochlor 1254	0.5	115%	<0.5							
	Arochlor 1260	0.5	--	<0.5							
	Sum of reported PCBs	--	--	--							
	DBC (Surr @ 0.2mg/kg)	--	121%	100%							

Results expressed in mg/kg unless otherwise specified

Comments:

E013.2: 8-10g soil extracted with 20ml hexane/acetone (1:1). Analysis by GC/dual ECD.

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**Contact Name:** Paul Theodossiadis  
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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	Endrin	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Endosulfan II	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fensulfothion	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4,4-DDD	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Endrin aldehyde	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Butyl benzyl phthalate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Endosulfan sulphate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4,4-DDT	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	2-(acetylamino) fluorene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Endrin ketone	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benz(a)anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	EPN	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Methoxychlor	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Bis(2-ethylhexyl) phthalate	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Azinophos methyl	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-octyl phthalate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Coumaphos	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b)&(k)fluoranthene	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	7,12-dimethylbenz(a)anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a) pyrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3-methylcholanthrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(g,h,i)perylene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-FP (Surr @ 5mg/kg)	--	74%	71%	74%	71%	71%	72%	75%	83%	70%	80%
	Phenol-d5 (Surr @ 5mg/kg)	--	86%	90%	87%	96%	89%	90%	93%	96%	89%	94%
	NB-d5 (Surr @ 5mg/kg)	--	91%	93%	88%	95%	90%	97%	91%	93%	88%	92%



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**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference:** Slag Products

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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	2-FBP (Surr @ 5mg/kg)	--	92%	91%	81%	90%	87%	87%	88%	85%	87%	87%
	TP-d14 (Surr @ 5mg/kg)	--	71%	102%	91%	106%	89%	101%	96%	98%	97%	91%

Results expressed in mg/kg unless otherwise specified

Comments: ^ Low surrogate recovery due to matrix interference.

E017.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/MS.



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**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products

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Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	Endrin	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Endosulfan II	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Fensulfothion	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4,4-DDD	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Endrin aldehyde	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Butyl benzyl phthalate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Endosulfan sulphate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	4,4-DDT	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	2-(acetylamino) fluorene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Endrin ketone	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benz(a)anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	EPN	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Methoxychlor	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Bis(2-ethylhexyl) phthalate	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	Azinophos methyl	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Di-n-octyl phthalate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Coumaphos	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b)&(k)fluoranthene	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	7,12-dimethylbenz(a)anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a) pyrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3-methylcholanthrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(g,h,i)perylene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	2-FP (Surr @ 5mg/kg)	--	^	^	^	^	^	71%	70%	74%	74%	74%
	Phenol-d5 (Surr @ 5mg/kg)	--	^	^	^	^	^	84%	84%	90%	89%	97%
	NB-d5 (Surr @ 5mg/kg)	--	122%	89%	90%	85%	89%	95%	84%	82%	87%	92%





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**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference:** Slag Products

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Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	2-FBP (Surr @ 5mg/kg)	--	116%	80%	86%	78%	80%	90%	81%	79%	79%	83%
	TP-d14 (Surr @ 5mg/kg)	--	94%	89%	97%	86%	88%	98%	91%	109%	114%	93%

Results expressed in mg/kg unless otherwise specified

Comments: ^ Low surrogate recovery due to matrix interference.

E017.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/MS.



**Laboratory Report No:** 017730  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products

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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	--	16/5/04	--	16/5/04	--	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	Methyl methanesulfonate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	83%	78%
	N-nitrosodiethylamine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	105%	105%
	Ethyl methanesulfonate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	74%	71%
	Pentachloroethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	87%	86%
	Phenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	94%	89%
	Aniline	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	108%	99%
	Bis(2-chloroethyl)ether	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	79%	82%
	2-chlorophenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	71%	72%
	1,3-dichlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	93%	86%
	1,4-dichlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	89%	84%
	Benzyl alcohol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	75%	69%
	1,2-dichlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	91%	87%
	2-methylphenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	91%	81%
	Bis(2-chloroisopropyl) ether	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	86%	82%
	Acetophenone	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	96%	94%
	N-nitrosopyrrolidine	1	<1	<1	<1	--	<1	--	<1	--	88%	90%
	N-nitrosomorpholine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	88%	83%
	3-&4-methylphenol	1	<1	<1	<1	--	<1	--	<1	--	82%	77%
	o-toluidine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	85%	76%
	Hexachloroethane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	83%	76%
	N-nitrosodi-n-propylamine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	101%	80%
	Nitrobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	91%	84%
	N-nitrosopiperidine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	82%	68%
	Isophorone	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	97%	93%
	2-nitrophenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	61%	65%
	2,4-dimethylphenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	87%	75%
	Bis(2-chloroethoxy) methane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	96%	88%
	2,4-dichlorophenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	46%	72%



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	--	16/5/04	--	16/5/04	--	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	1,2,4-trichlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	94%	83%
	Naphthalene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	88%	84%
	2,6-dichlorophenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	53%	72%
	4-chloroaniline	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	82%	59%
	Hexachloropropene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	65%	63%
	Hexachlorobutadiene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	86%	86%
	Dichlorvos	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	N-nitrosodi-n-butylamine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	78%	72%
	4-chloro-3-methylphenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	72%	63%
	Safrole	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	80%	76%
	2-methylnaphthalene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	93%	87%
	1,2,4,5-tetrachlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	81%	81%
	Hexachlorocyclopentadiene	2	<2	<2	<2	--	<2	--	<2	--	--	--
	2,4,6-trichlorophenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	64%	53%
	2,4,5-trichlorophenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	62%	53%
	Isosafrole	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	75%	76%
	2-chloronaphthalene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	95%	90%
	2-nitroaniline	1	<1	<1	<1	--	<1	--	<1	--	71%	74%
	Mevinphos (Phosdrin)	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	1,4-dinitrobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	70%	64%
	Dimethyl phthalate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	83%	81%
	Acenaphthylene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	90%	87%
	2,6-dinitrotoluene	1	<1	<1	<1	--	<1	--	<1	--	79%	78%
	3-nitroaniline	1	<1	<1	<1	--	<1	--	<1	--	98%	88%
	Acenaphthene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	92%	88%
	Dibenzofuran	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	93%	86%
	4-nitrophenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Pentachlorobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	80%	81%



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	--	16/5/04	--	16/5/04	--	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	2,4-dinitrotoluene	1	<1	<1	<1	--	<1	--	<1	--	74%	74%
	2-naphthylamine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	62%	20%
	1-naphthylamine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	80%	34%
	2,3,4,6-tetrachlorophenol	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Fluorene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	90%	88%
	Diethylphthalate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	87%	84%
	4-chlorophenyl phenyl ether	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	88%	86%
	5-nitro-o-toluidine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	95%	89%
	4-nitroaniline	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	80%	72%
	Demeton-O	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Diphenylamine	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	82%	81%
	Azobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	97%	91%
	Ethoprop	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Naled (Dibrom)	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Sulfotepp	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	4-bromophenyl phenyl ether	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	85%	84%
	Phorate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	a-BHC	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Phenacetin	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	75%	68%
	Hexachlorobenzene (HCB)	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	39%	39%
	Demeton-S	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Dimethoate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	4-aminobiphenyl	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	82%	81%
	b-BHC	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Pentachlorophenol	1	<1	<1	<1	--	<1	--	<1	--	--	--
	d-BHC	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Pentachloronitrobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	72%	77%
	Phenanthrene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	84%	83%



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	--	16/5/04	--	16/5/04	--	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	Anthracene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	90%	83%
	Diazinon	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Disulfoton	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	g-BHC (Lindane)	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Carbazole	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	83%	83%
	Methyl parathion	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Heptachlor	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Ronnel	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Fenitrothion	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Di-n-butyl phthalate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	95%	86%
	Malathion	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Aldrin	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Fenthion	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Chlorpyrifos	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Parathion	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Trichloronate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Heptachlor epoxide	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Fluoranthene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	84%	85%
	trans-chlordane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Pyrene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	84%	85%
	Endosulfan I	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Stirophos	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	cis-chlordane	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Prothiofos	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Profenofos	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	4,4-DDE	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Dieldrin	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	4-(dimethylamino) azobenzene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	70%	65%



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Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	--	16/5/04	--	16/5/04	--	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	Endrin	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Endosulfan II	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Fensulfothion	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	4,4-DDD	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Endrin aldehyde	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Butyl benzyl phthalate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	60%	59%
	Endosulfan sulphate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	4,4-DDT	1	<1	<1	<1	--	<1	--	<1	--	--	--
	2-(acetylamino) fluorene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	51%	43%
	Endrin ketone	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Benz(a)anthracene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	80%	82%
	EPN	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Chrysene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	95%	91%
	Methoxychlor	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Bis(2-ethylhexyl) phthalate	5	<5	<5	<5	--	<5	--	<5	--	83%	83%
	Azinophos methyl	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Di-n-octyl phthalate	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	57%	73%
	Coumaphos	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	--	--
	Benzo(b)&(k)fluoranthene	1	<1	<1	<1	--	<1	--	<1	--	95%	92%
	7,12-dimethylbenz(a)anthracene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	43%	42%
	Benzo(a) pyrene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	96%	92%
	3-methylcholanthrene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	94%	93%
	Indeno(1,2,3-c,d)pyrene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	75%	90%
	Dibenz(a,h)anthracene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	69%	86%
	Benzo(g,h,i)perylene	0.5	<0.5	<0.5	<0.5	--	<0.5	--	<0.5	--	77%	94%
	2-FP (Surr @ 5mg/kg)	--	78%	83%	86%	15%	^	--	77%	1%	70%	73%
	Phenol-d5 (Surr @ 5mg/kg)	--	85%	94%	101%	16%	^	--	100%	16%	80%	87%
	NB-d5 (Surr @ 5mg/kg)	--	84%	91%	118%	26%	91%	29%	92%	9%	82%	84%



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			16/5/04	16/5/04	16/5/04	--	16/5/04	--	16/5/04	--	16/5/04	16/5/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	2-FBP (Surr @ 5mg/kg)	--	79%	83%	127%	32%	83%	33%	86%	8%	83%	78%
	TP-d14 (Surr @ 5mg/kg)	--	84%	92%	104%	38%	92%	2%	92%	9%	85%	80%

Results expressed in mg/kg unless otherwise specified

Comments: ^ Low surrogate recovery due to matrix interference.

E017.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/MS.



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Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			15/5/04	15/5/04							
Method	Semivolatile Organic Compounds (SVOC)	EQL									
E017.2	Methyl methanesulfonate	0.5	103%	<0.5							
	N-nitrosodiethylamine	0.5	107%	<0.5							
	Ethyl methanesulfonate	0.5	88%	<0.5							
	Pentachloroethane	0.5	102%	<0.5							
	Phenol	0.5	102%	<0.5							
	Aniline	0.5	104%	<0.5							
	Bis(2-chloroethyl)ether	0.5	85%	<0.5							
	2-chlorophenol	0.5	88%	<0.5							
	1,3-dichlorobenzene	0.5	104%	<0.5							
	1,4-dichlorobenzene	0.5	101%	<0.5							
	Benzyl alcohol	0.5	63%	<0.5							
	1,2-dichlorobenzene	0.5	98%	<0.5							
	2-methylphenol	0.5	103%	<0.5							
	Bis(2-chloroisopropyl) ether	0.5	93%	<0.5							
	Acetophenone	0.5	106%	<0.5							
	N-nitrosopyrrolidine	1	97%	<1							
	N-nitrosomorpholine	0.5	99%	<0.5							
	3-&4-methylphenol	1	96%	<1							
	o-toluidine	0.5	100%	<0.5							
	Hexachloroethane	0.5	91%	<0.5							
	N-nitrosodi-n-propylamine	0.5	94%	<0.5							
	Nitrobenzene	0.5	98%	<0.5							
	N-nitrosopiperidine	0.5	79%	<0.5							
	Isophorone	0.5	111%	<0.5							
	2-nitrophenol	0.5	93%	<0.5							
	2,4-dimethylphenol	0.5	105%	<0.5							
	Bis(2-chloroethoxy) methane	0.5	102%	<0.5							
	2,4-dichlorophenol	0.5	92%	<0.5							





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Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			15/5/04	15/5/04							
Method	Semivolatile Organic Compounds (SVOC)	EQL									
E017.2	1,2,4-trichlorobenzene	0.5	109%	<0.5							
	Naphthalene	0.5	98%	<0.5							
	2,6-dichlorophenol	0.5	98%	<0.5							
	4-chloroaniline	0.5	88%	<0.5							
	Hexachloropropene	0.5	76%	<0.5							
	Hexachlorobutadiene	0.5	100%	<0.5							
	Dichlorvos	0.5	--	<0.5							
	N-nitrosodi-n-butylamine	0.5	77%	<0.5							
	4-chloro-3-methylphenol	0.5	92%	<0.5							
	Safrole	0.5	88%	<0.5							
	2-methylnaphthalene	0.5	101%	<0.5							
	1,2,4,5-tetrachlorobenzene	0.5	94%	<0.5							
	Hexachlorocyclopentadiene	2	26%	<2							
	2,4,6-trichlorophenol	0.5	98%	<0.5							
	2,4,5-trichlorophenol	0.5	93%	<0.5							
	Isosafrole	0.5	86%	<0.5							
	2-chloronaphthalene	0.5	101%	<0.5							
	2-nitroaniline	1	82%	<1							
	Mevinphos (Phosdrin)	0.5	--	<0.5							
	1,4-dinitrobenzene	0.5	74%	<0.5							
	Dimethyl phthalate	0.5	93%	<0.5							
	Acenaphthylene	0.5	101%	<0.5							
	2,6-dinitrotoluene	1	86%	<1							
	3-nitroaniline	1	109%	<1							
	Acenaphthene	0.5	102%	<0.5							
	Dibenzofuran	0.5	103%	<0.5							
	4-nitrophenol	0.5	--	<0.5							
	Pentachlorobenzene	0.5	94%	<0.5							



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Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			15/5/04	15/5/04							
Method	Semivolatile Organic Compounds (SVOC)	EQL									
E017.2	2,4-dinitrotoluene	1	81%	<1							
	2-naphthylamine	0.5	96%	<0.5							
	1-naphthylamine	0.5	128%	<0.5							
	2,3,4,6-tetrachlorophenol	0.5	80%	<0.5							
	Fluorene	0.5	101%	<0.5							
	Diethylphthalate	0.5	99%	<0.5							
	4-chlorophenyl phenyl ether	0.5	99%	<0.5							
	5-nitro-o-toluidine	0.5	101%	<0.5							
	4-nitroaniline	0.5	98%	<0.5							
	Demeton-O	0.5	--	<0.5							
	Diphenylamine	0.5	93%	<0.5							
	Azobenzene	0.5	114%	<0.5							
	Ethoprop	0.5	--	<0.5							
	Naled (Dibrom)	0.5	--	<0.5							
	Sulfotepp	0.5	--	<0.5							
	4-bromophenyl phenyl ether	0.5	97%	<0.5							
	Phorate	0.5	--	<0.5							
	a-BHC	0.5	--	<0.5							
	Phenacetin	0.5	65%	<0.5							
	Hexachlorobenzene (HCB)	0.5	88%	<0.5							
	Demeton-S	0.5	--	<0.5							
	Dimethoate	0.5	--	<0.5							
	4-aminobiphenyl	0.5	93%	<0.5							
	b-BHC	0.5	--	<0.5							
	Pentachlorophenol	1	--	<1							
	d-BHC	0.5	--	<0.5							
	Pentachloronitrobenzene	0.5	83%	<0.5							
	Phenanthrene	0.5	94%	<0.5							



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Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			15/5/04	15/5/04							
Method	Semivolatile Organic Compounds (SVOC)	EQL									
E017.2	Anthracene	0.5	99%	<0.5							
	Diazinon	0.5	--	<0.5							
	Disulfoton	0.5	--	<0.5							
	g-BHC (Lindane)	0.5	--	<0.5							
	Carbazole	0.5	91%	<0.5							
	Methyl parathion	0.5	--	<0.5							
	Heptachlor	0.5	--	<0.5							
	Ronnel	0.5	--	<0.5							
	Fenitrothion	0.5	--	<0.5							
	Di-n-butyl phthalate	0.5	108%	<0.5							
	Malathion	0.5	--	<0.5							
	Aldrin	0.5	--	<0.5							
	Fenthion	0.5	--	<0.5							
	Chlorpyrifos	0.5	--	<0.5							
	Parathion	0.5	--	<0.5							
	Trichloronate	0.5	--	<0.5							
	Heptachlor epoxide	0.5	--	<0.5							
	Fluoranthene	0.5	92%	<0.5							
	trans-chlordane	0.5	--	<0.5							
	Pyrene	0.5	92%	<0.5							
	Endosulfan I	0.5	--	<0.5							
	Stirophos	0.5	--	<0.5							
	cis-chlordane	0.5	--	<0.5							
	Prothiofos	0.5	--	<0.5							
	Profenofos	0.5	--	<0.5							
	4,4-DDE	0.5	--	<0.5							
	Dieldrin	0.5	--	<0.5							
	4-(dimethylamino) azobenzene	0.5	70%	<0.5							



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Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			15/5/04	15/5/04							
Method	Semivolatile Organic Compounds (SVOC)	EQL									
E017.2	Endrin	0.5	--	<0.5							
	Endosulfan II	0.5	--	<0.5							
	Fensulfothion	0.5	--	<0.5							
	4,4-DDD	0.5	--	<0.5							
	Endrin aldehyde	0.5	--	<0.5							
	Butyl benzyl phthalate	0.5	87%	<0.5							
	Endosulfan sulphate	0.5	--	<0.5							
	4,4-DDT	1	--	<1							
	2-(acetylamino) fluorene	0.5	48%	<0.5							
	Endrin ketone	0.5	--	<0.5							
	Benz(a)anthracene	0.5	97%	<0.5							
	EPN	0.5	--	<0.5							
	Chrysene	0.5	111%	<0.5							
	Methoxychlor	0.5	--	<0.5							
	Bis(2-ethylhexyl) phthalate	5	92%	<5							
	Azinophos methyl	0.5	--	<0.5							
	Di-n-octyl phthalate	0.5	95%	<0.5							
	Coumaphos	0.5	--	<0.5							
	Benzo(b)&(k)fluoranthene	1	113%	<1							
	7,12-dimethylbenz(a)anthracene	0.5	62%	<0.5							
	Benzo(a) pyrene	0.5	109%	<0.5							
	3-methylcholanthrene	0.5	96%	<0.5							
	Indeno(1,2,3-c,d)pyrene	0.5	87%	<0.5							
	Dibenz(a,h)anthracene	0.5	87%	<0.5							
	Benzo(g,h,i)perylene	0.5	90%	<0.5							
	2-FP (Surr @ 5mg/kg)	--	77%	78%							
	Phenol-d5 (Surr @ 5mg/kg)	--	85%	95%							
	NB-d5 (Surr @ 5mg/kg)	--	84%	88%							



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Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			15/5/04	15/5/04							
Method	Semivolatile Organic Compounds (SVOC)	EQL									
E017.2	2-FBP (Surr @ 5mg/kg)	--	83%	85%							
	TP-d14 (Surr @ 5mg/kg)	--	86%	97%							

Results expressed in mg/kg unless otherwise specified

Comments: ^ Low surrogate recovery due to matrix interference.

