ASH Development
Association of Australia

Ash Development Association of Australia (ADAA)

Coal Combustion Product (CCP) Environmental Monitoring Program 2007/8

December 2007

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ATTACHMENTS

Glossary

Term	Definition
AS	Australian Standard
CCP	Coal combustion product
Chain of Custody (COC)	Documentation which accompanies samples to reduce the potential for loss or erroneous labelling or analysis reporting
DECC	Department of Environment and Climate Change New South Wales
ISO	International Standards Organisation
I-TEQ	The total toxic equivalence relating to dioxins and furans in this report
Leachate	The water solution containing the released substance
NATA	National Association of Testing Authorities
ng/g	nano grams per gram or 1×10^{-9}
pg/g	pico grams per gram or 1×10^{-12}
QA / QC	Quality Assurance / Quality Control
QLD EPA	Queensland Environmental Protection Agency
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
WHO	World Health Organisation

Executive Summary

Arising from the 2003/2004 Research and Development capstone study, in particular the *Coal Combustion Product (CCP) - Environmental Testing Programme 2003/2004*[1] recommendations, the Ash Development Association of Australia undertook to implement an ongoing "Environmental Monitoring Program" (EMP) into coal combustion products (CCPs).

This EMP was conducted during the last quarter of 2007. The aim of the program will be to further collate and interpret the analytical knowledge on its members' CCPs through a coordinated sampling, analysis and reporting program.

This report summarises the results of the EMP for 2007, which assesses, discusses and compares the chemical characteristics and leaching behaviour of CCP from several Australian producers and suppliers.

The monitoring program is also intended to supplement/compliment Association members testing requirements mandated by various state regulations, for example "*The fly ash and bottom ash from burning NSW or Queensland coal exemption 2006* (NSW)" and Queensland EPA beneficial reuse approval.

The methodology used involved the collection of fly ash and furnace bottom ash samples from ADAA members throughout Australia. The geographic distribution of members is illustrated in **Figure 1**.

A total of 56 samples were analysed using leachate and total metals analysis for a range of specified elements.

In summary,

- All total metal results for M17 elements, in particular Cadmium (Cd), Lead (Pb) and Mercury (Hg) nominated by DECC were below limits (Fertiliser Act 1985).
- All total metal results for specific elements nominated by QLD EPA were below limits.
- Results for both fly ash and furnace bottom ash from Victorian sources (brown coal ash) were below limits for total metals and leachate assessments.
- All leachate results were either below or just above the laboratory detection limit for each analyte, and accordingly were well within the maximum acceptance criteria adopted. It should be noted that numerous results reported were below the limit of detection, so no statistical analysis could be conducted.

These investigations represent another milestone in further confirming the benign (inert) nature of CCP's, thus demonstrating the potential reuse of CCPs for applications, including but not limited to civil engineering

applications, raw materials for the cement and concrete industries and for agricultural and horticultural purposes.

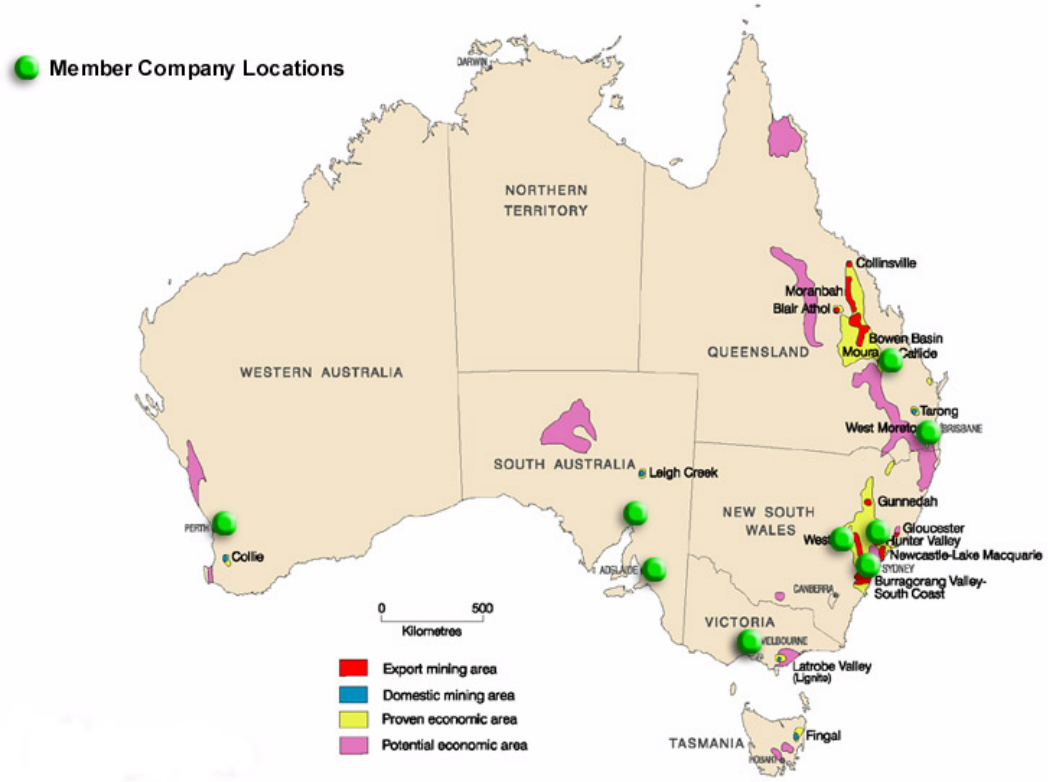

Figure 1- Distribution of Members

1 Introduction

The Ash Development Association of Australia (ADAA) has undertaken an extensive analysis investigation into the element concentration and leachability of selected metal species from coal combustion products (CCPs) using the USEPA, DEC and QLD EPA total and TCLP methods.[2] The aim of this investigation is to collate and interpret the analytical knowledge on its members' CCPs through a co-ordinated sampling, analysis and reporting program, building on information collected in previous years.

The results, particularly from Queensland power stations, have been instrumental in underpinned the ADAA's application to QLD EPA – seeking approval of CCP as a resource for beneficial use under the *Environmental Protection (Waste Management) Regulation 2000* (QLD). The application was approved and given effect from December 10, 2007.

[2] Method: USEPA method 200.2 (modified) for determination of total metals and TCLP method 1311 for leachate

All data has been treated with strict confidentiality and no published results identify individual participants.

Participating members are provided with a unique identifier (client code) to assist with distinguishing their respective materials results for internal assessment purposes and for comparison against other CCP sources from throughout Australia. The participants in the 2007 sampling program are listed below:

Table 1 – Environmental Testing Program 2007 – Participants

Generator	CCP Marketer
• **CS Energy (QLD)** • **Flinders Power (SA)** • **Verve Energy (WA)** • **Delta Electricity (NSW)** • **Tarong Energy (QLD)** • **Eraring Energy (NSW)** • **LaTrobe Valley Generators (VIC)** • **Macquarie Generation (NSW)**	• **Blue Circle Ash (NSW)** • **Flyash Australia (NSW, SA)** • **Pozzolanic Enterprises (QLD)**

2 Site Identification and Characteristics

Each sample was allocated a unique code known to only the client and the ADAA. This system allows each site to view their results and compare these to the complete data set. The code consisted of a three-digit number for each sample, with samples coded according to the site/client that it was coming from, and the type of CCP (i.e. Run-of-station Fly Ash, Run-of-station Furnace Bottom Ash).

The following table sets out the sample identification coding system used to sort the specific fly ash and furnace bottom ash into their various categories:

Table 2 – Key of Sample Types

Product Description	Sample Identification Range
Run-of-Station Fly Ash – Black Coal	101-126 (n=26)
Run-of-Station Fly Ash – Brown Coal	129-130 (n=2)
Run-of-Station Furnace Bottom Ash – Black Coal	201-216, 221-226 (n=22)
Run-of-Station Furnace Bottom Ash – Brown Coal	229-230 (n=2)

3 Objective of Scope of Work

This EMP investigated the chemical characteristics of CCPs from the range of member and locations. The testing program was conducted not only to assist the Association in identifying potential uses for CCPs as a secondary resource, but also to supplement ADAA's members in meeting various acceptance criteria and methodologies used to assess the suitability of CCPs prior to use in agricultural, horticultural and forest ecosystems.

The program consisted of collecting run-of-station fly ash and furnace bottom ash samples. These samples were then analysed for a range of total and leachable metals, consistent with the existing legislative requirements expounded in NSW legislation (*Fertilisers Act 1985; Environmental Guidelines: Assessment Classification and Management of Liquid and Non-liquid Wastes 1999* (NSW)) and the QLD EPA requirements for the use of CCP as a resource for beneficial reuse, as outlined in the *Environmental Protection (Waste Management) Regulation 2000* (QLD).

4 Sampling and Analysis Procedures

4.1 Site Sampling Procedures

Each site was provided with a copy of the ADAA's Reference Data Sheet No. 8 (April 2007): *Assessment Criteria for Use in Agricultural Applications*, which provided appropriate guidance on sampling procedures.

Consistent with the information and guidelines contained in the Reference Data Sheet, fly ash samples were to be taken in accordance with the requirements of the following Australian Standards:

- *AS 1199 Sampling procedures and tables for inspection by attributes*
- *AS 1399 Guide to AS 1199*

Furnace bottom ash samples were to be taken in accordance with the requirements of the following Australian Standard:

- *AS 1141.3.1 – Methods for Sampling and Testing Aggregates 1996 (Method 3.1- Sampling Aggregates: Section 6.9 - Sampling from Stockpiles)*

An extract from the Standard is as follows:

> *Generally samples from the surface of the stockpiles are not representative. Approximately 200mm of surface material should be removed and samples taken from the fresh exposed face. Increment sampling should be carried out in various locations and at various heights on the sides of the perimeter of the stockpile. This approach ensures the whole stockpile is being sampled and not one section only. Samples should then be placed in the supplied jars and labelled accordingly.*
>
> *Samples of approximately 200 – 500g must be placed in unused clean containers and sealed with screw cap or equivalent to withstand transportation to the laboratory. Each container should be clearly labelled with the required information.*

A Chain of Custody form was completed and despatched with each set of samples.