E017.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/MS.



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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04
Laboratory Analysis Date			--	--	--	--	--	--	--	--	--	--
<b>Method</b>	<b>TCLP Preparation</b>	<b>EQL</b>										
E019.2	TCLP Fluid No.	--	1	1	1	1	1	1	1	1	1	1
	Initial pH (pH units)	--	9.0	9.3	9.9	9.6	9.3	9.4	9.8	10.5	10.0	10.7
	pH after HCl (pH units)	--	2.0	2.1	2.2	2.1	2.1	2.1	3.8	2.1	2.1	2.1
	Final pH (pH units)	--	4.5	4.4	4.5	4.4	5.2	5.3	5.0	5.4	5.5	5.8

Results expressed in pH units unless otherwise specified

Comments:

E019.2: Soil leached for 18 hours with fluid as specified above . Refer to relevant water method for results.



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Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04	24/5/04
Laboratory Analysis Date			--	--	--	--	--	--	--	--	--	--
Method	TCLP Preparation	EQL										
E019.2	TCLP Fluid No.	--	1	1	1	1	1	1	1	1	1	1
	Initial pH (pH units)	--	11.3	11.3	11.6	11.5	11.4	9.7	10.3	9.2	9.4	10.0
	pH after HCl (pH units)	--	2.1	2.1	2.2	3.0	2.2	2.1	2.3	2.1	2.1	2.1
	Final pH (pH units)	--	5.8	5.4	5.6	5.6	5.3	5.2	5.7	5.3	5.3	5.2

Results expressed in pH units unless otherwise specified

Comments:

E019.2: Soil leached for 18 hours with fluid as specified above . Refer to relevant water method for results.



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Laboratory Identification			17234	17235							
Sample Identification			1484 B/04	1484 C/04							
Depth (m)			--	--							
Sampling Date recorded on COC			22/4/04	22/4/04							
Laboratory Extraction (Preparation) Date			24/5/04	24/5/04							
Laboratory Analysis Date			--	--							
<b>Method</b>	<b>TCLP Preparation</b>	<b>EQL</b>									
E019.2	TCLP Fluid No.	--	1	1							
	Initial pH (pH units)	--	9.3	9.5							
	pH after HCl (pH units)	--	2.1	2.1							
	Final pH (pH units)	--	5.3	5.2							

Results expressed in pH units unless otherwise specified

Comments:

E019.2: Soil leached for 18 hours with fluid as specified above . Refer to relevant water method for results.





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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			13/5/04	24/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04
<b>Method</b>	<b>Acid extractable mercury</b>	<b>EQL</b>										
E026.2	Mercury	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Results expressed in mg/kg unless otherwise specified

Comments:

E026.2: 0.5g digested with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS.

Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			24/5/04	13/5/04	13/5/04	13/5/04	13/5/04	24/5/04	24/5/04	13/5/04	13/5/04	13/5/04
<b>Method</b>	<b>Acid extractable mercury</b>	<b>EQL</b>										
E026.2	Mercury	0.05	0.07	0.06	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Results expressed in mg/kg unless otherwise specified

Comments:

E026.2: 0.5g digested with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS.



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			12/5/04	12/5/04	11/5/04	--	11/5/04	--	12/5/04	--	11/5/04	12/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	--	24/5/04	--	13/5/04	--	24/5/04	13/5/04
<b>Method</b>	<b>Acid extractable mercury</b>	<b>EQL</b>										
E026.2	Mercury	0.05	<0.05	<0.05	<0.05	--	0.1	35%	<0.05	--	99%	75%

Results expressed in mg/kg unless otherwise specified

Comments:

E026.2: 0.5g digested with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS.

Laboratory Identification			crm	crm	lcs	lcs	mb	mb				
Sample Identification			QC	QC	QC	QC	QC	QC				
Depth (m)			--	--	--	--	--	--				
Sampling Date recorded on COC			--	--	--	--	--	--				
Laboratory Extraction (Preparation) Date			11/5/04	12/5/04	11/5/04	12/5/04	11/5/04	12/5/04				
Laboratory Analysis Date			11/5/04	12/5/04	11/5/04	12/5/04	11/5/04	12/5/04				
<b>Method</b>	<b>Acid extractable mercury</b>	<b>EQL</b>										
E026.2	Mercury	0.05	112%	109%	111%	98%	<0.05	<0.05				

Results expressed in mg/kg unless otherwise specified

Comments:

E026.2: 0.5g digested with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS.



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**Client Reference:** Slag Products

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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04
Method	Acid extractable metals	EQL										
E022.2	Arsenic	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Beryllium	1	9	10	11	10	9	10	12	13	9	8
	Cadmium	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Copper	2	<2	<2	<2	<2	<2	<2	2	<2	<2	<2
	Lead	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Molybdenum	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Nickel	1	3	6	4	4	3	3	5	5	5	4
	Selenium	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Silver	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Zinc	5	<5	<5	5	<5	7	<5	8	<5	<5	<5

Results expressed in mg/kg unless otherwise specified

Comments: # Percent recovery not available due to significant background levels of analyte in sample.

E022.2: 0.5g digested in nitric/hydrochloric acid. Analysis by ICP-MS.



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Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04	18/5/04
Method	Acid extractable metals	EQL										
E022.2	Arsenic	1	<1	1	<1	<1	<1	2	<1	<1	<1	<1
	Beryllium	1	1	1	1	1	1	<1	9	10	7	9
	Cadmium	0.1	0.1	0.1	0.1	0.1	0.1	0.5	<0.1	<0.1	0.1	<0.1
	Copper	2	7	13	6	16	9	25	<2	<2	9	<2
	Lead	2	<2	<2	<2	<2	<2	25	<2	<2	6	<2
	Molybdenum	1	9	13	16	14	8	14	<1	<1	1	<1
	Nickel	1	9	24	11	19	18	47	5	6	7	6
	Selenium	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Silver	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Zinc	5	9	54	11	56	33	690	12	6	41	7

Results expressed in mg/kg unless otherwise specified

Comments: # Percent recovery not available due to significant background levels of analyte in sample.

E022.2: 0.5g digested in nitric/hydrochloric acid. Analysis by ICP-MS.



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			12/5/04	12/5/04	11/5/04	--	11/5/04	--	12/5/04	--	11/5/04	12/5/04
Laboratory Analysis Date			18/5/04	18/5/04	18/5/04	--	18/5/04	--	18/5/04	--	18/5/04	18/5/04
Method	Acid extractable metals	EQL										
E022.2	Arsenic	1	<1	<1	<1	--	<1	--	<1	--	109%	112%
	Beryllium	1	10	9	11	20%	1	0%	11	10%	121%	124%
	Cadmium	0.1	<0.1	0.1	<0.1	--	0.1	0.0%	0.1	>0.0%	108%	112%
	Copper	2	<2	6	<2	--	11	44%	<2	--	102%	116%
	Lead	2	<2	4	<2	--	<2	--	<2	--	110%	100%
	Molybdenum	1	<1	2	<1	--	10	11%	<1	--	101%	101%
	Nickel	1	6	8	4	29%	15	50%	7	15%	91%	131%
	Selenium	2	<2	<2	<2	--	<2	--	<2	--	97%	88%
	Silver	0.1	<0.1	<0.1	<0.1	--	<0.1	--	<0.1	--	95%	90%
	Zinc	5	7	34	<5	--	11	20%	5	33%	113%	#

Results expressed in mg/kg unless otherwise specified

Comments: # Percent recovery not available due to significant background levels of analyte in sample.

E022.2: 0.5g digested in nitric/hydrochloric acid. Analysis by ICP-MS.



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Laboratory Identification			crm	crm	lcs	lcs	mb	mb				
Sample Identification			QC	QC	QC	QC	QC	QC				
Depth (m)			--	--	--	--	--	--				
Sampling Date recorded on COC			--	--	--	--	--	--				
Laboratory Extraction (Preparation) Date			11/5/04	12/5/04	11/5/04	12/5/04	11/5/04	12/5/04				
Laboratory Analysis Date			12/5/04	13/5/04	12/5/04	12/5/04	12/5/04	12/5/04				
Method	Acid extractable metals	EQL										
E022.2	Arsenic	1	107%	103%	106%	103%	<1	<1				
	Beryllium	1	79%	98%	91%	100%	<1	<1				
	Cadmium	0.1	92%	106%	95%	109%	<0.1	<0.1				
	Copper	2	97%	99%	99%	106%	<2	<2				
	Lead	2	103%	104%	103%	103%	<2	<2				
	Molybdenum	1	86%	85%	99%	104%	<1	<1				
	Nickel	1	94%	82%	99%	104%	<1	<1				
	Selenium	2	80%	112%	97%	99%	<2	<2				
	Silver	0.1	--	104%	91%	83%	<0.1	<0.1				
	Zinc	5	92%	99%	116%	110%	<5	<5				

Results expressed in mg/kg unless otherwise specified

Comments: # Percent recovery not available due to significant background levels of analyte in sample.

E022.2: 0.5g digested in nitric/hydrochloric acid. Analysis by ICP-MS.



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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			19/5/04	19/5/04	19/5/04	19/5/04	19/5/04	19/5/04	19/5/04	19/5/04	19/5/04	19/5/04
Method	Polynuclear Aromatic Hydrocarbons	EQL										
E007.2	Benzo(a) pyrene	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	2-FBP (Surr @ 0.5mg/kg)	--	105%	100%	101%	95%	101%	96%	96%	93%	95%	94%
	TP-d14 (Surr @ 0.5mg/kg)	--	120%	111%	112%	106%	113%	102%	109%	102%	100%	102%

Results expressed in mg/kg unless otherwise specified

Comments:

E007.2: 8-10g soil extracted with 20ml DCM/acetone (8:2). Analysis by GC/MS.



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Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			19/5/04	19/5/04	19/5/04	19/5/04	19/5/04	19/5/04	19/5/04	20/5/04	20/5/04	20/5/04
<b>Method</b>	<b>Polynuclear Aromatic Hydrocarbons</b>	<b>EQL</b>										
E007.2	Benzo(a) pyrene	0.05	<0.05	<0.05	<0.05	<0.05	0.26	<0.05	<0.05	<0.05	0.81	<0.05
	2-FBP (Surr @ 0.5mg/kg)	--	106%	109%	110%	92%	107%	106%	109%	100%	91%	100%
	TP-d14 (Surr @ 0.5mg/kg)	--	114%	115%	117%	93%	117%	117%	121%	113%	109%	115%

Results expressed in mg/kg unless otherwise specified

Comments:

E007.2: 8-10g soil extracted with 20ml DCM/acetone (8:2). Analysis by GC/MS.





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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			20/5/04	20/5/04	19/5/04	--	19/5/04	--	20/5/04	--	19/5/04	20/5/04
Method	Polynuclear Aromatic Hydrocarbons	EQL										
E007.2	Benzo(a) pyrene	0.05	<0.05	0.52	<0.05	--	<0.05	--	<0.05	--	72%	92%
	2-FBP (Surr @ 0.5mg/kg)	--	101%	100%	90%	15%	107%	1%	105%	4%	97%	93%
	TP-d14 (Surr @ 0.5mg/kg)	--	108%	113%	96%	22%	108%	5%	112%	4%	107%	108%

Results expressed in mg/kg unless otherwise specified

Comments:

E007.2: 8-10g soil extracted with 20ml DCM/acetone (8:2). Analysis by GC/MS.



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Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			19/5/04	19/5/04							
Method	Polynuclear Aromatic Hydrocarbons	EQL									
E007.2	Benzo(a) pyrene	0.05	77%	<0.05							
	2-FBP (Surr @ 0.5mg/kg)	--	93%	104%							
	TP-d14 (Surr @ 0.5mg/kg)	--	85%	102%							

Results expressed in mg/kg unless otherwise specified

Comments:

E007.2: 8-10g soil extracted with 20ml DCM/acetone (8:2). Analysis by GC/MS.



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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04
Laboratory Analysis Date			26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04
Method	TCLP metals	EQL										
E022.1	Beryllium	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Copper	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	Nickel	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Selenium	20	<20	<20	<20	<20	30	60	<20	40	90	<20
	Zinc	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.



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Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04
Laboratory Analysis Date			26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04	26/5/04
Method	TCLP metals	EQL										
E022.1	Beryllium	10	--	--	--	--	--	--	<10	<10	<10	<10
	Copper	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	Molybdenum	10	10	20	20	20	20	30	--	--	--	--
	Nickel	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Selenium	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	40
	Zinc	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17225s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			26/5/04	26/5/04	26/5/04	--	26/5/04	--	26/5/04	--	26/5/04	26/5/04
Laboratory Analysis Date			26/5/04	26/5/04	26/5/04	--	26/5/04	--	26/5/04	--	26/5/04	26/5/04
Method	TCLP metals	EQL										
E022.1	Beryllium	10	<10	<10	<10	--	--	--	<10	--	127%	--
	Copper	50	<50	<50	<50	--	<50	--	<50	--	94%	--
	Molybdenum	10	--	--	--	--	10	0%	--	--	--	115%
	Nickel	20	<20	<20	<20	--	<20	--	<20	--	98%	--
	Selenium	20	<20	<20	<20	--	<20	--	<20	--	124%	--
	Zinc	50	<50	<50	<50	--	<50	--	<50	--	102%	--

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.



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**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products

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Laboratory Identification			17235s	lcs	mb						
Sample Identification			QC	QC	QC						
Depth (m)			--	--	--						
Sampling Date recorded on COC			--	--	--						
Laboratory Extraction (Preparation) Date			26/5/04	26/5/04	26/5/04						
Laboratory Analysis Date			26/5/04	26/5/04	26/5/04						
Method	TCLP metals	EQL									
E022.1	Beryllium	10	110%	123%	<10						
	Copper	50	89%	94%	<50						
	Molybdenum	10	--	111%	<10						
	Nickel	20	89%	95%	<20						
	Selenium	20	120%	116%	<20						
	Zinc	50	98%	97%	<50						

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.



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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04
<b>Method</b> E043.2	<b>Chromium-VI</b> Hexavalent Chromium	<b>EQL</b> 1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Results expressed in mg/kg unless otherwise specified

Comments: ~~Spike recovery not available due to suspected reducing nature of the sample.

E043.2: Alkaline digestion followed by determination by colour.

Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04	13/5/04
<b>Method</b> E043.2	<b>Chromium-VI</b> Hexavalent Chromium	<b>EQL</b> 1	1	<1	2	<1	<1	2	<1	<1	<1	<1

Results expressed in mg/kg unless otherwise specified

Comments: ~~Spike recovery not available due to suspected reducing nature of the sample.

E043.2: Alkaline digestion followed by determination by colour.



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			13/5/04	13/5/04	13/5/04	--	13/5/04	--	13/5/04	--	13/5/04	13/5/04
Laboratory Analysis Date			13/5/04	13/5/04	13/5/04	--	13/5/04	--	13/5/04	--	13/5/04	13/5/04
<b>Method</b> E043.2	<b>Chromium-VI</b> Hexavalent Chromium	<b>EQL</b> 1	<1	<1	<1	--	<1	>0%	<1	--	~~	~~

Results expressed in mg/kg unless otherwise specified

Comments: ~~Spike recovery not available due to suspected reducing nature of the sample.

E043.2: Alkaline digestion followed by determination by colour.

Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			13/5/04	13/5/04							
Laboratory Analysis Date			13/5/04	13/5/04							
<b>Method</b> E043.2	<b>Chromium-VI</b> Hexavalent Chromium	<b>EQL</b> 1	88%	<1							

Results expressed in mg/kg unless otherwise specified

Comments: ~~Spike recovery not available due to suspected reducing nature of the sample.