4.2 Laboratory Procedures

Laboratory procedures for analysis of total metals and TCLP were conducted by LabMark - a NATA (National Association of Testing Authorities) accredited laboratory.

> *LabMark is an automated laboratory group… specialising in analytical chemistry. LabMark provides high volume sample throughput and delivers quality data on schedule. The defining feature of the laboratory is our structure that incorporates Technology Managers, Production Managers, Technical Supervisors and Directors, all of whom are practicing chemists. Knowledge transfer at LabMark occurs in a controlled and supervised laboratory environment of 70+ scientists. LabMark operates a safe workplace.*

The laboratory procedures used for each analysis are summarised below:

- Total metals samples were digested by *USEPA method 200.2 (modified)* and the results were reported on a dry weight basis.
- *USEPA Method 1311 – Toxicity Characteristic Leaching Procedure (TCLP)*

This method is the most widely used leachate procedure. The buffering solutions (pH 4.93 and 2.88) used in the TCLP were designed specifically to simulate landfill conditions. This rather conservative approach was designed

to accommodate the acidic conditions typically found in a putrescible waste landfill. If the analysed material is being used for any other application the results need to be considered carefully as they are providing a worse case scenario. If the application does not involve an acidic environment or co-disposal with putrescible material these results may be not be adequately representative of what will occur once the material is applied.

4.3 Quality Control / Quality Assurance Procedures

LabMark conducted the total metal and leachate analysis for this program. The QA / QC program implemented by LabMark is summarised below:

Laboratory QA/QC consists of:

- *Matrix Spiked Samples: frequency 1 in first 5 samples, then 1 in 20 samples thereafter.*

- *Discrete Sample Duplicates: frequency 1 in first 5 samples, then 1 in 10 samples thereafter.*

- *Method Blanks: frequency 1 per analytical batch, per sample type.*

- *Surrogate Standards: all target organic determinations, where appropriate.*

- *Internal Standards: selected target organic determinations, where appropriate.*

- *In-House Reference Samples (RS): determined on a regular basis over long term.*

- *External U.S. & Canadian Certified Reference Samples (CRS): determined on an irregular basis over long term. Exceptionally high costs and difficulties associated with CRS availability prevent regular determinations.*

- *Proficiency Trials: Regular NATA & NRL inter-laboratory proficiency trials for analytical determinations conducted.*

- *LabMark welcomes customer audits every 2-year period, and encourages all users of analytical data to become more familiar with laboratory practices.*

- *Sample QA/QC preparation involves spiking sample matrices prior to extraction process, and performing discrete sample duplicate and triplicate determinations.*

5 Criteria

5.1 New South Wales

The table below outlines the relevant criteria, procedure and frequency required for each of the test procedures conducted in this program, consistent with NSW legislation and regulations for application to land.

Table 3 – Assessment Criteria and Procedure

Elements	Procedure	Criteria	Reference	Frequency
Total Metals (Cd, Pb, Hg)	**USEPA 200.2**	**Cd (10mg/kg) Pb (100mg/kg) Hg (5mg/kg)**	**Fertilisers Act 1985 (NSW)**	**Annually**
Leachable TCLP Metals	**USEPA 1311**	**Various**	**Environmental Guidelines: Assessment Classification and Management of Liquid and Non-liquid Wastes, NSWDEC 1999**	**Annually**

For compliance to be achieved, the analytical results for all total metals and TCLP tests must be below the threshold limits specified in the above table and referenced guidelines and legislation.

Special conditions for NSW suppliers, processors and consumers which are outlined in the exemption, *The fly ash and bottom ash from burning NSW or Queensland coal exemption 2006* (NSW), must also be met in conjunction with the above criteria.

Consistent with legislative guidelines, individual sites are also required to conduct boron and electrical conductivity tests three times a year, dioxin and furan tests annually, and chemical oxide tests every three years. Sites should refer to the ADAA's Reference Data Sheet No. 8: *Assessment Criteria for Use in Agricultural Applications,* for further guidance and information on the required process.

5.2 Queensland

Coincident with the EMP 2007, the ADAA was engaged in various discussions with the QLD EPA regarding an application for CCP to be approved as a resource for beneficial reuse.

This agency, having consulted with the ADAA regarding proposed guidelines for the use of CCP in agriculture, subsequently provided maximum acceptance criteria for nominated total metals and TCLP analyses, taking effect from 10 December 2007. These limits are listed below in the last two columns of Tables 4, 5, 6 and 7.

6 Analytical Results

Tables 4, 5, 6 and 7 summarise the results for total metals analyses conducted on each of the samples. Consistent with the first round of testing conducted in 2004, only analyses for cadmium (Cd), Lead (Pb) and Mercury

(Hg) were requested from LabMark for all 56 CCP samples. Extra results were provided for additional metals by the laboratory for some samples and have been included in the results below where possible.

All 56 samples were also analysed for TCLP for the analytes listed below. Again, some extra results were listed in the LabMark reports and have been included in the below tables where provided.