E043.2: Alkaline digestion followed by determination by colour.





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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04
<b>Method</b>	<b>Fluoride</b>	<b>EQL</b>										
E034.2	Fluoride	1	3	2	1	1	3	3	4	*<10	*<10	1

Results expressed in mg/kg unless otherwise specified

Comments: \* EQL increased due to sample matrix interference.

E034.2: 1:5 water extraction. Determined by FIA-Ion Selective Electrode.

Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04	12/5/04
<b>Method</b>	<b>Fluoride</b>	<b>EQL</b>										
E034.2	Fluoride	1	4	3	2	4	3	2	8	3	5	1

Results expressed in mg/kg unless otherwise specified

Comments: \* EQL increased due to sample matrix interference.

E034.2: 1:5 water extraction. Determined by FIA-Ion Selective Electrode.



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			12/5/04	12/5/04	12/5/04	--	12/5/04	--	12/5/04	--	12/5/04	12/5/04
<b>Method</b>	<b>Fluoride</b>	<b>EQL</b>										
E034.2	Fluoride	1	1	3	2	40%	4	0%	1	0%	75%	95%

Results expressed in mg/kg unless otherwise specified

Comments: \* EQL increased due to sample matrix interference.

E034.2: 1:5 water extraction. Determined by FIA-Ion Selective Electrode.

Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			12/5/04	12/5/04							
<b>Method</b>	<b>Fluoride</b>	<b>EQL</b>									
E034.2	Fluoride	1	92%	<1							

Results expressed in mg/kg unless otherwise specified

Comments: \* EQL increased due to sample matrix interference.

E034.2: 1:5 water extraction. Determined by FIA-Ion Selective Electrode.



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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04
<b>Method</b>	<b>Total Cyanide</b>	<b>EQL</b>										
E040.2	Total Cyanide	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Results expressed in mg/kg unless otherwise specified

Comments:

E040.2: Caustic extract followed by strong acid distillation. Analysis by colour.

Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04
<b>Method</b>	<b>Total Cyanide</b>	<b>EQL</b>										
E040.2	Total Cyanide	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Results expressed in mg/kg unless otherwise specified

Comments:

E040.2: Caustic extract followed by strong acid distillation. Analysis by colour.



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			14/5/04	14/5/04	14/5/04	--	14/5/04	--	14/5/04	--	14/5/04	14/5/04
<b>Method</b>	<b>Total Cyanide</b>	<b>EQL</b>										
E040.2	Total Cyanide	1	<1	<1	<1	--	<1	--	<1	--	86%	82%

Results expressed in mg/kg unless otherwise specified

Comments:

E040.2: Caustic extract followed by strong acid distillation. Analysis by colour.

Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			14/5/04	14/5/04							
<b>Method</b>	<b>Total Cyanide</b>	<b>EQL</b>									
E040.2	Total Cyanide	1	93%	<1							

Results expressed in mg/kg unless otherwise specified

Comments:

E040.2: Caustic extract followed by strong acid distillation. Analysis by colour.



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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04
<b>Method</b> E040.1	<b>CN Amenable to Chlorination</b> Cyanide	<b>EQL</b> 5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Results expressed in mg/kg unless otherwise specified

Comments:

E040.1: Strong acid distillate of treated and untreated sample extract collected in sodium hydroxide. Analysis by colour and calculation.

Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04	14/5/04
<b>Method</b> E040.1	<b>CN Amenable to Chlorination</b> Cyanide	<b>EQL</b> 5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Results expressed in mg/kg unless otherwise specified

Comments:

E040.1: Strong acid distillate of treated and untreated sample extract collected in sodium hydroxide. Analysis by colour and calculation.



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Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	mb	
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	
Depth (m)			--	--	--	--	--	--	--	--	--	
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	
Laboratory Analysis Date			14/5/04	14/5/04	14/5/04	--	14/5/04	--	14/5/04	--	14/5/04	
<b>Method</b>	<b>CN Amenable to Chlorination</b>	<b>EQL</b>										
E040.1	Cyanide	5	<5	<5	<5	--	<5	--	<5	--	<5	

Results expressed in mg/kg unless otherwise specified

Comments:

E040.1: Strong acid distillate of treated and untreated sample extract collected in sodium hydroxide. Analysis by colour and calculation.



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Laboratory Identification			17214	17215	17216	17217	17218	17219	17220	17221	17222	17223
Sample Identification			1478 A/04	1478 B/04	1478 C/04	1478 D/04	1479 A/04	1479 B/04	1479 C/04	1480 A/04	1480 B/04	1480 C/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			20/5/04	20/5/04	20/5/04	20/5/04	20/5/04	20/5/04	20/5/04	20/5/04	20/5/04	20/5/04
<b>Method</b>	<b>Volatile Organic Compounds (VOC)</b>	<b>EQL</b>										
E016.2	Vinyl chloride CTFCB (Surr @ 20mg/l)	0.1 --	<0.1 104%	<0.1 98%	<0.1 100%	<0.1 101%	<0.1 106%	<0.1 105%	<0.1 104%	<0.1 102%	<0.1 97%	<0.1 103%

Results expressed in mg/kg unless otherwise specified

Comments:

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.

Laboratory Identification			17224	17225	17226	17227	17228	17229	17230	17231	17232	17233
Sample Identification			1481 A/04	1481 B/04	1481 C/04	1482 A/04	1482 B/04	1482 C/04	1483 A/04	1483 B/04	1483 C/04	1484 A/04
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04	22/4/04
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04	11/5/04
Laboratory Analysis Date			20/5/04	20/5/04	20/5/04	20/5/04	20/5/04	20/5/04	20/5/04	21/5/04	21/5/04	21/5/04
<b>Method</b>	<b>Volatile Organic Compounds (VOC)</b>	<b>EQL</b>										
E016.2	Vinyl chloride CTFCB (Surr @ 20mg/l)	0.1 --	<0.1 101%	<0.1 99%	<0.1 96%	<0.1 99%	<0.1 96%	<0.1 111%	<0.1 103%	<0.1 106%	<0.1 107%	<0.1 104%

Results expressed in mg/kg unless otherwise specified

Comments:

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.



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**Certificate**  
of Analysis



Laboratory Identification			17234	17235	17214d	17214r	17224d	17224r	17234d	17234r	17215s	17235s
Sample Identification			1484 B/04	1484 C/04	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			22/4/04	22/4/04	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04	11/5/04	--	11/5/04	--	11/5/04	--	11/5/04	11/5/04
Laboratory Analysis Date			21/5/04	21/5/04	20/5/04	--	20/5/04	--	21/5/04	--	20/5/04	21/5/04
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	Vinyl chloride CTFCB (Surr @ 20mg/l)	0.1 --	<0.1 102%	<0.1 103%	<0.1 99%	-- 5%	<0.1 106%	-- 5%	<0.1 105%	-- 3%	94% 95%	107% 107%

Results expressed in mg/kg unless otherwise specified

Comments:

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.

Laboratory Identification			lcs	mb							
Sample Identification			QC	QC							
Depth (m)			--	--							
Sampling Date recorded on COC			--	--							
Laboratory Extraction (Preparation) Date			11/5/04	11/5/04							
Laboratory Analysis Date			20/5/04	20/5/04							
Method	Volatile Organic Compounds (VOC)	EQL									
E016.2	Vinyl chloride CTFCB (Surr @ 20mg/l)	0.1 --	100% 99%	<0.1 98%							

Results expressed in mg/kg unless otherwise specified

Comments:

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.





The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement. This document shall not be reproduced, except in full.



No. 13542

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## CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

### FINAL CERTIFICATE OF ANALYSIS

**Laboratory Report No:** 018320  
**Client Name:** Australian Slag Association  
**Client Reference:** Slag Samples  
**Contact Name:** Norm Clifford  
**Chain of Custody No:** na  
**Sample Matrix:** SOIL

Cover Page 1 of 3  
plus Sample Results

Date Received: 16/6/04  
Date Reported: 2/7/04

This Final Certificate of Analysis consists of sample results, DQI's, method descriptions, laboratory definitions, and internationally recognised NATA accreditation and endorsement. The DQO compliance relates specifically to QA/QC results as performed as part of the sample analysis, and may provide an indication of sample result quality. Transfer of report ownership from Labmark to the client shall only occur once full & final payment has been settled and verified. All report copies may be retracted where full payment has not occurred within the agreed settlement period.

#### QUALITY ASSURANCE CRITERIA

**Accuracy:** matrix spike: 1 in first 5-20, then 1 every 20 samples  
lcs, crm, method: 1 per analytical batch  
surrogate spike: addition per target organic method

**Precision:** laboratory duplicate: 1 in first 5-10, then 1 every 10 samples  
laboratory triplicate: re-extracted & reported when duplicate RPD values exceed acceptance criteria

**Holding Times:** soils, waters: Refer to LabMark Preservation & THT table  
VOC's 14 days water / soil  
VAC's 7 days water or 14 days acidified  
VAC's 14 days soil  
SVOC's 7 days water, 14 days soil  
Pesticides 7 days water, 14 days soil  
Metals 6 months general elements  
Mercury 28 days

**Confirmation:** target organic analysis: GC/MS, or confirmatory column

**Sensitivity:** EQL: Typically 2-5 x Method Detection Limit (MDL)

#### QUALITY CONTROL GLOBAL ACCEPTANCE CRITERIA (GAC)

**Accuracy:** spike, lcs, crm general analytes 70% - 130% recovery  
surrogate: phenol analytes 50% - 130% recovery  
organophosphorous pesticide analytes 60% - 130% recovery

anion/cation bal: +/- 10% (0-3 meq/l),  
+/- 5% (>3 meq/l)

**Precision:** method blank: not detected >95% of the reported EQL

duplicate lab 0-30% (>10xEQL), 0-75% (5-10xEQL)  
RPD (metals): 0-100% (<5xEQL)

duplicate lab 0-50% (>10xEQL), 0-75% (5-10xEQL)  
RPD: 0-100% (<5xEQL)

#### QUALITY CONTROL ANALYTE SPECIFIC ACCEPTANCE CRITERIA (ASAC)

**Accuracy:** spike, lcs, crm analyte specific recovery data  
surrogate: <3xsd of historical mean

**Uncertainty:** spike, lcs: measurement calculated from historical analyte specific control charts

#### RESULT ANNOTATION

DQO:	Data Quality Objective	s:	matrix spike recovery	p:	pending
DQI:	Data Quality Indicator	d:	laboratory duplicate	lcs:	laboratory control sample
EQL:	Estimated Quantitation Limit	t:	laboratory triplicate	crm:	certified reference material
--:	not applicable	r:	RPD relative % difference	mb:	method blank

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## NEPC GUIDELINE COMPLIANCE - DQO

### 1. GENERAL

- A. Results relate specifically to samples as received. Sample results are not corrected for matrix spike, lcs, or surrogate recovery data.
- B. EQL's are matrix dependant and may be increased due to sample dilution or matrix interference.
- C. Laboratory QA/QC samples are specific to this project.
- D. Inter-laboratory proficiency results are available upon request. NATA accreditation details available at [www.nata.asn.au](http://www.nata.asn.au).
- E. VOC spikes & surrogates added to samples during extraction, SVOC spikes & surrogates added prior to extraction.
- F. Recovery data outside GAC limits shall be investigated and compared to ASAC (historical mean +/- 3sd). If recovery data <20%, then the relevant results for that compound are considered not reliable.
- G. Recovery data (ms, surrogate, crm, lcs) outside ASAC limits shall initiate an investigative action. Anomalous QC data is examined in conjunction with other QC samples and a final decision whether to accept or reject results is provided by the professional judgement of the senior analyst. The USEPA-CLP National Functional Guidelines are referred to for specific recommendations.
- H. Extraction (preparation) date refers to the date that sample preparation was initiated. Note that certain methods not requiring sample preparation (eg. VOCs in water, etc) may report a common extraction and analysis date.
- I. LabMark shall maintain an official copy of this Certificate of Analysis for all traceable reference purposes.

### 2. CHAIN OF CUSTODY (COC) & SAMPLE RECEIPT NOTICE (SRN) REQUIREMENTS

- A. SRN issued to client upon sample receipt & login verification.
- B. Preservation & sampling date details specified on COC and SRN, unless noted.
- C. Sample Integrity & Validated Time of Sample Receipt (VTSR) Holding Times verified (preservation may extend holding time, refer to preservation chart).

### 3. NATA ACCREDITED METHODS

- A. NATA accreditation held for each method and sample matrix type reported, unless noted below.
- B. NATA accredited in-house laboratory methods are referenced from NEPC, ASTM, modified USEPA / APHA documents.
- C. Subcontracted analyses:
  - Not reported contracted by Australian Government Analytical Laboratories, NATA accreditation No. 198



CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

**Laboratory Report: 018320**

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**4. QA/QC FREQUENCY COMPLIANCE TABLE SPECIFIC TO THIS REPORT**

Matrix: **SOIL**

Page:	Method:	Totals:	#d	%d-ratio	#t	#s	%s-ratio
1	Volatile TPH by P&T (vTPH)	6	1	17%	0	1	17%
2	Petroleum Hydrocarbons (TPH)	6	1	17%	0	1	17%
4	Volatile Organic Compounds (VOC)	6	1	17%	0	1	17%
10	Polychlorinated Biphenyls (PCB)	6	1	17%	0	1	17%
12	Semivolatile Organic Compounds (SVOC)	6	1	17%	0	1	17%
24	Acid extractable mercury	6	1	17%	0	1	17%
25	Acid extractable metals	6	1	17%	0	1	17%
27	Polynuclear Aromatic Hydrocarbons	6	1	17%	0	1	17%
29	Chromium-VI	6	1	17%	0	1	17%
30	Fluoride	6	1	17%	0	1	17%
31	Total Cyanide	6	1	17%	0	1	17%
32	CN Amenable to Chlorination	6	1	17%	0	0	0%
33	Volatile Organic Compounds (VOC)	6	1	17%	0	1	17%
34	Moisture	6	--	--	--	--	--

NEPC guideline for laboratory duplicates is 1 in 10 samples (10%).  
USEPA guideline for laboratory matrix spikes is 1 in 20 samples (5%).

**5. ADDITIONAL COMMENTS SPECIFIC TO THIS REPORT**

- A. VOC : 1,1,2,2-tetrachloroethane recovery for matrix spike Lab #24337s is 21%, corresponding LCS is 92%.
- B. SVOC: 2-FP surrogate recovery for samples Lab #24336, 24337, 24337s is 41%, 26%, 20% respectively, corresponding LCS is 110%.
- C. SVOC: matrix spike recovery for sample Lab #24337s is 22% - 107%, corresponding LCS is 24% - 121%. Low surrogate recovery for #24337s has been confirmed by re-extraction.
- D. SVOC (LCS) Refer to LabMark historical control chart recovery range data. QA/QC (SVOC) results reported within 3sd of the historical analyte specific mean results, and therefore considered acceptable for laboratory release.
- E. AGAL reference LABMO1/040621, results for phenoxy acid herbicides issued on 01/07/04. Refer to report attached.
- F. Client informed about THT issues, refer to sample receipt notice.

Laboratory QA/QC Self Assessment data shall relate specifically to this report, and may only provide an indication of sample result quality. Acceptance of this Self Assessment certificate does not preclude any requirement for a QA/QC review by a accredited contaminated site EPA auditor, when and wherever necessary. Laboratory QA/QC Self Assessment references available upon request.

## Analyte mean and standard deviation

### SVOC\_S

For the period: 20/01/03 12:00:00 AM to 20/12/03 11:59:59 PM

### SPIKES

Analyte Name	Mean	1 SD	Range	2 SD	Range	3 SD	Range
1,2,4,5-tetrachlorobenzene	98	17	81 to 115	34	64 to 132	51	47 to 149
1,2,4-trichlorobenzene	91	14	77 to 105	28	63 to 119	42	49 to 133
1,2-dichlorobenzene	92	14	78 to 106	28	64 to 120	42	50 to 134
1,3-dichlorobenzene	92	14	78 to 106	28	64 to 120	42	50 to 134
1,4-dichlorobenzene	90	14	76 to 104	28	62 to 118	42	48 to 132
1,4-dinitrobenzene	83	20	63 to 103	40	43 to 123	60	23 to 143
1-naphthylamine	86	29	57 to 115	58	28 to 144	87	0 to 173
2,3,4,6-tetrachlorophenol	81	26	55 to 107	52	29 to 133	78	3 to 159
2,4,5-trichlorophenol	86	19	67 to 105	38	48 to 124	57	29 to 143
2,4,6-TBP (Surr @ 5mg/kg)	90	17	73 to 107	34	56 to 124	51	39 to 141
2,4,6-trichlorophenol	86	17	69 to 103	34	52 to 120	51	35 to 137
2,4-dichlorophenol	87	17	70 to 104	34	53 to 121	51	36 to 138
2,4-dimethylphenol	83	17	66 to 100	34	49 to 117	51	32 to 134
2,4-dinitrotoluene	77	19	58 to 96	38	39 to 115	57	20 to 134
2,6-dichlorophenol	96	17	79 to 113	34	62 to 130	51	45 to 147
2,6-dinitrotoluene	82	18	64 to 100	36	46 to 118	54	28 to 136
2-(acetylamino) fluorene	81	28	53 to 109	56	25 to 137	84	0 to 165
2-chloronaphthalene	91	15	76 to 106	30	61 to 121	45	46 to 136
2-chlorophenol	90	16	74 to 106	32	58 to 122	48	42 to 138
2-FBP (Surr @ 5mg/kg)	95	13	82 to 108	26	69 to 121	39	56 to 134
2-FP (Surr @ 5mg/kg)	92	12	80 to 104	24	68 to 116	36	56 to 128
2-methylnaphthalene	93	17	76 to 110	34	59 to 127	51	42 to 144
2-methylphenol	82	21	61 to 103	42	40 to 124	63	19 to 145
2-naphthylamine	86	32	54 to 118	64	22 to 150	96	0 to 182
2-nitroaniline	79	18	61 to 97	36	43 to 115	54	25 to 133
2-nitrophenol	83	17	66 to 100	34	49 to 117	51	32 to 134
3-&4-methylphenol	93	17	76 to 110	34	59 to 127	51	42 to 144
3-methylcholanthrene	105	17	88 to 122	34	71 to 139	51	54 to 156
3-nitroaniline	80	24	56 to 104	48	32 to 128	72	8 to 152
4-(dimethylamino) azobenzene	88	21	67 to 109	42	46 to 130	63	25 to 151
4-aminobiphenyl	97	18	79 to 115	36	61 to 133	54	43 to 151
4-bromophenyl phenyl ether	90	16	74 to 106	32	58 to 122	48	42 to 138
4-chloro-3-methylphenol	83	14	69 to 97	28	55 to 111	42	41 to 125
4-chloroaniline	90	17	73 to 107	34	56 to 124	51	39 to 141
4-chlorophenyl phenyl ether	90	15	75 to 105	30	60 to 120	45	45 to 135
4-nitroaniline	85	19	66 to 104	38	47 to 123	57	28 to 142
4-nitrophenol	72	30	42 to 102	60	12 to 132	90	0 to 162
5-nitro-o-toluidine	94	16	78 to 110	32	62 to 126	48	46 to 142
7,12-dimethylbenz(a)anthracene	81	31	50 to 112	62	19 to 143	93	0 to 174
Acenaphthene	93	16	77 to 109	32	61 to 125	48	45 to 141
Acenaphthylene	91	15	76 to 106	30	61 to 121	45	46 to 136
Acetophenone	99	16	83 to 115	32	67 to 131	48	51 to 147
Aniline	97	23	74 to 120	46	51 to 143	69	28 to 166
Anthracene	94	16	78 to 110	32	62 to 126	48	46 to 142
Azinophos methyl	75		to		to		to

Azobenzene	90	16	74 to 106	32	58 to 122	48	42 to 138
Benz(a)anthracene	93	18	75 to 111	36	57 to 129	54	39 to 147
Benzo(a) pyrene	93	17	76 to 110	34	59 to 127	51	42 to 144
Benzo(b)&(k)fluoranthene	93	18	75 to 111	36	57 to 129	54	39 to 147
Benzo(g,h,i)perylene	87	16	71 to 103	32	55 to 119	48	39 to 135
Benzyl alcohol	72	23	49 to 95	46	26 to 118	69	3 to 141
Bis(2-chloroethoxy) methane	91	15	76 to 106	30	61 to 121	45	46 to 136
Bis(2-chloroethyl)ether	94	17	77 to 111	34	60 to 128	51	43 to 145
Bis(2-chloroisopropyl) ether	93	15	78 to 108	30	63 to 123	45	48 to 138
Bis(2-ethylhexyl) phthalate	93	19	74 to 112	38	55 to 131	57	36 to 150
Butyl benzyl phthalate	89	19	70 to 108	38	51 to 127	57	32 to 146
Carbazole	90	15	75 to 105	30	60 to 120	45	45 to 135
Chrysene	96	17	79 to 113	34	62 to 130	51	45 to 147
Di-n-butyl phthalate	93	17	76 to 110	34	59 to 127	51	42 to 144
Di-n-octyl phthalate	90	19	71 to 109	38	52 to 128	57	33 to 147
Dibenz(a,h)anthracene	86	16	70 to 102	32	54 to 118	48	38 to 134
Dibenzofuran	92	16	76 to 108	32	60 to 124	48	44 to 140
Diethylphthalate	89	16	73 to 105	32	57 to 121	48	41 to 137
Dimethyl phthalate	88	16	72 to 104	32	56 to 120	48	40 to 136
Diphenylamine	97	18	79 to 115	36	61 to 133	54	43 to 151
Ethyl methanesulfonate	99	18	81 to 117	36	63 to 135	54	45 to 153
Fluoranthene	94	18	76 to 112	36	58 to 130	54	40 to 148
Fluorene	92	16	76 to 108	32	60 to 124	48	44 to 140
Hexachlorobenzene (HCB)	72	26	46 to 98	52	20 to 124	78	0 to 150
Hexachlorobutadiene	91	15	76 to 106	30	61 to 121	45	46 to 136
Hexachlorocyclopentadiene	48	24	24 to 72	48	0 to 96	72	0 to 120
Hexachloroethane	89	15	74 to 104	30	59 to 119	45	44 to 134
Hexachloropropene	89	19	70 to 108	38	51 to 127	57	32 to 146
Indeno(1,2,3-c,d)pyrene	87	16	71 to 103	32	55 to 119	48	39 to 135
Isophorone	89	15	74 to 104	30	59 to 119	45	44 to 134
Isosafrole	95	18	77 to 113	36	59 to 131	54	41 to 149
Methoxychlor	116		to		to		to
Methyl methanesulfonate	98	22	76 to 120	44	54 to 142	66	32 to 164
N-nitrosodi-n-butylamine	97	16	81 to 113	32	65 to 129	48	49 to 145
N-nitrosodi-n-propylamine	85	17	68 to 102	34	51 to 119	51	34 to 136
N-nitrosodiethylamine	91	27	64 to 118	54	37 to 145	81	10 to 172
N-nitrosomorpholine	99	18	81 to 117	36	63 to 135	54	45 to 153
N-nitrosopiperidine	98	17	81 to 115	34	64 to 132	51	47 to 149
N-nitrosopyrrolidine	102	16	86 to 118	32	70 to 134	48	54 to 150
Naphthalene	94	15	79 to 109	30	64 to 124	45	49 to 139
NB-d5 (Surr @ 5mg/kg)	94	11	83 to 105	22	72 to 116	33	61 to 127
Nitrobenzene	94	14	80 to 108	28	66 to 122	42	52 to 136
o-toluidine	105	20	85 to 125	40	65 to 145	60	45 to 165
Pentachlorobenzene	99	18	81 to 117	36	63 to 135	54	45 to 153
Pentachloroethane	99	16	83 to 115	32	67 to 131	48	51 to 147
Pentachloronitrobenzene	91	21	70 to 112	42	49 to 133	63	28 to 154
Pentachlorophenol	62	35	27 to 97	70	0 to 132	105	0 to 167
Phenacetin	86	21	65 to 107	42	44 to 128	63	23 to 149
Phenanthrene	94	17	77 to 111	34	60 to 128	51	43 to 145
Phenol	87	14	73 to 101	28	59 to 115	42	45 to 129
Phenol-d5 (Surr @ 5mg/kg)	92	13	79 to 105	26	66 to 118	39	53 to 131
Pyrene	94	18	76 to 112	36	58 to 130	54	40 to 148

Safrole	<b>97</b>	17	80 to 114	34	63 to 131	51	46 to 148
TP-d14 (Surr @ 5mg/kg)	<b>96</b>	11	85 to 107	22	74 to 118	33	63 to 129

## LCS\_S

Analyte Name	<u>Mean</u>	<u>1 SD</u>	<u>Range</u>	<u>2 SD</u>	<u>Range</u>	<u>3 SD</u>	<u>Range</u>
1,2,4,5-tetrachlorobenzene	<b>97</b>	15	82 to 112	30	67 to 127	45	52 to 142
1,2,4-trichlorobenzene	<b>95</b>	13	82 to 108	26	69 to 121	39	56 to 134
1,2-dichlorobenzene	<b>94</b>	11	83 to 105	22	72 to 116	33	61 to 127
1,3-dichlorobenzene	<b>96</b>	12	84 to 108	24	72 to 120	36	60 to 132
1,4-dichlorobenzene	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
1,4-dinitrobenzene	<b>83</b>	18	65 to 101	36	47 to 119	54	29 to 137
1-naphthylamine	<b>94</b>	27	67 to 121	54	40 to 148	81	13 to 175
2,3,4,6-tetrachlorophenol	<b>77</b>	22	55 to 99	44	33 to 121	66	11 to 143
2,4,5-trichlorophenol	<b>83</b>	13	70 to 96	26	57 to 109	39	44 to 122
2,4,6-TBP (Surr @ 5mg/kg)	<b>85</b>	17	68 to 102	34	51 to 119	51	34 to 136
2,4,6-trichlorophenol	<b>82</b>	15	67 to 97	30	52 to 112	45	37 to 127
2,4-dichlorophenol	<b>88</b>	14	74 to 102	28	60 to 116	42	46 to 130
2,4-dimethylphenol	<b>88</b>	18	70 to 106	36	52 to 124	54	34 to 142
2,4-dinitrotoluene	<b>81</b>	16	65 to 97	32	49 to 113	48	33 to 129
2,6-dichlorophenol	<b>90</b>	19	71 to 109	38	52 to 128	57	33 to 147
2,6-dinitrotoluene	<b>85</b>	15	70 to 100	30	55 to 115	45	40 to 130
2-(acetylamino) fluorene	<b>79</b>	20	59 to 99	40	39 to 119	60	19 to 139
2-chloronaphthalene	<b>93</b>	11	82 to 104	22	71 to 115	33	60 to 126
2-chlorophenol	<b>94</b>	15	79 to 109	30	64 to 124	45	49 to 139
2-FBP (Surr @ 5mg/kg)	<b>91</b>	11	80 to 102	22	69 to 113	33	58 to 124
2-FP (Surr @ 5mg/kg)	<b>91</b>	15	76 to 106	30	61 to 121	45	46 to 136
2-methylnaphthalene	<b>95</b>	12	83 to 107	24	71 to 119	36	59 to 131
2-methylphenol	<b>88</b>	16	72 to 104	32	56 to 120	48	40 to 136
2-naphthylamine	<b>86</b>	33	53 to 119	66	20 to 152	99	0 to 185
2-nitroaniline	<b>82</b>	13	69 to 95	26	56 to 108	39	43 to 121
2-nitrophenol	<b>83</b>	21	62 to 104	42	41 to 125	63	20 to 146
3-&4-methylphenol	<b>91</b>	16	75 to 107	32	59 to 123	48	43 to 139
3-methylcholanthrene	<b>96</b>	18	78 to 114	36	60 to 132	54	42 to 150
3-nitroaniline	<b>76</b>	20	56 to 96	40	36 to 116	60	16 to 136
4,4-DDD	<b>96</b>	13	83 to 109	26	70 to 122	39	57 to 135
4,4-DDE	<b>97</b>	13	84 to 110	26	71 to 123	39	58 to 136
4,4-DDT	<b>80</b>	18	62 to 98	36	44 to 116	54	26 to 134
4-(dimethylamino) azobenzene	<b>86</b>	20	66 to 106	40	46 to 126	60	26 to 146
4-aminobiphenyl	<b>93</b>	19	74 to 112	38	55 to 131	57	36 to 150
4-bromophenyl phenyl ether	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
4-chloro-3-methylphenol	<b>88</b>	12	76 to 100	24	64 to 112	36	52 to 124
4-chloroaniline	<b>91</b>	17	74 to 108	34	57 to 125	51	40 to 142
4-chlorophenyl phenyl ether	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
4-nitroaniline	<b>84</b>	17	67 to 101	34	50 to 118	51	33 to 135
4-nitrophenol	<b>69</b>	27	42 to 96	54	15 to 123	81	0 to 150
5-nitro-o-toluidine	<b>95</b>	11	84 to 106	22	73 to 117	33	62 to 128
7,12-dimethylbenz(a)anthracene	<b>74</b>	29	45 to 103	58	16 to 132	87	0 to 161
a-BHC	<b>97</b>	15	82 to 112	30	67 to 127	45	52 to 142
Acenaphthene	<b>94</b>	13	81 to 107	26	68 to 120	39	55 to 133
Acenaphthylene	<b>92</b>	11	81 to 103	22	70 to 114	33	59 to 125
Acetophenone	<b>97</b>	15	82 to 112	30	67 to 127	45	52 to 142
Aldrin	<b>94</b>	12	82 to 106	24	70 to 118	36	58 to 130

Aniline	<b>99</b>	20	79 to 119	40	59 to 139	60	39 to 159
Anthracene	<b>94</b>	12	82 to 106	24	70 to 118	36	58 to 130
Azinophos methyl	<b>68</b>	14	54 to 82	28	40 to 96	42	26 to 110
Azobenzene	<b>92</b>	14	78 to 106	28	64 to 120	42	50 to 134
b-BHC	<b>93</b>	14	79 to 107	28	65 to 121	42	51 to 135
Benz(a)anthracene	<b>94</b>	14	80 to 108	28	66 to 122	42	52 to 136
Benzo(a) pyrene	<b>92</b>	12	80 to 104	24	68 to 116	36	56 to 128
Benzo(b)&(k)fluoranthene	<b>94</b>	13	81 to 107	26	68 to 120	39	55 to 133
Benzo(g,h,i)perylene	<b>90</b>	11	79 to 101	22	68 to 112	33	57 to 123
Benzyl alcohol	<b>88</b>	21	67 to 109	42	46 to 130	63	25 to 151
Bis(2-chloroethoxy) methane	<b>95</b>	14	81 to 109	28	67 to 123	42	53 to 137
Bis(2-chloroethyl)ether	<b>97</b>	14	83 to 111	28	69 to 125	42	55 to 139
Bis(2-chloroisopropyl) ether	<b>97</b>	12	85 to 109	24	73 to 121	36	61 to 133
Bis(2-ethylhexyl) phthalate	<b>92</b>	17	75 to 109	34	58 to 126	51	41 to 143
Butyl benzyl phthalate	<b>90</b>	14	76 to 104	28	62 to 118	42	48 to 132
Carbazole	<b>94</b>	12	82 to 106	24	70 to 118	36	58 to 130
Chlorpyrifos	<b>88</b>	12	76 to 100	24	64 to 112	36	52 to 124
Chrysene	<b>96</b>	13	83 to 109	26	70 to 122	39	57 to 135
cis-chlordane	<b>94</b>	13	81 to 107	26	68 to 120	39	55 to 133
Coumaphos	<b>80</b>	11	69 to 91	22	58 to 102	33	47 to 113
d-BHC	<b>92</b>	11	81 to 103	22	70 to 114	33	59 to 125
Demeton-O	<b>81</b>	9	72 to 90	18	63 to 99	27	54 to 108
Demeton-S	<b>86</b>	9	77 to 95	18	68 to 104	27	59 to 113
Di-n-butyl phthalate	<b>96</b>	13	83 to 109	26	70 to 122	39	57 to 135
Di-n-octyl phthalate	<b>88</b>	15	73 to 103	30	58 to 118	45	43 to 133
Diazinon	<b>89</b>	12	77 to 101	24	65 to 113	36	53 to 125
Dibenz(a,h)anthracene	<b>89</b>	11	78 to 100	22	67 to 111	33	56 to 122
Dibenzofuran	<b>93</b>	12	81 to 105	24	69 to 117	36	57 to 129
Dichlorvos	<b>80</b>	13	67 to 93	26	54 to 106	39	41 to 119
Dieldrin	<b>98</b>	15	83 to 113	30	68 to 128	45	53 to 143
Diethylphthalate	<b>92</b>	12	80 to 104	24	68 to 116	36	56 to 128
Dimethoate	<b>81</b>	9	72 to 90	18	63 to 99	27	54 to 108
Dimethyl phthalate	<b>91</b>	12	79 to 103	24	67 to 115	36	55 to 127
Diphenylamine	<b>93</b>	20	73 to 113	40	53 to 133	60	33 to 153
Disulfoton	<b>86</b>	8	78 to 94	16	70 to 102	24	62 to 110
Endosulfan I	<b>93</b>	14	79 to 107	28	65 to 121	42	51 to 135
Endosulfan II	<b>96</b>	12	84 to 108	24	72 to 120	36	60 to 132
Endosulfan sulphate	<b>92</b>	13	79 to 105	26	66 to 118	39	53 to 131
Endrin	<b>87</b>	21	66 to 108	42	45 to 129	63	24 to 150
Endrin aldehyde	<b>83</b>	17	66 to 100	34	49 to 117	51	32 to 134
Endrin ketone	<b>83</b>	17	66 to 100	34	49 to 117	51	32 to 134
EPN	<b>72</b>	13	59 to 85	26	46 to 98	39	33 to 111
Ethoprop	<b>83</b>	10	73 to 93	20	63 to 103	30	53 to 113
Ethyl methanesulfonate	<b>98</b>	18	80 to 116	36	62 to 134	54	44 to 152
Fenitrothion	<b>77</b>	11	66 to 88	22	55 to 99	33	44 to 110
Fensulfothion	<b>59</b>	12	47 to 71	24	35 to 83	36	23 to 95
Fenthion	<b>89</b>	11	78 to 100	22	67 to 111	33	56 to 122
Fluoranthene	<b>94</b>	12	82 to 106	24	70 to 118	36	58 to 130
Fluorene	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
g-BHC (Lindane)	<b>93</b>	16	77 to 109	32	61 to 125	48	45 to 141
Heptachlor	<b>85</b>	18	67 to 103	36	49 to 121	54	31 to 139
Heptachlor epoxide	<b>93</b>	16	77 to 109	32	61 to 125	48	45 to 141