Antimony	Cadmium	Manganese	Tin
Arsenic	Chromium	Molybdenum	Thallium
Barium	Cobalt	Nickel	Zinc
Beryllium	Copper	Selenium	
Boron	Lead	Silver	

The LabMark reports detailing the results for each site are included in **Attachment A.**

Table 4 – Run-of-Station Fly Ash (Black Coal) Assessment[3]

Fly Ash (Black Coal)							
ADAA 2007 Results			NSW DECC Limits			Queensland EPA Limits[1]	
Element	95% UCI TM	95% UCI TCLP	Max. Values Without TCLP	Maximum values SCC	TCLP	Maximum values SCC	SCC[2]
	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L
Ag	0.1	0.001		180	0.5	N/A	0.5
As	8.2	0.194	10	500	0.5	100	0.5
B	63.0	2.390		N/A	N/A	N/A	N/A
Ba	1157.0	0.603		N/A	N/A	N/A	10
Be	5.1	0.005	2	100	0.1	20	N/A
Cd	0.2	0.006	2	100	0.1	20	0.05
Co	17.8	0.024		N/A	N/A	100	N/A
Cr	18.3	0.069	10	1900	0.5	100	0.5
Cu	22.7	0.203		N/A	N/A	1000	10
Hg[3]	0.2	0.001		50	0.02	15	0.01
Mo	15.2	0.242	10	1000	0.5	N/A	N/A
Ni	28.8	0.051	4	1050	0.2	600	0.5
Pb	16.7	0.005	10	1500	0.5	300	0.5
Sb	1.1	0.022		N/A	N/A	N/A	0.5
Se	3.3	0.070	2	50	0.1	N/A	0.1
Sn	3.0	0.106		N/A	N/A	N/A	N/A
Zn	64.8	0.196		N/A	N/A	7000	50
Mn	201.7	0.410		N/A	N/A	1500	N/A

Sample ID: 101 to 126 (n=26)

[3] Footnotes to Tables 4,5,6 & 7

1 Limits specified in Table 5-A - Soil Investigation Levels (mg/kg)

2 Limits set out in Table 2 "Notice of Approval" (Subject to change)

3 Results given as ug/L and converted to mg/L (Reason for increased EQL)

Table 5 – Run-of-Station Fly Ash (Brown Coal) Assessment[4]

Fly Ash (Brown Coal)							
ADAA 2007 Results			NSW DECC Limits			Queensland EPA Limits[1]	
Element	95% UCI TM	95% UCI TCLP	Max. Values Without TCLP	Maximum values SCC	TCLP	TM SCC	TCLP SCC[2]
	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L
Ag		0.018		180	0.5	N/A	0.5
As		0.089	10	500	0.5	100	0.5
B				N/A	N/A	N/A	N/A
Ba		0.941		N/A	N/A	N/A	10
Be		0.005	2	100	0.1	20	N/A
Cd	1.1	0.001	2	100	0.1	20	0.05
Co				N/A	N/A	100	N/A
Cr		0.025	10	1900	0.5	100	0.5
Cu		1.843		N/A	N/A	1000	10
Hg[3]	5.4	0.001		50	0.02	15	0.01
Mo			10	1000	0.5	N/A	N/A
Ni		0.265	4	1050	0.2	600	0.5
Pb	5.5	0.005	10	1500	0.5	300	0.5
Sb		0.005		N/A	N/A	N/A	0.5
Se		0.070	2	50	0.1	N/A	0.1
Sn				N/A	N/A	N/A	N/A
Zn		0.324		N/A	N/A	7000	50
Mn				N/A	N/A	1500	N/A

Sample ID: 129 to 130 (n=2)

[4] Footnotes to Tables 4,5,6 & 7
1 Limits specified in Table 5-A - Soil Investigation Levels (mg/kg)
2 Limits set out in Table 2 "Notice of Approval" (Subject to change)
3 Results given as ug/L and converted to mg/L (Reason for increased EQL)

Table 6 – Run-of-Station Furnace Bottom Ash (Black Coal) Assessment[5]

Furnace Bottom Ash (Black Coal)							
ADAA 2007 Results			NSW DECC Limits			Queensland EPA Limits[1]	
Element	95% UCI TM	95% UCI TCLP	Max. Values Without TCLP	Maximum values SCC	TCLP	TM SCC	TCLP SCC[2]
	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L
Ag	0.1	0.005		180	0.5	N/A	0.5
As	0.8	0.006	10	500	0.5	100	0.5
B	4.0	0.128		N/A	N/A	N/A	N/A
Ba	257.4	0.478		N/A	N/A	N/A	10
Be	0.6	0.005	2	100	0.1	20	N/A
Cd	0.1	0.001	2	100	0.1	20	0.05
Co	8.8	0.007		N/A	N/A	100	N/A
Cr	3.9	0.025	10	1900	0.5	100	0.5
Cu	6.4	0.030		N/A	N/A	1000	10
Hg[3]	0.0	0.001		50	0.02	15	0.01
Mo	2.3	0.010	10	1000	0.5	N/A	N/A
Ni	14.2	0.033	4	1050	0.2	600	0.5
Pb	1.9	0.008	10	1500	0.5	300	0.5
Sb	0.5	0.005		N/A	N/A	N/A	0.5
Se	1.0	0.010	2	50	0.1	N/A	0.1
Sn	2.4	0.005		N/A	N/A	N/A	N/A
Zn	7.1	0.101		N/A	N/A	7000	50
Mn	50.8	0.293		N/A	N/A	1500	N/A

Sample ID: 201 to 226 (n=26)

[5] Footnotes to Tables 4,5,6 & 7

1 Limits specified in Table 5-A - Soil Investigation Levels (mg/kg)

2 Limits set out in Table 2 "Notice of Approval" (Subject to change)

3 Results given as ug/L and converted to mg/L (Reason for increased EQL)

Table 7 – Run-of-Station Furnace Bottom Ash (Brown Coal) Assessment[6]

Furnace Bottom Ash (Brown Coal)							
ADAA 2007 Results			NSW DECC Limits			Queensland EPA Limits[1]	
Element	95% UCI TM	95% UCI TCLP	Max. Values Without TCLP	Maximum values SCC	TCLP	TM SCC	TCLP SCC[2]
	mg/kg	mg/L	mg/kg	mg/kg	mg/L	mg/kg	mg/L
Ag		0.001		180	0.5	N/A	0.5
As		0.001	10	500	0.5	100	0.5
B				N/A	N/A	N/A	N/A
Ba		1.104		N/A	N/A	N/A	10
Be		0.005	2	100	0.1	20	N/A
Cd	0.1	0.001	2	100	0.1	20	0.05
Co				N/A	N/A	100	N/A
Cr		0.025	10	1900	0.5	100	0.5
Cu		0.025		N/A	N/A	1000	10
Hg[3]	0.1	0.001		50	0.02	15	0.01
Mo			10	1000	0.5	N/A	N/A
Ni		0.025	4	1050	0.2	600	0.5
Pb	1.0	0.005	10	1500	0.5	300	0.5
Sb		0.005		N/A	N/A	N/A	0.5
Se		0.010	2	50	0.1	N/A	0.1
Sn				N/A	N/A	N/A	N/A
Zn		0.025		N/A	N/A	7000	50
Mn				N/A	N/A	1500	N/A

Sample ID: 229 to 230 (n=2)

[6] Footnotes to Tables 4,5,6 & 7

1 Limits specified in Table 5-A - Soil Investigation Levels (mg/kg)

2 Limits set out in Table 2 "Notice of Approval" (Subject to change)

3 Results given as ug/L and converted to mg/L (Reason for increased EQL)

7 Discussion of Results

7.1 Total Metals Results

As demonstrated by the results recorded in Tables 4, 5, 6 and 7 using the 95% Upper Confidence Interval (UCI), all elements were below the specified limits for total metals analysis or were not detected. Particularly, the results showed that levels of Cadmium (Cd), Mercury (Hg) and Lead (Pb) were significantly below the specified limits in the *Fertilisers Act 1985* (NSW).

7.2 TCLP Results

As demonstrated by the results recorded in Tables 4, 5, 6 and 7 using the 95% Upper Confidence Interval (UCI) the majority of all elements were below the specified limits for TCLP analysis or were below the detection limit for each analyte.

Results from *Table 5 – Run-of-Station Fly Ash (Brown Coal) Assessment*, Nickel (Ni) exceeded the specified limits nominated for NSW, but were below the specified limits nominated for Queensland.

It should be noted that given n<30 (2), using a 95% UCI, significant statistical error will be over represented in the result. It should be noted **NO** point results was above the NSW specified limits.

No TCLP results for furnace bottom ash (black and brown coal) exceeded specified limits nominated for NSW and Queensland.

8 Conclusions

This investigation aimed to examine key characteristics of CCPs, with particular focus on agricultural applications. The analytical results presented indicate that CCPs, given their benign nature, have considerable potential as secondary resources.

All results from this investigation correlate well with previous reports, classifying CCPs as **“inert”**.

The consistency between results over time demonstrates the potential beneficial use of CCPs, and the reliability of CCPs in being a material to utilise, most notably in agriculture and land use applications.

Attachment A – LabMark reports

Laboratory Identification		**104684**	**104685**	**104686**	**104687**	**crm**	**lcs**	**mb**			
Sample Identification		101	102	201	202	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		30/7/07	30/7/07	26/7/07	26/7/07	--	--	--			
Laboratory Extraction (Preparation) Date		3/8/07	3/8/07	3/8/07	3/8/07	3/8/07	3/8/07	3/8/07			
Laboratory Analysis Date		6/8/07	9/8/07	9/8/07	9/8/07	3/8/07	3/8/07	3/8/07			
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	<0.05	0.06	<0.05	<0.05	92%	82%	<0.05			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**104684**	**104685**	**104686**	**104687**	**crm**	**lcs**	**mb**			
Sample Identification		101	102	201	202	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		30/7/07	30/7/07	26/7/07	26/7/07	--	--	--			
Laboratory Extraction (Preparation) Date		3/8/07	3/8/07	3/8/07	3/8/07	3/8/07	3/8/07	3/8/07			
Laboratory Analysis Date		3/8/07	3/8/07	3/8/07	3/8/07	3/8/07	3/8/07	3/8/07			
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	<1	<1	<1	<1	--	96%	<1			
Arsenic	1	3	2	<1	<1	109%	104%	<1			
Barium	5	64	69	37	31	92%	106%	<5			
Beryllium	1	<1	<1	<1	<1	90%	99%	<1			
Boron	5	5	13	<5	<5	--	97%	<5			
Cadmium	0.1	<0.1	<0.1	<0.1	<0.1	95%	103%	<0.1			
Chromium	1	4	4	2	2	102%	115%	<1			
Cobalt	1	<1	1	<1	<1	93%	103%	<1			
Copper	2	7	9	6	6	102%	111%	<2			
Lead	2	<2	<2	<2	<2	93%	102%	<2			
Manganese	5	9	10	6	5	100%	105%	<5			
Molybdenum	1	8	8	<1	<1	99%	103%	<1			
Nickel	1	<1	<1	<1	<1	86%	106%	<1			
Selenium	2	<2	<2	<2	<2	80%	108%	<2			
Tin	1	<1	<1	<1	<1	84%	100%	<1			
Zinc	5	5	6	23	19	98%	111%	<5			