Hexachlorobenzene (HCB)	<b>86</b>	22	64 to 108	44	42 to 130	66	20 to 152
Hexachlorobutadiene	<b>95</b>	13	82 to 108	26	69 to 121	39	56 to 134
Hexachlorocyclopentadiene	<b>52</b>	20	32 to 72	40	12 to 92	60	0 to 112
Hexachloroethane	<b>93</b>	13	80 to 106	26	67 to 119	39	54 to 132
Hexachloropropene	<b>90</b>	18	72 to 108	36	54 to 126	54	36 to 144
Indeno(1,2,3-c,d)pyrene	<b>88</b>	11	77 to 99	22	66 to 110	33	55 to 121
Isophorone	<b>93</b>	14	79 to 107	28	65 to 121	42	51 to 135
Isosafrole	<b>93</b>	16	77 to 109	32	61 to 125	48	45 to 141
Malathion	<b>87</b>	9	78 to 96	18	69 to 105	27	60 to 114
Methoxychlor	<b>83</b>	24	59 to 107	48	35 to 131	72	11 to 155
Methyl methanesulfonate	<b>98</b>	19	79 to 117	38	60 to 136	57	41 to 155
Methyl parathion	<b>69</b>	10	59 to 79	20	49 to 89	30	39 to 99
Mevinphos (Phosdrin)	<b>78</b>	11	67 to 89	22	56 to 100	33	45 to 111
Monocrotophos	<b>64</b>	16	48 to 80	32	32 to 96	48	16 to 112
N-nitrosodi-n-butylamine	<b>96</b>	15	81 to 111	30	66 to 126	45	51 to 141
N-nitrosodi-n-propylamine	<b>88</b>	16	72 to 104	32	56 to 120	48	40 to 136
N-nitrosodiethylamine	<b>92</b>	25	67 to 117	50	42 to 142	75	17 to 167
N-nitrosomorpholine	<b>98</b>	17	81 to 115	34	64 to 132	51	47 to 149
N-nitrosopiperidine	<b>97</b>	17	80 to 114	34	63 to 131	51	46 to 148
N-nitrosopyrrolidine	<b>98</b>	17	81 to 115	34	64 to 132	51	47 to 149
Naled (Dibrom)	<b>64</b>	16	48 to 80	32	32 to 96	48	16 to 112
Naphthalene	<b>95</b>	12	83 to 107	24	71 to 119	36	59 to 131
NB-d5 (Surr @ 5mg/kg)	<b>89</b>	10	79 to 99	20	69 to 109	30	59 to 119
Nitrobenzene	<b>95</b>	14	81 to 109	28	67 to 123	42	53 to 137
o-toluidine	<b>102</b>	20	82 to 122	40	62 to 142	60	42 to 162
Parathion	<b>81</b>	17	64 to 98	34	47 to 115	51	30 to 132
Pentachlorobenzene	<b>97</b>	16	81 to 113	32	65 to 129	48	49 to 145
Pentachloroethane	<b>97</b>	14	83 to 111	28	69 to 125	42	55 to 139
Pentachloronitrobenzene	<b>90</b>	18	72 to 108	36	54 to 126	54	36 to 144
Pentachlorophenol	<b>64</b>	21	43 to 85	42	22 to 106	63	1 to 127
Phenacetin	<b>87</b>	20	67 to 107	40	47 to 127	60	27 to 147
Phenanthrene	<b>95</b>	12	83 to 107	24	71 to 119	36	59 to 131
Phenol	<b>92</b>	12	80 to 104	24	68 to 116	36	56 to 128
Phenol-d5 (Surr @ 5mg/kg)	<b>90</b>	14	76 to 104	28	62 to 118	42	48 to 132
Phorate	<b>83</b>	9	74 to 92	18	65 to 101	27	56 to 110
Profenofos	<b>82</b>	14	68 to 96	28	54 to 110	42	40 to 124
Prothiofos	<b>87</b>	11	76 to 98	22	65 to 109	33	54 to 120
Pyrene	<b>94</b>	13	81 to 107	26	68 to 120	39	55 to 133
Ronnel	<b>89</b>	11	78 to 100	22	67 to 111	33	56 to 122
Safrole	<b>95</b>	16	79 to 111	32	63 to 127	48	47 to 143
Stirophos	<b>76</b>	10	66 to 86	20	56 to 96	30	46 to 106
Sulfotepp	<b>86</b>	10	76 to 96	20	66 to 106	30	56 to 116
TP-d14 (Surr @ 5mg/kg)	<b>92</b>	11	81 to 103	22	70 to 114	33	59 to 125
trans-chlordane	<b>96</b>	16	80 to 112	32	64 to 128	48	48 to 144
Trichloronate	<b>90</b>	12	78 to 102	24	66 to 114	36	54 to 126





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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	--	24/6/04	21/6/04
<b>Method</b>	<b>Volatile TPH by P&amp;T (vTPH)</b>	<b>EQL</b>										
E003.2	C6 - C9 Fraction	10	<10	<10	<10	<10	<10	<10	<10	--	123%	97%

Results expressed in mg/kg unless otherwise specified

Comments:

E003.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/FID.

Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			21/6/04									
Laboratory Analysis Date			21/6/04									
<b>Method</b>	<b>Volatile TPH by P&amp;T (vTPH)</b>	<b>EQL</b>										
E003.2	C6 - C9 Fraction	10	<10									

Results expressed in mg/kg unless otherwise specified

Comments:

E003.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/FID.



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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	--	24/6/04	22/6/04
Method	Petroleum Hydrocarbons (TPH)	EQL										
E006.2	C10 - C14 Fraction	50	<50	<50	<50	<50	<50	<50	<50	--	--	--
	C15 - C28 Fraction	100	<100	<100	<100	<100	<100	<100	<100	--	101%	87%
	C29 - C36 Fraction	100	<100	<100	<100	<100	<100	<100	<100	--	--	--
	Sum of TPH C10 - C36	--	--	--	--	--	--	--	--	--	--	--

Results expressed in mg/kg unless otherwise specified

Comments:

E006.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/FID.



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Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			21/6/04									
Laboratory Analysis Date			22/6/04									
Method	Petroleum Hydrocarbons (TPH)	EQL										
E006.2	C10 - C14 Fraction	50	<50									
	C15 - C28 Fraction	100	<100									
	C29 - C36 Fraction	100	<100									
	Sum of TPH C10 - C36	--	--									

Results expressed in mg/kg unless otherwise specified

Comments:

E006.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/FID.



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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	--	25/6/04	21/6/04
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	Dichlorodifluoromethane	5	<5	<5	<5	<5	<5	<5	<5	--	74%	85%
	Chloromethane	5	<5	<5	<5	<5	<5	<5	<5	--	100%	84%
	Vinyl chloride	5	<5	<5	<5	<5	<5	<5	<5	--	87%	83%
	Bromomethane	5	<5	<5	<5	<5	<5	<5	<5	--	109%	86%
	Chloroethane	5	<5	<5	<5	<5	<5	<5	<5	--	114%	111%
	Trichlorofluoromethane	5	<5	<5	<5	<5	<5	<5	<5	--	111%	83%
	1,1-dichloroethene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	80%	82%
	Vinyl acetate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	115%	86%
	Dichloromethane	5	<5	<5	<5	<5	<5	<5	<5	--	118%	72%
	Carbon disulfide	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	89%	92%
	trans-1,2-dichloroethene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	102%	87%
	Tributylmethylether (TBME)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	95%	90%
	1,1-dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	122%	88%
	cis-1,2-dichloroethene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	118%	90%
	2,2-dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	105%	103%
	Ethyl acetate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	110%	90%
	Chloroform	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	116%	83%
	1,1,1-trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	111%	85%
	1,2-dichloroethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	111%	90%
	1,1-dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	115%	93%
	Carbon tetrachloride	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	112%	94%
	Benzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	116%	89%
	Trichloroethene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	123%	88%
	1,2-dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	111%	88%
	Dibromomethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	106%	90%
	Bromodichloromethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	115%	91%
	cis-1,3-dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	111%	89%
	Toluene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	116%	91%



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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	--	25/6/04	21/6/04
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	trans-1,3-dichloropropene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	108%	95%
	1,1,2-trichloroethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	112%	89%
	1,3-dichloropropane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	109%	89%
	Chlorodibromomethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	116%	91%
	Tetrachloroethene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	114%	92%
	1,2-dibromoethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	117%	89%
	Chlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	105%	82%
	1,1,1,2-tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	105%	88%
	Ethylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	106%	89%
	m- & p-xylene	1	<1	<1	<1	<1	<1	<1	<1	--	105%	88%
	Styrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	103%	89%
	Bromoform	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	107%	85%
	o-xylene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	109%	89%
	1,1,2,2-tetrachloroethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	~21%	92%
	Isopropylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	105%	102%
	1,2,3-trichloropropane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	100%	88%
	Bromobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	106%	89%
	n-propylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	104%	89%
	2-chlorotoluene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	105%	90%
	4-chlorotoluene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	108%	87%
	1,3,5-trimethylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	107%	106%
	tert-butylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	103%	93%
	1,2,4-trimethylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	106%	90%
	sec-butylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	107%	93%
	1,3-dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	106%	90%
	1,4-dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	104%	89%
	p-isopropyltoluene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	107%	88%
	1,2-dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	108%	93%



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**Contact Name:** Norm Clifford  
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This report supercedes reports issued on: N/A

Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	--	25/6/04	21/6/04
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	n-butylbenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	104%	94%
	1,2-dibromo-3-chloropropane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	100%	94%
	1,2,4-trichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	117%	122%
	Naphthalene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	112%	129%
	Hexachlorobutadiene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	103%	88%
	1,2,3-trichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	121%	117%
	CTFCB (Surr @ 20mg/l)	--	82%	104%	96%	95%	98%	103%	94%	14%	89%	84%
	BCP (Surr @ 20mg/kg)	--	87%	105%	100%	98%	104%	104%	96%	10%	111%	88%
	DCFB (Surr @ 20mg/kg)	--	75%	92%	85%	93%	88%	86%	88%	16%	109%	79%

Results expressed in mg/kg unless otherwise specified

Comments: ~~ Low surrogate recovery due to matrix interference. Confirmed by re-extraction.

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.



Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			21/6/04									
Laboratory Analysis Date			21/6/04									
<b>Method</b>	<b>Volatile Organic Compounds (VOC)</b>	<b>EQL</b>										
E016.2	trans-1,3-dichloropropene	0.5	<0.5									
	1,1,2-trichloroethane	0.5	<0.5									
	1,3-dichloropropane	0.5	<0.5									
	Chlorodibromomethane	0.5	<0.5									
	Tetrachloroethene	0.5	<0.5									
	1,2-dibromoethane	0.5	<0.5									
	Chlorobenzene	0.5	<0.5									
	1,1,1,2-tetrachloroethane	0.5	<0.5									
	Ethylbenzene	0.5	<0.5									
	m- & p-xylene	1	<1									
	Styrene	0.5	<0.5									
	Bromoform	0.5	<0.5									
	o-xylene	0.5	<0.5									
	1,1,2,2-tetrachloroethane	0.5	<0.5									
	Isopropylbenzene	0.5	<0.5									
	1,2,3-trichloropropane	0.5	<0.5									
	Bromobenzene	0.5	<0.5									
	n-propylbenzene	0.5	<0.5									
	2-chlorotoluene	0.5	<0.5									
	4-chlorotoluene	0.5	<0.5									
	1,3,5-trimethylbenzene	0.5	<0.5									
	tert-butylbenzene	0.5	<0.5									
	1,2,4-trimethylbenzene	0.5	<0.5									
	sec-butylbenzene	0.5	<0.5									
	1,3-dichlorobenzene	0.5	<0.5									
	1,4-dichlorobenzene	0.5	<0.5									
	p-isopropyltoluene	0.5	<0.5									
	1,2-dichlorobenzene	0.5	<0.5									





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Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			21/6/04									
Laboratory Analysis Date			21/6/04									
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	n-butylbenzene	0.5	<0.5									
	1,2-dibromo-3-chloropropane	0.5	<0.5									
	1,2,4-trichlorobenzene	0.5	<0.5									
	Naphthalene	0.5	<0.5									
	Hexachlorobutadiene	0.5	<0.5									
	1,2,3-trichlorobenzene	0.5	<0.5									
	CTFCB (Surr @ 20mg/l)	--	74%									
	BCP (Surr @ 20mg/kg)	--	73%									
	DCFB (Surr @ 20mg/kg)	--	77%									

Results expressed in mg/kg unless otherwise specified

Comments: ~~ Low surrogate recovery due to matrix interference. Confirmed by re-extraction.

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.



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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	--	23/6/04	21/6/04
Method	Polychlorinated Biphenyls (PCB)	EQL										
E013.2	Arochlor 1016	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Arochlor 1232	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Arochlor 1242	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Arochlor 1248	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Arochlor 1254	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	109%	123%
	Arochlor 1260	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Sum of reported PCBs	--	--	--	--	--	--	--	--	--	--	--
	DBC (Surr @ 0.2mg/kg)	--	87%	83%	85%	88%	98%	112%	82%	6%	75%	121%

Results expressed in mg/kg unless otherwise specified

Comments:

E013.2: 8-10g soil extracted with 20ml hexane/acetone (1:1). Analysis by GC/dual ECD.



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Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			21/6/04									
Laboratory Analysis Date			21/6/04									
Method	Polychlorinated Biphenyls (PCB)	EQL										
E013.2	Arochlor 1016	0.5	<0.5									
	Arochlor 1232	0.5	<0.5									
	Arochlor 1242	0.5	<0.5									
	Arochlor 1248	0.5	<0.5									
	Arochlor 1254	0.5	<0.5									
	Arochlor 1260	0.5	<0.5									
	Sum of reported PCBs	--	--									
	DBC (Surr @ 0.2mg/kg)	--	111%									

Results expressed in mg/kg unless otherwise specified

Comments:

E013.2: 8-10g soil extracted with 20ml hexane/acetone (1:1). Analysis by GC/dual ECD.



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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	--	23/6/04	23/6/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	Methyl methanesulfonate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	72%	91%
	N-nitrosodiethylamine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	79%	106%
	Ethyl methanesulfonate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	85%	109%
	Pentachloroethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	42%	106%
	Phenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	76%	113%
	Aniline	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	107%	104%
	Bis(2-chloroethyl)ether	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	99%	89%
	2-chlorophenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	39%	112%
	1,3-dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	82%	100%
	1,4-dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	85%	107%
	Benzyl alcohol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	75%	86%
	1,2-dichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	90%	120%
	2-methylphenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	99%	120%
	Bis(2-chloroisopropyl) ether	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	92%	115%
	Acetophenone	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	91%	118%
	N-nitrosopyrrolidine	1	<1	<1	<1	<1	<1	<1	<1	--	93%	121%
	N-nitrosomorpholine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	92%	109%
	3-&4-methylphenol	1	<1	<1	<1	<1	<1	<1	<1	--	73%	106%
	o-toluidine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	85%	123%
	Hexachloroethane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	82%	112%
	N-nitrosodi-n-propylamine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	54%	73%
	Nitrobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	87%	109%
	N-nitrosopiperidine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	86%	101%
	Isophorone	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	78%	97%
	2-nitrophenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	28%	102%
	2,4-dimethylphenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	89%	94%
	Bis(2-chloroethoxy) methane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	74%	95%
	2,4-dichlorophenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	25%	91%



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This report supercedes reports issued on: N/A

Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	--	23/6/04	23/6/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	1,2,4-trichlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	85%	97%
	Naphthalene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	86%	111%
	2,6-dichlorophenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	22%	108%
	4-chloroaniline	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	76%	102%
	Hexachloropropene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	63%	89%
	Hexachlorobutadiene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	90%	112%
	Dichlorvos	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	N-nitrosodi-n-butylamine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	87%	108%
	4-chloro-3-methylphenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	66%	96%
	Safrole	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	78%	103%
	2-methylnaphthalene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	86%	110%
	1,2,4,5-tetrachlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	77%	109%
	Hexachlorocyclopentadiene	2	<2	<2	<2	<2	<2	<2	<2	--	77%	24%
	2,4,6-trichlorophenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	40%	74%
	2,4,5-trichlorophenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	47%	75%
	Isosafrole	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	70%	97%
	2-chloronaphthalene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	89%	116%
	2-nitroaniline	1	<1	<1	<1	<1	<1	<1	<1	--	65%	89%
	Mevinphos (Phosdrin)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	1,4-dinitrobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	69%	101%
	Dimethyl phthalate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	83%	106%
	Acenaphthylene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	73%	95%
	2,6-dinitrotoluene	1	<1	<1	<1	<1	<1	<1	<1	--	68%	92%
	3-nitroaniline	1	<1	<1	<1	<1	<1	<1	<1	--	59%	80%
	Acenaphthene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	78%	100%
	Dibenzofuran	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	76%	98%
	4-nitrophenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Pentachlorobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	74%	105%



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This report supercedes reports issued on: N/A

Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	--	23/6/04	23/6/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	2,4-dinitrotoluene	1	<1	<1	<1	<1	<1	<1	<1	--	58%	80%
	2-naphthylamine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	57%	30%
	1-naphthylamine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	57%	30%
	2,3,4,6-tetrachlorophenol	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	39%	49%
	Fluorene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	80%	102%
	Diethylphthalate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	74%	99%
	4-chlorophenyl phenyl ether	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	74%	99%
	5-nitro-o-toluidine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	78%	102%
	4-nitroaniline	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	78%	102%
	Demeton-O	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Diphenylamine	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	74%	102%
	Azobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	78%	106%
	Ethoprop	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Naled (Dibrom)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Sulfotepp	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	4-bromophenyl phenyl ether	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	72%	97%
	Phorate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	a-BHC	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Phenacetin	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	65%	84%
	Hexachlorobenzene (HCB)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	70%	86%
	Demeton-S	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Dimethoate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	4-aminobiphenyl	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	74%	102%
	b-BHC	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Pentachlorophenol	1	<1	<1	<1	<1	<1	<1	<1	--	30%	47%
	d-BHC	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Pentachloronitrobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	65%	102%
	Phenanthrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	76%	100%



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This report supercedes reports issued on: N/A

Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	--	23/6/04	23/6/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	Anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	78%	97%
	Diazinon	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Disulfoton	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	g-BHC (Lindane)	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Carbazole	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	73%	94%
	Methyl parathion	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Heptachlor	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Ronnel	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Fenitrothion	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Di-n-butyl phthalate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	76%	107%
	Malathion	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Aldrin	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Fenthion	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Chlorpyrifos	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Parathion	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Trichloronate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Heptachlor epoxide	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Fluoranthene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	72%	96%
	trans-chlordane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Pyrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	79%	102%
	Endosulfan I	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Stirophos	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	cis-chlordane	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Prothiofos	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Profenofos	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	4,4-DDE	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Dieldrin	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	4-(dimethylamino) azobenzene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	57%	79%



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This report supercedes reports issued on: N/A

Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	--	23/6/04	23/6/04
Method	Semivolatle Organic Compounds (SVOC)	EQL										
E017.2	Endrin	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Endosulfan II	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Fensulfothion	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	4,4-DDD	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Endrin aldehyde	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Butyl benzyl phthalate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	71%	94%
	Endosulfan sulphate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	4,4-DDT	1	<1	<1	<1	<1	<1	<1	<1	--	--	--
	2-(acetyl amino) fluorene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	42%	68%
	Endrin ketone	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Benz(a)anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	74%	98%
	EPN	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Chrysene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	75%	98%
	Methoxychlor	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Bis(2-ethylhexyl) phthalate	5	<5	<5	<5	<5	<5	<5	<5	--	70%	97%
	Azinophos methyl	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Di-n-octyl phthalate	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	70%	90%
	Coumaphos	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	Benzo(b)&(k)fluoranthene	1	<1	<1	<1	<1	<1	<1	<1	--	82%	108%
	7,12-dimethylbenz(a)anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	55%	10%
	Benzo(a) pyrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	90%	115%
	3-methylcholanthrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	69%	91%
	Indeno(1,2,3-c,d)pyrene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	72%	95%
	Dibenz(a,h)anthracene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	71%	101%
	Benzo(g,h,i)perylene	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	78%	101%
	2-FP (Surr @ 5mg/kg)	--	41%	26%	##	##	53%	61%	53%	26%	20%	110%
	Phenol-d5 (Surr @ 5mg/kg)	--	98%	92%	62%	55%	96%	98%	99%	1%	79%	98%
	NB-d5 (Surr @ 5mg/kg)	--	99%	113%	103%	96%	99%	102%	105%	6%	89%	102%





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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	--	23/6/04	23/6/04
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	2-FBP (Surr @ 5mg/kg)	--	91%	100%	91%	86%	86%	95%	90%	1%	91%	105%
	TP-d14 (Surr @ 5mg/kg)	--	95%	106%	93%	83%	85%	89%	88%	8%	83%	99%

Results expressed in mg/kg unless otherwise specified

Comments: ## Percent recovery not available due to chromatographic interference from the sample.

E017.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/MS.

Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			21/6/04									
Laboratory Analysis Date			23/6/04									
<b>Method</b>	<b>Semivolatile Organic Compounds (SVOC)</b>	<b>EQL</b>										
E017.2	Methyl methanesulfonate	0.5	<0.5									
	N-nitrosodiethylamine	0.5	<0.5									
	Ethyl methanesulfonate	0.5	<0.5									
	Pentachloroethane	0.5	<0.5									
	Phenol	0.5	<0.5									
	Aniline	0.5	<0.5									
	Bis(2-chloroethyl)ether	0.5	<0.5									
	2-chlorophenol	0.5	<0.5									
	1,3-dichlorobenzene	0.5	<0.5									
	1,4-dichlorobenzene	0.5	<0.5									
	Benzyl alcohol	0.5	<0.5									
	1,2-dichlorobenzene	0.5	<0.5									
	2-methylphenol	0.5	<0.5									
	Bis(2-chloroisopropyl) ether	0.5	<0.5									
	Acetophenone	0.5	<0.5									
	N-nitrosopyrrolidine	1	<1									
	N-nitrosomorpholine	0.5	<0.5									
	3-&4-methylphenol	1	<1									
	o-toluidine	0.5	<0.5									
	Hexachloroethane	0.5	<0.5									
	N-nitrosodi-n-propylamine	0.5	<0.5									
	Nitrobenzene	0.5	<0.5									
	N-nitrosopiperidine	0.5	<0.5									
	Isophorone	0.5	<0.5									
	2-nitrophenol	0.5	<0.5									
	2,4-dimethylphenol	0.5	<0.5									
	Bis(2-chloroethoxy) methane	0.5	<0.5									
	2,4-dichlorophenol	0.5	<0.5									











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Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			21/6/04									
Laboratory Analysis Date			23/6/04									
Method	Semivolatile Organic Compounds (SVOC)	EQL										
E017.2	2-FBP (Surr @ 5mg/kg)	--	106%									
	TP-d14 (Surr @ 5mg/kg)	--	111%									

Results expressed in mg/kg unless otherwise specified

Comments: ## Percent recovery not available due to chromatographic interference from the sample.

E017.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/MS.



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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	crm
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	--	22/6/04	22/6/04
Laboratory Analysis Date			23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	--	23/6/04	22/6/04
<b>Method</b> E026.2	<b>Acid extractable mercury</b> Mercury	<b>EQL</b> 0.05	0.07	0.06	0.10	0.06	<0.05	<0.05	0.08	13%	94%	104%

Results expressed in mg/kg unless otherwise specified

Comments:

E026.2: 0.5g digested with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS.

Laboratory Identification			lcs	mb								
Sample Identification			QC	QC								
Depth (m)			--	--								
Sampling Date recorded on COC			--	--								
Laboratory Extraction (Preparation) Date			22/6/04	22/6/04								
Laboratory Analysis Date			22/6/04	22/6/04								
<b>Method</b> E026.2	<b>Acid extractable mercury</b> Mercury	<b>EQL</b> 0.05	97%	<0.05								

Results expressed in mg/kg unless otherwise specified

Comments:

E026.2: 0.5g digested with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS.





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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	crm
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	--	22/6/04	22/6/04
Laboratory Analysis Date			23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	23/6/04	--	23/6/04	22/6/04
Method	Acid extractable metals	EQL										
E022.2	Arsenic	1	2	2	2	3	2	3	2	0%	95%	87%
	Beryllium	1	1	1	<1	<1	<1	<1	1	0%	101%	87%
	Cadmium	0.1	0.2	0.2	1.2	0.6	0.4	1.1	0.3	40%	108%	94%
	Copper	2	150	140	130	130	110	140	150	0%	#	88%
	Lead	2	12	7	63	40	27	62	15	22%	92%	82%
	Molybdenum	1	24	22	44	40	36	53	30	22%	97%	72%
	Nickel	1	24	23	26	27	21	33	27	12%	#	71%
	Selenium	2	<2	<2	<2	<2	<2	<2	<2	--	93%	85%
	Silver	0.1	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.0%	77%	97%
	Zinc	5	170	190	1210	1000	530	1090	190	11%	#	85%

Results expressed in mg/kg unless otherwise specified

Comments: # Percent recovery not available due to significant background levels of analyte in sample.

E022.2: 0.5g digested in nitric/hydrochloric acid. Analysis by ICP-MS.



**Laboratory Report No:** 018320  
**Client Name:** Australian Slag Association  
**Contact Name:** Norm Clifford  
**Client Reference** Slag Samples

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This report supercedes reports issued on: N/A

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Laboratory Identification			lcs	mb								
Sample Identification			QC	QC								
Depth (m)			--	--								
Sampling Date recorded on COC			--	--								
Laboratory Extraction (Preparation) Date			22/6/04	22/6/04								
Laboratory Analysis Date			22/6/04	22/6/04								
Method	Acid extractable metals	EQL										
E022.2	Arsenic	1	86%	<1								
	Beryllium	1	92%	<1								
	Cadmium	0.1	102%	<0.1								
	Copper	2	98%	<2								
	Lead	2	104%	<2								
	Molybdenum	1	98%	<1								
	Nickel	1	98%	<1								
	Selenium	2	91%	<2								
	Silver	0.1	91%	<0.1								
	Zinc	5	97%	<5								

Results expressed in mg/kg unless otherwise specified

Comments: # Percent recovery not available due to significant background levels of analyte in sample.

E022.2: 0.5g digested in nitric/hydrochloric acid. Analysis by ICP-MS.



**Laboratory Report No:** 018320  
**Client Name:** Australian Slag Association  
**Contact Name:** Norm Clifford  
**Client Reference** Slag Samples

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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			29/6/04	29/6/04	29/6/04	29/6/04	29/6/04	29/6/04	29/6/04	--	29/6/04	29/6/04
Method	Polynuclear Aromatic Hydrocarbons	EQL										
E007.2	Benzo(a) pyrene	0.05	<0.05	<0.05	0.77	<0.05	<0.05	<0.05	<0.05	--	117%	119%
	2-FBP (Surr @ 0.5mg/kg)	--	98%	93%	84%	86%	91%	82%	93%	5%	87%	73%
	TP-d14 (Surr @ 0.5mg/kg)	--	70%	71%	72%	76%	70%	89%	71%	1%	70%	84%

Results expressed in mg/kg unless otherwise specified

Comments:

E007.2: 8-10g soil extracted with 20ml DCM/acetone (8:2). Analysis by GC/MS.



**Laboratory Report No:** 018320  
**Client Name:** Australian Slag Association  
**Contact Name:** Norm Clifford  
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Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			21/6/04									
Laboratory Analysis Date			29/6/04									
Method	Polynuclear Aromatic Hydrocarbons	EQL										
E007.2	Benzo(a) pyrene	0.05	<0.05									
	2-FBP (Surr @ 0.5mg/kg)	--	80%									
	TP-d14 (Surr @ 0.5mg/kg)	--	73%									

Results expressed in mg/kg unless otherwise specified

Comments:

E007.2: 8-10g soil extracted with 20ml DCM/acetone (8:2). Analysis by GC/MS.



**Laboratory Report No:** 018320  
**Client Name:** Australian Slag Association  
**Contact Name:** Norm Clifford  
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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	--	22/6/04	22/6/04
Laboratory Analysis Date			24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	--	24/6/04	24/6/04
<b>Method</b>	<b>Chromium-VI</b>	<b>EQL</b>										
E043.2	Hexavalent Chromium	1	<1	<1	<1	4	2	2	<1	--	~~	94%
	Trivalent Chromium	1	4250	3870	4680	4780	4240	3900	3910	8%	--	--

Results expressed in mg/kg unless otherwise specified

Comments: ~~Spike recovery not available due to suspected reducing nature of the sample.

E043.2: Alkaline digestion followed by determination by colour.

Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			22/6/04									
Laboratory Analysis Date			24/6/04									
<b>Method</b>	<b>Chromium-VI</b>	<b>EQL</b>										
E043.2	Hexavalent Chromium	1	<1									

Results expressed in mg/kg unless otherwise specified

Comments: ~~Spike recovery not available due to suspected reducing nature of the sample.

E043.2: Alkaline digestion followed by determination by colour.



**Laboratory Report No:** 018320  
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**Contact Name:** Norm Clifford  
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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	--	22/6/04	22/6/04
Laboratory Analysis Date			22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	--	22/6/04	22/6/04
<b>Method</b>	<b>Fluoride</b>	<b>EQL</b>										
E034.2	Fluoride	1	*<10mg/kg	<1	<1	<1	*<10mg/kg	<1	*<10mg/kg	--	84%	110%

Results expressed in mg/kg unless otherwise specified

Comments: \* EQL increased due to sample matrix interference.

E034.2: 1:5 water extraction. Determined by FIA-Ion Selective Electrode.

Laboratory Identification			mb								
Sample Identification			QC								
Depth (m)			--								
Sampling Date recorded on COC			--								
Laboratory Extraction (Preparation) Date			22/6/04								
Laboratory Analysis Date			22/6/04								
<b>Method</b>	<b>Fluoride</b>	<b>EQL</b>									
E034.2	Fluoride	1	<1								

Results expressed in mg/kg unless otherwise specified

Comments: \* EQL increased due to sample matrix interference.

E034.2: 1:5 water extraction. Determined by FIA-Ion Selective Electrode.



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**Contact Name:** Norm Clifford  
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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	--	22/6/04	22/6/04
Laboratory Analysis Date			30/6/04	30/6/04	30/6/04	30/6/04	30/6/04	30/6/04	30/6/04	--	30/6/04	23/6/04
<b>Method</b>	<b>Total Cyanide</b>	<b>EQL</b>										
E040.2	Total Cyanide	1	<1	<1	<1	<1	<1	<1	<1	--	79%	94%

Results expressed in mg/kg unless otherwise specified

Comments: -

E040.2: Caustic extract followed by strong acid distillation. Analysis by colour.

Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			22/6/04									
Laboratory Analysis Date			23/6/04									
<b>Method</b>	<b>Total Cyanide</b>	<b>EQL</b>										
E040.2	Total Cyanide	1	<1									

Results expressed in mg/kg unless otherwise specified

Comments: -

E040.2: Caustic extract followed by strong acid distillation. Analysis by colour.



**Laboratory Report No:** 018320  
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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r		
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC		
Depth (m)			--	--	--	--	--	--	--	--		
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--		
Laboratory Extraction (Preparation) Date			22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	--		
Laboratory Analysis Date			30/6/04	30/6/04	30/6/04	30/6/04	30/6/04	30/6/04	30/6/04	--		
<b>Method</b>	<b>CN Amenable to Chlorination</b>	<b>EQL</b>										
E040.1	Cyanide	5	<5	<5	<5	<5	<5	<5	<5	--		

Results expressed in mg/kg unless otherwise specified

Comments:

E040.1: Strong acid distillate of treated and untreated sample extract collected in sodium hydroxide. Analysis by colour and calculation.





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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r	24337s	lcs
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--	--	--
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--	21/6/04	21/6/04
Laboratory Analysis Date			24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	24/6/04	--	24/6/04	24/6/04
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	Vinyl chloride CTFCB (Surr @ 20mg/l)	0.1 --	<0.1 75%	<0.1 71%	<0.1 72%	<0.1 70%	<0.1 72%	<0.1 81%	<0.1 78%	-- 4%	104% 76%	110% 70%

Results expressed in mg/kg unless otherwise specified

Comments:

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.

Laboratory Identification			mb									
Sample Identification			QC									
Depth (m)			--									
Sampling Date recorded on COC			--									
Laboratory Extraction (Preparation) Date			21/6/04									
Laboratory Analysis Date			24/6/04									
Method	Volatile Organic Compounds (VOC)	EQL										
E016.2	Vinyl chloride CTFCB (Surr @ 20mg/l)	0.1 --	<0.1 72%									

Results expressed in mg/kg unless otherwise specified

Comments:

E016.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/MS. (NB) Acetone and Dichloromethane not reported unless requested.



**Laboratory Report No:** 018320  
**Client Name:** Australian Slag Association  
**Contact Name:** Norm Clifford  
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Laboratory Identification			24336	24337	24338	24339	24340	24341	24336d	24336r		
Sample Identification			1500 A/04	1500 B/04	1500 C/04	1501 A/04	1501 B/04	1501 C/04	QC	QC		
Depth (m)			--	--	--	--	--	--	--	--		
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/03	4/5/04	24/3/03	3/7/03	--	--		
Laboratory Extraction (Preparation) Date			21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	21/6/04	--		
Laboratory Analysis Date			22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	22/6/04	--		
<b>Method</b>	<b>Moisture</b>	<b>EQL</b>										
E005.2	Moisture	--	2	3	3	3	2	2	3	40%		

Results expressed in % w/w unless otherwise specified

Comments:

E005.2: Moisture by gravimetric analysis. Results are in % w/w.



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No. 13542

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## CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

### FINAL CERTIFICATE OF ANALYSIS

**Laboratory Report No:** 018652  
**Client Name:** Australian Slag Association  
**Client Reference:** Slag samples-additional request  
**Contact Name:** Norm Clifford  
**Chain of Custody No:** na  
**Sample Matrix:** SOIL

Cover Page 1 of 3  
plus Sample Results

Date Received: 9/7/04  
Date Reported: 21/7/04

This Final Certificate of Analysis consists of sample results, DQI's, method descriptions, laboratory definitions, and internationally recognised NATA accreditation and endorsement. The DQO compliance relates specifically to QA/QC results as performed as part of the sample analysis, and may provide an indication of sample result quality. Transfer of report ownership from Labmark to the client shall only occur once full & final payment has been settled and verified. All report copies may be retracted where full payment has not occurred within the agreed settlement period.