Results expressed in mg/kg dry weight unless otherwise specified

Comments: -

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

Laboratory Identification		**104684**	**104685**	**104686**	**104687**	**lcs**	**mb**				
Sample Identification		101	102	201	202	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		30/7/07	30/7/07	26/7/07	26/7/07	--	--				
Laboratory Extraction (Preparation) Date		6/8/07	6/8/07	6/8/07	6/8/07	6/8/07	6/8/07				
Laboratory Analysis Date		7/8/07	7/8/07	7/8/07	7/8/07	7/8/07	7/8/07				
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	20	20	<10	<10	98%	<10				
Arsenic	10	20	20	<10	<10	109%	<10				
Barium	50	430	390	300	300	90%	<50				
Beryllium	10	<10	<10	<10	<10	108%	<10				
Boron	50	450	770	160	110	112%	<50				
Cadmium	1	2	2	<1	<1	95%	<1				
Chromium	50	60	60	<50	<50	109%	<50				
Cobalt	10	10	20	<10	<10	110%	<10				
Copper	50	300	390	<50	<50	109%	<50				
Lead	10	<10	<10	<10	<10	88%	<10				
Manganese	50	<50	50	<50	<50	108%	<50				
Molybdenum	10	330	340	<10	<10	104%	<10				
Nickel	50	<50	<50	<50	<50	110%	<50				
Selenium	20	30	40	<20	<20	115%	<20				
Silver	1	<1	<1	<1	<1	99%	<1				
Tin	10	<10	<10	<10	<10	92%	<10				
Thallium	5	<5	<5	<5	<5	90%	<5				
Zinc	50	50	60	50	160	110%	<50				

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**102208**	**102211**	**102212**	**102213**	**102214**	**102215**	**102216**	**102217**	**102211d**	**102211r**
Sample Identification		103	104	105	106	203	204	205	206	QC	QC
Depth (m)		--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC		13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	--	--
Laboratory Extraction (Preparation) Date		23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	--
Laboratory Analysis Date		26/7/07	26/7/07	26/7/07	26/7/07	26/7/07	26/7/07	26/7/07	26/7/07	26/7/07	--
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.05	0.05	0.13	0.19	<0.05	<0.05	<0.05	<0.05	<0.05	>0%

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**102215s**	**crm**	**lcs**	**mb**						
Sample Identification		QC	QC	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		--	--	--	--						
Laboratory Extraction (Preparation) Date		23/7/07	23/7/07	23/7/07	23/7/07						
Laboratory Analysis Date		26/7/07	23/7/07	23/7/07	23/7/07						
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	90%	90%	88%	<0.05						

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**102208**	**102211**	**102212**	**102213**	**102214**	**102215**	**102216**	**102217**	**102211d**	**102211r**
Sample Identification		103	104	105	106	203	204	205	206	QC	QC
Depth (m)		--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC		13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	--	--
Laboratory Extraction (Preparation) Date		24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	--
Laboratory Analysis Date		25/7/07	25/7/07	25/7/07	25/7/07	25/7/07	25/7/07	25/7/07	25/7/07	25/7/07	--
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**102215s**	**lcs**	**mb**							
Sample Identification		QC	QC	QC							
Depth (m)		--	--	--							
Sampling Date recorded on COC		--	--	--							
Laboratory Extraction (Preparation) Date		24/7/07	24/7/07	24/7/07							
Laboratory Analysis Date		25/7/07	25/7/07	25/7/07							
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	97%	101%	<1							

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**102208**	**102211**	**102212**	**102213**	**102214**	**102215**	**102216**	**102217**	**102211d**	**102211r**
Sample Identification		103	104	105	106	203	204	205	206	QC	QC
Depth (m)		--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC		13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	--	--
Laboratory Extraction (Preparation) Date		23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	--
Laboratory Analysis Date		24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	--
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	<1	<1	<1	<1	<1	<1	<1	<1	--	--
Arsenic	1	3	4	2	4	<1	<1	<1	<1	4	0%
Barium	5	109	70	51	51	14	14	10	13	--	--
Beryllium	1	<1	1	<1	<1	<1	<1	<1	<1	--	--
Boron	5	39	47	21	28	<5	<5	<5	<5	--	--
Cadmium	0.1	0.2	0.4	0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.3	29%
Chromium	1	12	17	5	6	17	17	2	2	15	13%
Cobalt	1	5	5	5	6	2	2	<1	1	--	--
Copper	2	20	19	14	16	5	6	3	3	17	11%
Lead	2	11	13	9	11	<2	<2	<2	<2	12	8%
Manganese	5	360	447	247	241	968	1120	97	96	383	15%
Molybdenum	1	4	7	2	4	2	1	<1	<1	--	--
Nickel	1	10	13	11	12	12	12	2	3	11	17%
Selenium	2	<2	<2	<2	<2	<2	<2	<2	<2	--	--
Tin	1	2	3	1	2	<1	<1	<1	<1	--	--
Zinc	5	26	36	25	33	13	12	<5	<5	32	12%

Results expressed in mg/kg dry weight unless otherwise specified

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

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

Laboratory Identification		**102208**	**102211**	**102212**	**102213**	**102214**	**102215**	**102216**	**102217**	**102211d**	**102211r**
Sample Identification		103	104	105	106	203	204	205	206	QC	QC
Depth (m)		--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC		13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	--	--
Laboratory Extraction (Preparation) Date		24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	--
Laboratory Analysis Date		24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	24/7/07	--
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	--
Arsenic	10	<10	<10	20	20	<10	<10	<10	<10	<10	--
Barium	50	560	470	710	440	120	100	150	160	500	6%
Beryllium	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	--
Boron	50	510	890	280	350	90	80	70	60	940	5%
Cadmium	1	2	3	<1	1	<1	<1	<1	<1	3	0%
Chromium	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	--
Cobalt	10	<10	10	<10	<10	<10	<10	<10	<10	10	0%
Copper	50	100	100	50	70	<50	<50	<50	<50	100	0%
Lead	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	--
Manganese	50	290	430	140	170	720	650	<50	130	460	7%
Molybdenum	10	90	60	70	120	<10	<10	<10	<10	70	15%
Nickel	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	--
Selenium	20	<20	<20	20	40	<20	<20	<20	<20	<20	--
Silver	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--
Tin	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	--
Thallium	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--
Zinc	50	<50	70	<50	90	300	160	60	50	70	0%

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**109763**	**109764**	**109765**	**109766**	**crm**	**lcs**	**mb**			
Sample Identification		107	108	207	208	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		21/8/07	21/8/07	21/8/07	21/8/07	--	--	--			
Laboratory Extraction (Preparation) Date		24/8/07	24/8/07	24/8/07	24/8/07	24/8/07	24/8/07	24/8/07			
Laboratory Analysis Date		24/8/07	24/8/07	24/8/07	24/8/07	24/8/07	24/8/07	24/8/07			
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.11	0.06	<0.05	<0.05	91%	87%	<0.05			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**109763**	**109764**	**109765**	**109766**	**lcs**	**mb**				
Sample Identification		107	108	207	208	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		21/8/07	21/8/07	21/8/07	21/8/07	--	--				
Laboratory Extraction (Preparation) Date		27/8/07	27/8/07	27/8/07	27/8/07	27/8/07	27/8/07				
Laboratory Analysis Date		27/8/07	27/8/07	27/8/07	27/8/07	27/8/07	27/8/07				
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	98%	<1				

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**109763**	**109764**	**109765**	**109766**	**crm**	**lcs**	**mb**			
Sample Identification		107	108	207	208	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		21/8/07	21/8/07	21/8/07	21/8/07	--	--	--			
Laboratory Extraction (Preparation) Date		24/8/07	24/8/07	24/8/07	24/8/07	24/8/07	24/8/07	24/8/07			
Laboratory Analysis Date		24/8/07	24/8/07	24/8/07	24/8/07	24/8/07	24/8/07	24/8/07			
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	<1	<1	<1	<1	91%	97%	<1			
Arsenic	1	10	8	<1	<1	101%	95%	<1			
Barium	5	456	378	235	187	92%	103%	<5			
Beryllium	1	<1	<1	<1	<1	99%	91%	<1			
Boron	5	36	35	<5	<5	75%	91%	<5			
Cadmium	0.1	0.3	0.2	<0.1	<0.1	100%	97%	<0.1			
Chromium	1	4	3	3	2	103%	97%	<1			
Cobalt	1	6	4	1	2	101%	95%	<1			
Copper	2	4	5	<2	<2	99%	94%	<2			
Lead	2	4	4	<2	<2	102%	101%	<2			
Manganese	5	49	43	16	13	97%	95%	<5			
Molybdenum	1	5	5	<1	<1	109%	95%	<1			
Nickel	1	3	2	1	1	100%	91%	<1			
Selenium	2	<2	2	<2	<2	99%	100%	<2			
Silver	0.1	0.1	0.2	<0.1	<0.1	109%	96%	<0.1			
Thallium	1	<1	<1	<1	<1	106%	96%	<1			
Tin	1	1	1	<1	<1	93%	102%	<1			
Zinc	5	27	18	5	6	94%	98%	<5			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**109763**	**109764**	**109765**	**109766**	**lcs**	**mb**				
Sample Identification		107	108	207	208	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		21/8/07	21/8/07	21/8/07	21/8/07	--	--				
Laboratory Extraction (Preparation) Date		27/8/07	27/8/07	27/8/07	27/8/07	27/8/07	27/8/07				
Laboratory Analysis Date		27/8/07	27/8/07	27/8/07	27/8/07	27/8/07	27/8/07				
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	<10	<10	<10	<10	93%	<10				
Arsenic	10	30	20	<10	<10	89%	<10				
Barium	50	1370	1290	200	200	101%	<50				
Beryllium	10	<10	<10	<10	<10	101%	<10				
Boron	50	1210	1400	80	80	102%	<50				
Cadmium	1	4	3	<1	<1	97%	<1				
Chromium	50	<50	<50	<50	<50	90%	<50				
Cobalt	10	20	10	<10	<10	92%	<10				
Copper	50	50	60	<50	<50	89%	<50				
Lead	10	<10	<10	<10	<10	103%	<10				
Manganese	50	150	240	<50	<50	93%	<50				
Molybdenum	10	120	90	<10	<10	96%	<10				
Nickel	50	50	<50	<50	<50	88%	<50				
Selenium	20	20	20	<20	<20	93%	<20				
Silver	1	<1	<1	<1	<1	97%	<1				
Tin	10	<10	<10	<10	<10	98%	<10				
Thallium	5	<5	<5	<5	<5	93%	<5				
Zinc	50	340	190	<50	<50	94%	<50				