#### QUALITY ASSURANCE CRITERIA

**Accuracy:** matrix spike: 1 in first 5-20, then 1 every 20 samples  
lcs, crm, method: 1 per analytical batch  
surrogate spike: addition per target organic method

**Precision:** laboratory duplicate: 1 in first 5-10, then 1 every 10 samples  
laboratory triplicate: re-extracted & reported when duplicate RPD values exceed acceptance criteria

**Holding Times:** soils, waters: Refer to LabMark Preservation & THT table  
VOC's 14 days water / soil  
VAC's 7 days water or 14 days acidified  
VAC's 14 days soil  
SVOC's 7 days water, 14 days soil  
Pesticides 7 days water, 14 days soil  
Metals 6 months general elements  
Mercury 28 days

**Confirmation:** target organic analysis: GC/MS, or confirmatory column

**Sensitivity:** EQL: Typically 2-5 x Method Detection Limit (MDL)

#### QUALITY CONTROL

##### GLOBAL ACCEPTANCE CRITERIA (GAC)

**Accuracy:** spike, lcs, crm general analytes 70% - 130% recovery  
surrogate: phenol analytes 50% - 130% recovery  
organophosphorous pesticide analytes 60% - 130% recovery

anion/cation bal: +/- 10% (0-3 meq/l),  
+/- 5% (>3 meq/l)

**Precision:** method blank: not detected >95% of the reported EQL

duplicate lab 0-30% (>10xEQL), 0-75% (5-10xEQL)  
RPD (metals): 0-100% (<5xEQL)

duplicate lab 0-50% (>10xEQL), 0-75% (5-10xEQL)  
RPD: 0-100% (<5xEQL)

#### QUALITY CONTROL

##### ANALYTE SPECIFIC ACCEPTANCE CRITERIA (ASAC)

**Accuracy:** spike, lcs, crm analyte specific recovery data  
surrogate: <3xstd of historical mean

**Uncertainty:** spike, lcs: measurement calculated from historical analyte specific control charts

#### RESULT ANNOTATION

DQO:	Data Quality Objective	s:	matrix spike recovery	p:	pending
DQI:	Data Quality Indicator	d:	laboratory duplicate	lcs:	laboratory control sample
EQL:	Estimated Quantitation Limit	t:	laboratory triplicate	crm:	certified reference material
- - :	not applicable	r:	RPD relative % difference	mb:	method blank

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CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

Laboratory Report: 018652

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## NEPC GUIDELINE COMPLIANCE - DQO

### 1. GENERAL

---

- A. Results relate specifically to samples as received. Sample results are not corrected for matrix spike, lcs, or surrogate recovery data.
- B. EQL's are matrix dependant and may be increased due to sample dilution or matrix interference.
- C. Laboratory QA/QC samples are specific to this project.
- D. Inter-laboratory proficiency results are available upon request. NATA accreditation details available at [www.nata.asn.au](http://www.nata.asn.au).
- E. VOC spikes & surrogates added to samples during extraction, SVOC spikes & surrogates added prior to extraction.
- F. Recovery data outside GAC limits shall be investigated and compared to ASAC (historical mean +/- 3sd). If recovery data <20%, then the relevant results for that compound are considered not reliable.
- G. Recovery data (ms, surrogate, crm, lcs) outside ASAC limits shall initiate an investigative action. Anomalous QC data is examined in conjunction with other QC samples and a final decision whether to accept or reject results is provided by the professional judgement of the senior analyst. The USEPA-CLP National Functional Guidelines are referred to for specific recommendations.
- H. Extraction (preparation) date refers to the date that sample preparation was initiated. Note that certain methods not requiring sample preparation (eg. VOCs in water, etc) may report a common extraction and analysis date.
- I. LabMark shall maintain an official copy of this Certificate of Analysis for all traceable reference purposes.

### 2. CHAIN OF CUSTODY (COC) & SAMPLE RECEIPT NOTICE (SRN) REQUIREMENTS

---

- A. SRN issued to client upon sample receipt & login verification.
- B. Preservation & sampling date details specified on COC and SRN, unless noted.
- C. Sample Integrity & Validated Time of Sample Receipt (VTSR) Holding Times verified (preservation may extend holding time, refer to preservation chart).

### 3. NATA ACCREDITED METHODS

---

- A. NATA accreditation held for each method and sample matrix type reported, unless noted below.
- B. NATA accredited in-house laboratory methods are referenced from NEPC, ASTM, modified USEPA / APHA documents.
- C. Subcontracted analyses:



CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

**Laboratory Report: 018652**

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**4. QA/QC FREQUENCY COMPLIANCE TABLE SPECIFIC TO THIS REPORT**

Matrix: **SOIL-LEACHATE**

Page:	Method:	Totals:	#d	%d-ratio	#t	#s	%s-ratio
1	TCLP Preparation	6	0	0%	0	0	0%
2	TCLP metals	6	1	17%	0	1	17%

NEPC guideline for laboratory duplicates is 1 in 10 samples (10%).  
USEPA guideline for laboratory matrix spikes is 1 in 20 samples (5%).

**5. THERE ARE NO ADDITIONAL COMMENTS SPECIFIC TO THIS REPORT**

Laboratory QA/QC Self Assessment data shall relate specifically to this report, and may only provide an indication of sample result quality. Acceptance of this Self Assessment certificate does not preclude any requirement for a QA/QC review by a accredited contaminated site EPA auditor, when and wherever necessary. Laboratory QA/QC Self Assessment references available upon request.



**Laboratory Report No:** 018652  
**Client Name:** Australian Slag Association  
**Contact Name:** Norm Clifford  
**Client Reference** Slag samples-additional request

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**Date:** 21/7/04

This report supercedes reports issued on: N/A

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**Certificate**  
of Analysis



Laboratory Identification			27703	27704	27705	27706	27707	27708				
Sample Identification			1500A/04	1500B/04	1500C/04	1501A/04	1501B/04	1501C/04				
Depth (m)			--	--	--	--	--	--				
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/04	4/5/04	24/3/04	3/7/04				
Laboratory Extraction (Preparation) Date			12/7/04	12/7/04	12/7/04	12/7/04	12/7/04	12/7/04				
Laboratory Analysis Date			--	--	--	--	--	--				
Method	TCLP Preparation	EQL										
E019.2	TCLP Fluid No.	--	1	1	1	1	1	1				
	Initial pH (pH units)	--	10.6	10.9	10.6	10.8	10.4	10.1				
	pH after HCl (pH units)	--	1.6	1.6	1.7	1.6	1.6	1.6				
	Final pH (pH units)	--	5.2	5.3	5.2	5.3	5.2	5.3				

Results expressed in pH units unless otherwise specified

Comments:

E019.2: Soil leached for 18 hours with fluid as specified above . Refer to relevant water method for results.



**Laboratory Report No:** 018652  
**Client Name:** Australian Slag Association  
**Contact Name:** Norm Clifford  
**Client Reference** Slag samples-additional request

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**Date:** 21/7/04

This report supercedes reports issued on: N/A

Final  
**Certificate**  
of Analysis



Laboratory Identification			27703	27704	27705	27706	27707	27708	27703d	27703r	27704s	lcs
Sample Identification			1500A/04	1500B/04	1500C/04	1501A/04	1501B/04	1501C/04	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			11/6/04	25/5/04	26/6/04	4/5/04	24/3/04	3/7/04	--	--	--	--
Laboratory Extraction (Preparation) Date			13/7/04	13/7/04	13/7/04	13/7/04	13/7/04	13/7/04	13/7/04	--	13/7/04	13/7/04
Laboratory Analysis Date			13/7/04	14/7/04	14/7/04	14/7/04	14/7/04	14/7/04	14/7/04	--	14/7/04	13/7/04
Method	TCLP metals	EQL										
E022.1	Copper	50	<50	<50	<50	<50	<50	<50	<50	--	97%	106%
	Lead	10	<10	<10	<10	<10	<10	<10	<10	--	93%	95%
	Molybdenum	10	20	20	40	30	30	30	20	0%	107%	106%
	Nickel	20	20	20	20	20	20	20	20	0%	98%	108%
	Zinc	50	260	110	2200	1300	510	2400	250	4%	89%	103%

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.



**Laboratory Report No:** 018652  
**Client Name:** Australian Slag Association  
**Contact Name:** Norm Clifford  
**Client Reference:** Slag samples-additional request

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plus cover page  
**Date:** 21/7/04

This report supercedes reports issued on: N/A

Final  
**Certificate**  
of Analysis



Laboratory Identification			mb								
Sample Identification			QC								
Depth (m)			--								
Sampling Date recorded on COC			--								
Laboratory Extraction (Preparation) Date			13/7/04								
Laboratory Analysis Date			13/7/04								
Method	TCLP metals	EQL									
E022.1	Copper	50	<50								
	Lead	10	<10								
	Molybdenum	10	<10								
	Nickel	20	<20								
	Zinc	50	<50								

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.





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No. 13542

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## CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

### FINAL CERTIFICATE OF ANALYSIS

**Laboratory Report No:** 018840  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Client Reference:** Slag Products-additional request  
**Contact Name:** Paul Theodossiadis  
**Chain of Custody No:** na  
**Sample Matrix:** SOIL

Cover Page 1 of 3  
plus Sample Results

Date Received: 23/7/04  
Date Reported: 30/7/04

This Final Certificate of Analysis consists of sample results, DQI's, method descriptions, laboratory definitions, and internationally recognised NATA accreditation and endorsement. The DQO compliance relates specifically to QA/QC results as performed as part of the sample analysis, and may provide an indication of sample result quality. Transfer of report ownership from Labmark to the client shall only occur once full & final payment has been settled and verified. All report copies may be retracted where full payment has not occurred within the agreed settlement period.

#### QUALITY ASSURANCE CRITERIA

**Accuracy:** matrix spike: 1 in first 5-20, then 1 every 20 samples  
lcs, crm, method: 1 per analytical batch  
surrogate spike: addition per target organic method

**Precision:** laboratory duplicate: 1 in first 5-10, then 1 every 10 samples  
laboratory triplicate: re-extracted & reported when duplicate RPD values exceed acceptance criteria

**Holding Times:** soils, waters: Refer to LabMark Preservation & THT table  
VOC's 14 days water / soil  
VAC's 7 days water or 14 days acidified  
VAC's 14 days soil  
SVOC's 7 days water, 14 days soil  
Pesticides 7 days water, 14 days soil  
Metals 6 months general elements  
Mercury 28 days

**Confirmation:** target organic analysis: GC/MS, or confirmatory column

**Sensitivity:** EQL: Typically 2-5 x Method Detection Limit (MDL)

#### QUALITY CONTROL GLOBAL ACCEPTANCE CRITERIA (GAC)

**Accuracy:** spike, lcs, crm general analytes 70% - 130% recovery  
surrogate: phenol analytes 50% - 130% recovery  
organophosphorous pesticide analytes 60% - 130% recovery

anion/cation bal: +/- 10% (0-3 meq/l),  
+/- 5% (>3 meq/l)

**Precision:** method blank: not detected >95% of the reported EQL

duplicate lab 0-30% (>10xEQL), 0-75% (5-10xEQL)  
RPD (metals): 0-100% (<5xEQL)

duplicate lab 0-50% (>10xEQL), 0-75% (5-10xEQL)  
RPD: 0-100% (<5xEQL)

#### QUALITY CONTROL ANALYTE SPECIFIC ACCEPTANCE CRITERIA (ASAC)

**Accuracy:** spike, lcs, crm analyte specific recovery data  
surrogate: <3xstd of historical mean

**Uncertainty:** spike, lcs: measurement calculated from historical analyte specific control charts

#### RESULT ANNOTATION

DQO:	Data Quality Objective	s:	matrix spike recovery	p:	pending
DQI:	Data Quality Indicator	d:	laboratory duplicate	lcs:	laboratory control sample
EQL:	Estimated Quantitation Limit	t:	laboratory triplicate	crm:	certified reference material
- - :	not applicable	r:	RPD relative % difference	mb:	method blank

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## NEPC GUIDELINE COMPLIANCE - DQO

### 1. GENERAL

- A. Results relate specifically to samples as received. Sample results are not corrected for matrix spike, lcs, or surrogate recovery data.
- B. EQL's are matrix dependant and may be increased due to sample dilution or matrix interference.
- C. Laboratory QA/QC samples are specific to this project.
- D. Inter-laboratory proficiency results are available upon request. NATA accreditation details available at [www.nata.asn.au](http://www.nata.asn.au).
- E. VOC spikes & surrogates added to samples during extraction, SVOC spikes & surrogates added prior to extraction.
- F. Recovery data outside GAC limits shall be investigated and compared to ASAC (historical mean +/- 3sd). If recovery data <20%, then the relevant results for that compound are considered not reliable.
- G. Recovery data (ms, surrogate, crm, lcs) outside ASAC limits shall initiate an investigative action. Anomalous QC data is examined in conjunction with other QC samples and a final decision whether to accept or reject results is provided by the professional judgement of the senior analyst. The USEPA-CLP National Functional Guidelines are referred to for specific recommendations.
- H. Extraction (preparation) date refers to the date that sample preparation was initiated. Note that certain methods not requiring sample preparation (eg. VOCs in water, etc) may report a common extraction and analysis date.
- I. LabMark shall maintain an official copy of this Certificate of Analysis for all traceable reference purposes.

### 2. CHAIN OF CUSTODY (COC) & SAMPLE RECEIPT NOTICE (SRN) REQUIREMENTS

- A. SRN issued to client upon sample receipt & login verification.
- B. Preservation & sampling date details specified on COC and SRN, unless noted.
- C. Sample Integrity & Validated Time of Sample Receipt (VTSR) Holding Times verified (preservation may extend holding time, refer to preservation chart).

### 3. NATA ACCREDITED METHODS

- A. NATA accreditation held for each method and sample matrix type reported, unless noted below.
- B. NATA accredited in-house laboratory methods are referenced from NEPC, ASTM, modified USEPA / APHA documents.
- C. Subcontracted analyses:

**Laboratory Report: 018840****CUSTOMER CENTRIC - ANALYTICAL CHEMISTS**

Cover Page 3 of 3

**4. QA/QC FREQUENCY COMPLIANCE TABLE SPECIFIC TO THIS REPORT**Matrix: **SOIL-LEACHATE**

Page:	Method:	Totals:	#d	%d-ratio	#t	#s	%s-ratio
1	TCLP Preparation	4	0	0%	0	0	0%
2	TCLP lead	3	0	0%	0	0	0%
3	TCLP PAHs	3	0	0%	0	0	0%

NEPC guideline for laboratory duplicates is 1 in 10 samples (10%).  
USEPA guideline for laboratory matrix spikes is 1 in 20 samples (5%).

**5. THERE ARE NO ADDITIONAL COMMENTS SPECIFIC TO THIS REPORT**

Laboratory QA/QC Self Assessment data shall relate specifically to this report, and may only provide an indication of sample result quality. Acceptance of this Self Assessment certificate does not preclude any requirement for a QA/QC review by a accredited contaminated site EPA auditor, when and wherever necessary. Laboratory QA/QC Self Assessment references available upon request.



**Laboratory Report No:** 018840  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products-additional request

**Page:** 1 of 3  
plus cover page  
**Date:** 30/7/04

This report supercedes reports issued on: N/A

Final  
**Certificate**  
of Analysis



Laboratory Identification			29550	29551	29552	29553						
Sample Identification			1482B/04	1482C/04	1483C/04	1484C/04						
Depth (m)			--	--	--	--						
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	22/4/04						
Laboratory Extraction (Preparation) Date			27/7/04	27/7/04	27/7/04	27/7/04						
Laboratory Analysis Date			--	--	--	--						
Method	TCLP Preparation	EQL										
E019.2	TCLP Fluid No.	--	2	1	2	2						
	Initial pH (pH units)	--	12.0	10.1	9.5	9.4						
	pH after HCl (pH units)	--	11.1	4.5	5.4	5.1						
	Final pH (pH units)	--	7.5	7.4	6.0	5.9						

Results expressed in pH units unless otherwise specified

Comments:

E019.2: Soil leached for 18 hours with fluid as specified above . Refer to relevant water method for results.



**Laboratory Report No:** 018840  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products-additional request

**Page:** 2 of 3  
plus cover page  
**Date:** 30/7/04

This report supercedes reports issued on: N/A

Final  
**Certificate**  
of Analysis



Laboratory Identification			29551	29552	29553	lcs	mb					
Sample Identification			1482C/04	1483C/04	1484C/04	QC	QC					
Depth (m)			--	--	--	--	--					
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	--	--					
Laboratory Extraction (Preparation) Date			28/7/04	28/7/04	28/7/04	28/7/04	28/7/04					
Laboratory Analysis Date			30/7/04	30/7/04	30/7/04	30/7/04	30/7/04					
<b>Method</b>	<b>TCLP lead</b>	<b>EQL</b>										
E022.1	Lead	10	<10	<10	<10	84%	<10					

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: 25mL digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results expressed as in the leachate.



**Laboratory Report No:** 018840  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Contact Name:** Paul Theodossiadis  
**Client Reference** Slag Products-additional request

**Page:** 3 of 3  
plus cover page  
**Date:** 30/7/04

This report supercedes reports issued on: N/A

Final  
**Certificate**  
of Analysis



Laboratory Identification			29550	29552	29553	lcs	mb					
Sample Identification			1482B/04	1483C/04	1484C/04	QC	QC					
Depth (m)			--	--	--	--	--					
Sampling Date recorded on COC			22/4/04	22/4/04	22/4/04	--	--					
Laboratory Extraction (Preparation) Date			28/7/04	28/7/04	28/7/04	28/7/04	28/7/04					
Laboratory Analysis Date			30/7/04	30/7/04	30/7/04	29/7/04	29/7/04					
Method	TCLP PAHs	EQL										
E007.1	Benzo(a) pyrene	2	<2	<2	<2	80%	<2					
	2-FBP (Surr @ 250ug/l)	--	70%	87%	78%	96%	87%					
	TP-d14 (Surr @ 250ug/l)	--	97%	101%	96%	88%	95%					

Results expressed in ug/l unless otherwise specified

Comments:

E007.1: Triple extraction with DCM. Analysis by GC/MS. Results expressed as in the leachate.



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No. 13542

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APLAC

CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

Quarantine Facility NO356

AQIS

## FINAL CERTIFICATE OF ANALYSIS - ENVIRONMENTAL DIVISION

**Laboratory Report No:** 019650  
**Client Name:** Australian Steel Mill Services Pty. Ltd  
**Client Reference:** Slag and Dust samples  
**Contact Name:** Craig Heidrich  
**Chain of Custody No:** na  
**Sample Matrix:** SOIL

Cover Page 1 of 3  
plus Sample Results

Date Received: 30/9/04  
Date Reported: 12/10/04

This Final Certificate of Analysis consists of sample results, DQI's, method descriptions, laboratory definitions, and internationally recognised NATA accreditation and endorsement. The DQO compliance relates specifically to QA/QC results as performed as part of the sample analysis, and may provide an indication of sample result quality. Transfer of report ownership from Labmark to the client shall only occur once full & final payment has been settled and verified. All report copies may be retracted where full payment has not occurred within the agreed settlement period.

### QUALITY ASSURANCE CRITERIA

**Accuracy:** matrix spike: 1 in first 5-20, then 1 every 20 samples  
lcs, crm, method: 1 per analytical batch  
surrogate spike: addition per target organic method

**Precision:** laboratory duplicate: 1 in first 5-10, then 1 every 10 samples  
laboratory triplicate: re-extracted & reported when duplicate RPD values exceed acceptance criteria

**Holding Times:** soils, waters: Refer to LabMark Preservation & THT table  
VOC's 14 days water / soil  
VAC's 7 days water or 14 days acidified  
VAC's 14 days soil  
SVOC's 7 days water, 14 days soil  
Pesticides 7 days water, 14 days soil  
Metals 6 months general elements  
Mercury 28 days

**Confirmation:** target organic analysis: GC/MS, or confirmatory column

**Sensitivity:** EQL: Typically 2-5 x Method Detection Limit (MDL)

### QUALITY CONTROL

#### GLOBAL ACCEPTANCE CRITERIA (GAC)

**Accuracy:** spike, lcs, crm general analytes 70% - 130% recovery  
surrogate: phenol analytes 50% - 130% recovery  
organophosphorous pesticide analytes 60% - 130% recovery

anion/cation bal: +/- 10% (0-3 meq/l),  
+/- 5% (>3 meq/l)

**Precision:** method blank: not detected >95% of the reported EQL

duplicate lab 0-30% (>10xEQL), 0-75% (5-10xEQL)  
RPD (metals): 0-100% (<5xEQL)

duplicate lab 0-50% (>10xEQL), 0-75% (5-10xEQL)  
RPD: 0-100% (<5xEQL)

### QUALITY CONTROL

#### ANALYTE SPECIFIC ACCEPTANCE CRITERIA (ASAC)

**Accuracy:** spike, lcs, crm analyte specific recovery data  
surrogate: <3xsd of historical mean

**Uncertainty:** spike, lcs: measurement calculated from historical analyte specific control charts

### RESULT ANNOTATION

DQO:	Data Quality Objective	s:	matrix spike recovery	p:	pending
DQI:	Data Quality Indicator	d:	laboratory duplicate	lcs:	laboratory control sample
EQL:	Estimated Quantitation Limit	t:	laboratory triplicate	crm:	certified reference material
- - :	not applicable	r:	RPD relative % difference	mb:	method blank

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## NEPC GUIDELINE COMPLIANCE - DQO

### 1. GENERAL

---

- A. Results relate specifically to samples as received. Sample results are not corrected for matrix spike, lcs, or surrogate recovery data.
- B. EQL's are matrix dependant and may be increased due to sample dilution or matrix interference.
- C. Laboratory QA/QC samples are specific to this project.
- D. Inter-laboratory proficiency results are available upon request. NATA accreditation details available at [www.nata.asn.au](http://www.nata.asn.au).
- E. VOC spikes & surrogates added to samples during extraction, SVOC spikes & surrogates added prior to extraction.
- F. Recovery data outside GAC limits shall be investigated and compared to ASAC (historical mean +/- 3sd). If recovery data <20%, then the relevant results for that compound are considered not reliable.
- G. Recovery data (ms, surrogate, crm, lcs) outside ASAC limits shall initiate an investigative action. Anomalous QC data is examined in conjunction with other QC samples and a final decision whether to accept or reject results is provided by the professional judgement of the senior analyst. The USEPA-CLP National Functional Guidelines are referred to for specific recommendations.
- H. Extraction (preparation) date refers to the date that sample preparation was initiated. Note that certain methods not requiring sample preparation (eg. VOCs in water, etc) may report a common extraction and analysis date.
- I. LabMark shall maintain an official copy of this Certificate of Analysis for all traceable reference purposes.

### 2. CHAIN OF CUSTODY (COC) & SAMPLE RECEIPT NOTICE (SRN) REQUIREMENTS

---

- A. SRN issued to client upon sample receipt & login verification.
- B. Preservation & sampling date details specified on COC and SRN, unless noted.
- C. Sample Integrity & Validated Time of Sample Receipt (VTSR) Holding Times verified (preservation may extend holding time, refer to preservation chart).

### 3. NATA ACCREDITED METHODS

---

- A. NATA accreditation held for each method and sample matrix type reported, unless noted below.
- B. NATA accredited in-house laboratory methods are referenced from NEPC, ASTM, modified USEPA / APHA documents.
- C. Subcontracted analyses:





## Laboratory Report: 019650

CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

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### 4. QA/QC FREQUENCY COMPLIANCE TABLE SPECIFIC TO THIS REPORT

Matrix: **SOIL-LEACHATE**

Page:	Method:	Totals:	#d	%d-ratio	#t	#s	%s-ratio
1	TCLP Preparation	38	0	0%	0	0	0%
5	TCLP metals	38	4	11%	0	2	5%

NEPC guideline for laboratory duplicates is 1 in 10 samples (10%).  
USEPA guideline for laboratory matrix spikes is 1 in 20 samples (5%).

### 5. ADDITIONAL COMMENTS SPECIFIC TO THIS REPORT

A. Samples lab # 37767-37776 tested outside THT, refer to SRN comment.

Laboratory QA/QC Self Assessment data shall relate specifically to this report, and may only provide an indication of sample result quality. Acceptance of this Self Assessment certificate does not preclude any requirement for a QA/QC review by a accredited contaminated site EPA auditor, when and wherever necessary. Laboratory QA/QC Self Assessment references available upon request.



**Laboratory Report No:** 019650  
**Client Name:** Australian Slag Association  
**Contact Name:** Craig Heidrich  
**Client Reference** Slag and Dust samples

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plus cover page  
**Date:** 12/10/04  
This report supercedes reports issued on: N/A

Final  
**Certificate**  
of Analysis



Laboratory Identification			37740	37741	37742	37743	37744	37745	37746	37747	37748	37749
Sample Identification			3735/04A	3735/04B	3735/04D	3735/04E	3735/04F	3735/04G	3735/04H	3735/04I	3735/04J	3736/04A
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04
Laboratory Extraction (Preparation) Date			5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04
Laboratory Analysis Date			--	--	--	--	--	--	--	--	--	--
Method	TCLP Preparation	EQL										
E019.2	TCLP Fluid No.	--	1	1	1	1	1	1	1	1	1	1
	Initial pH (pH units)	--	8.9	9.8	9.6	10.1	9.8	9.2	9.2	9.0	9.8	10.7
	pH after HCl (pH units)	--	2.1	2.1	2.4	4.1	2.2	2.2	2.1	2.0	2.0	3.6
	Final pH (pH units)	--	5.5	5.5	5.5	5.7	5.6	5.5	5.4	5.3	5.6	7.8

Results expressed in pH units unless otherwise specified

Comments:

E019.2: Soil leached for 18 hours with fluid as specified above . Refer to relevant water method for results.



**Laboratory Report No:** 019650  
**Client Name:** Australian Slag Association  
**Contact Name:** Craig Heidrich  
**Client Reference** Slag and Dust samples

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plus cover page  
**Date:** 12/10/04

This report supercedes reports issued on: N/A

Final  
**Certificate**  
of Analysis



Laboratory Identification			37750	37751	37752	37753	37754	37755	37756	37757	37758	37759
Sample Identification			3736/04B	3736/04C	3736/04D	3737/04A	3737/04B	3737/04C	3737/04D	3737/04E	3737/04F	3737/04G
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			28/9/04	28/9/04	28/9/04	28/3/04	28/3/04	28/3/04	28/3/04	28/3/04	28/3/04	28/3/04
Laboratory Extraction (Preparation) Date			5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04
Laboratory Analysis Date			--	--	--	--	--	--	--	--	--	--
<b>Method</b>	<b>TCLP Preparation</b>	<b>EQL</b>										
E019.2	TCLP Fluid No.	--	1	1	1	1	1	1	1	1	1	1
	Initial pH (pH units)	--	10.5	10.2	10.6	9.3	9.5	9.5	9.4	9.5	9.4	9.3
	pH after HCl (pH units)	--	4.0	2.3	3.7	3.0	2.3	2.3	2.2	2.2	3.0	2.4
	Final pH (pH units)	--	8.0	6.8	7.7	6.5	6.3	6.4	6.4	6.4	6.1	6.2

Results expressed in pH units unless otherwise specified

Comments:

E019.2: Soil leached for 18 hours with fluid as specified above . Refer to relevant water method for results.



**Laboratory Report No:** 019650  
**Client Name:** Australian Slag Association  
**Contact Name:** Craig Heidrich  
**Client Reference** Slag and Dust samples

**Page:** 3 of 9  
plus cover page  
**Date:** 12/10/04

This report supercedes reports issued on: N/A

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**Certificate**  
of Analysis



Laboratory Identification			37760	37761	37762	37763	37764	37765	37766	37767	37768	37769
Sample Identification			3737/04H	3737/04I	3737/04J	3738/04A	3738/04B	3738/04C	3738/04D	3739/04A	3739/04B	3739/04C
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			28/3/04	28/3/04	28/3/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/03	28/9/03	28/9/03
Laboratory Extraction (Preparation) Date			5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04
Laboratory Analysis Date			--	--	--	--	--	--	--	--	--	--
<b>Method</b>	<b>TCLP Preparation</b>	<b>EQL</b>										
E019.2	TCLP Fluid No.	--	1	1	1	1	1	1	1	1	1	1
	Initial pH (pH units)	--	9.3	9.5	9.4	10.8	10.8	11.2	10.7	10.9	10.8	10.6
	pH after HCl (pH units)	--	2.3	2.2	2.2	2.5	3.7	3.8	2.3	4.5	3.5	3.8
	Final pH (pH units)	--	6.3	6.1	6.3	8.3	8.0	9.6	8.2	8.6	8.4	8.5

Results expressed in pH units unless otherwise specified

Comments:

E019.2: Soil leached for 18 hours with fluid as specified above . Refer to relevant water method for results.



**Laboratory Report No:** 019650  
**Client Name:** Australian Slag Association  
**Contact Name:** Craig Heidrich  
**Client Reference** Slag and Dust samples

**Page:** 4 of 9  
plus cover page  
**Date:** 12/10/04

This report supercedes reports issued on: N/A

Final  
**Certificate**  
of Analysis



Laboratory Identification			37770	37771	37772	37773	37774	37775	37776	37777		
Sample Identification			3739/04D	3739/04E	3739/04F	3739/04G	3739/04H	3739/04I	3739/04J	3735/04C		
Depth (m)			--	--	--	--	--	--	--	--		
Sampling Date recorded on COC			28/9/03	28/9/03	28/9/03	28/9/03	28/9/03	28/9/03	28/9/03	28/9/04		
Laboratory Extraction (Preparation) Date			5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04	5/10/04		
Laboratory Analysis Date			--	--	--	--	--	--	--	--		
<b>Method</b>	<b>TCLP Preparation</b>	<b>EQL</b>										
E019.2	TCLP Fluid No.	--	2	2	1	2	2	2	2	1		
	Initial pH (pH units)	--	11.0	10.9	11.0	11.3	11.0	10.9	11.0	10.1		
	pH after HCl (pH units)	--	6.6	5.3	4.8	9.8	5.6	5.6	6.9	2.9		
	Final pH (pH units)	--	7.5	6.7	8.4	8.4	7.6	6.7	6.2	5.5		

Results expressed in pH units unless otherwise specified

Comments:

E019.2: Soil leached for 18 hours with fluid as specified above . Refer to relevant water method for results.



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Laboratory Identification			37740	37741	37742	37743	37744	37745	37746	37747	37748	37749
Sample Identification			3735/04A	3735/04B	3735/04D	3735/04E	3735/04F	3735/04G	3735/04H	3735/04I	3735/04J	3736/04A
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/04
Laboratory Extraction (Preparation) Date			6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04
Laboratory Analysis Date			9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04
Method	TCLP metals	EQL										
E022.1	Beryllium	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Copper	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	Lead	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Molybdenum	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Nickel	20	20	30	30	30	30	20	20	20	30	50
	Selenium	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Zinc	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

Results expressed in ug/l unless otherwise specified

Comments: -

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.



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Laboratory Identification			37750	37751	37752	37753	37754	37755	37756	37757	37758	37759
Sample Identification			3736/04B	3736/04C	3736/04D	3737/04A	3737/04B	3737/04C	3737/04D	3737/04E	3737/04F	3737/04G
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			28/9/04	28/9/04	28/9/04	28/3/04	28/3/04	28/3/04	28/3/04	28/3/04	28/3/04	28/3/04
Laboratory Extraction (Preparation) Date			6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04
Laboratory Analysis Date			9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04
Method	TCLP metals	EQL										
E022.1	Beryllium	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Copper	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	Lead	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Molybdenum	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Nickel	20	50	40	40	50	50	50	50	50	60	60
	Selenium	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Zinc	50	<50	<50	<50	<50	<50	<50	<50	<50	50	<50

Results expressed in ug/l unless otherwise specified

Comments: -

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.



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Laboratory Identification			37760	37761	37762	37763	37764	37765	37766	37767	37768	37769
Sample Identification			3737/04H	3737/04I	3737/04J	3738/04A	3738/04B	3738/04C	3738/04D	3739/04A	3739/04B	3739/04C
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			28/3/04	28/3/04	28/3/04	28/9/04	28/9/04	28/9/04	28/9/04	28/9/03	28/9/03	28/9/03
Laboratory Extraction (Preparation) Date			6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04
Laboratory Analysis Date			9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04
Method	TCLP metals	EQL										
E022.1	Beryllium	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Copper	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	Lead	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Molybdenum	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	Nickel	20	50	40	50	50	40	40	40	40	40	40
	Selenium	20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Zinc	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

Results expressed in ug/l unless otherwise specified

Comments: -

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.





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Laboratory Identification			37770	37771	37772	37773	37774	37775	37776	37777	37740d	37740r
Sample Identification			3739/04D	3739/04E	3739/04F	3739/04G	3739/04H	3739/04I	3739/04J	3735/04C	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			28/9/03	28/9/03	28/9/03	28/9/03	28/9/03	28/9/03	28/9/03	28/9/04	--	--
Laboratory Extraction (Preparation) Date			6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	6/10/04	--
Laboratory Analysis Date			9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	9/10/04	--
Method	TCLP metals	EQL										
E022.1	Beryllium	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	--
	Copper	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	--
	Lead	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	--
	Molybdenum	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	--
	Nickel	20	60	70	40	50	60	70	60	20	30	40%
	Selenium	20	<20	20	<20	<20	<20	<20	<20	<20	<20	--
	Zinc	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	--

Results expressed in ug/l unless otherwise specified

Comments: -

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.



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Laboratory Identification			37751d	37751r	37761d	37761r	37771d	37771r	37741s	37762s	lcs	mb
Sample Identification			QC	QC	QC	QC	QC	QC	QC	QC	QC	QC
Depth (m)			--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC			--	--	--	--	--	--	--	--	--	--
Laboratory Extraction (Preparation) Date			6/10/04	--	6/10/04	--	6/10/04	--	6/10/04	6/10/04	6/10/04	6/10/04
Laboratory Analysis Date			9/10/04	--	9/10/04	--	9/10/04	--	9/10/04	9/10/04	8/10/04	8/10/04
Method	TCLP metals	EQL										
E022.1	Beryllium	10	<10	--	<10	--	<10	--	99%	96%	96%	<10
	Copper	50	<50	--	<50	--	<50	--	92%	94%	99%	<50
	Lead	10	<10	--	<10	--	<10	--	88%	85%	95%	<10
	Molybdenum	10	<10	--	<10	--	<10	--	105%	108%	109%	<10
	Nickel	20	40	0%	40	0%	70	0%	97%	99%	100%	<20
	Selenium	20	<20	--	<20	--	<20	>0%	90%	113%	109%	<20
	Zinc	50	<50	--	<50	--	<50	--	95%	96%	99%	<50

Results expressed in ug/l unless otherwise specified

Comments: -

E022.1: TCLP leachate (25ml) digested with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.