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		102832	102833	102834	102835	102836	102837	102832d	102832r	102833s	crm
Sample Identification		109	110	209	210	APS 1467	APS 1468	QC	QC	QC	QC
Depth (m)		--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC		13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	--	--	--	--
Laboratory Extraction (Preparation) Date		27/7/07	27/7/07	27/7/07	27/7/07	27/7/07	27/7/07	27/7/07	--	27/7/07	27/7/07
Laboratory Analysis Date		30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	31/7/07	30/7/07	--	30/7/07	27/7/07
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.10	0.09	<0.05	<0.05	0.06	0.06	0.08	22%	86%	79%

Results expressed in mg/kg dry weight 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		27/7/07	27/7/07								
Laboratory Analysis Date		27/7/07	27/7/07								
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	76%	<0.05								

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		102832	102833	102834	102835	102836	102837	102832d	102832r	102833s	lcs
Sample Identification		109	110	209	210	APS 1467	APS 1468	QC	QC	QC	QC
Depth (m)		--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC		13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	--	--	--	--
Laboratory Extraction (Preparation) Date		30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	--	30/7/07	30/7/07
Laboratory Analysis Date		30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	--	30/7/07	30/7/07
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	<1	<1	<1	--	104%	102%

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		mb									
Sample Identification		QC									
Depth (m)		--									
Sampling Date recorded on COC		--									
Laboratory Extraction (Preparation) Date		30/7/07									
Laboratory Analysis Date		30/7/07									
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1									

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**102832**	**102833**	**102834**	**102835**	**102836**	**102837**	**102832d**	**102832r**	**102833s**	**crm**
Sample Identification		109	110	209	210	APS 1467	APS 1468	QC	QC	QC	QC
Depth (m)		--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC		13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	--	--	--	--
Laboratory Extraction (Preparation) Date		27/7/07	27/7/07	27/7/07	27/7/07	27/7/07	27/7/07	27/7/07	--	27/7/07	27/7/07
Laboratory Analysis Date		28/7/07	28/7/07	28/7/07	28/7/07	28/7/07	28/7/07	28/7/07	--	28/7/07	28/7/07
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	<1	<1	<1	<1	<1	<1	<1	--	104%	116%
Arsenic	1	8	9	<1	<1	6	6	8	0%	82%	108%
Barium	5	514	543	385	482	401	409	444	15%	#	--
Beryllium	1	4	4	1	1	3	3	3	29%	91%	104%
Boron	5	131	133	37	37	124	136	122	7%	#	75%
Cadmium	0.1	0.3	0.3	<0.1	<0.1	0.1	0.1	0.2	40%	94%	99%
Chromium	1	18	21	21	22	12	12	15	18%	72%	107%
Cobalt	1	5	6	2	2	5	6	5	0%	95%	98%
Copper	2	74	78	12	13	42	45	69	7%	#	99%
Lead	2	39	42	4	4	20	21	36	8%	75%	92%
Manganese	5	212	255	131	130	118	129	168	23%	#	97%
Molybdenum	1	5	5	2	2	3	3	5	0%	91%	105%
Nickel	1	10	11	4	4	8	8	9	11%	85%	99%
Selenium	2	<2	<2	<2	<2	<2	<2	<2	--	63%	84%
Tin	1	6	7	<1	<1	3	4	6	0%	#	79%
Zinc	5	32	35	8	11	25	22	28	13%	70%	101%

Results expressed in mg/kg dry weight 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 Identification		102832	102833	102834	102835	102836	102837	102832d	102832r	102833s	lcs
Sample Identification		109	110	209	210	APS 1467	APS 1468	QC	QC	QC	QC
Depth (m)		--	--	--	--	--	--	--	--	--	--
Sampling Date recorded on COC		13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	13/7/07	--	--	--	--
Laboratory Extraction (Preparation) Date		30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	--	30/7/07	30/7/07
Laboratory Analysis Date		30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	30/7/07	--	30/7/07	30/7/07
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	<10	<10	<10	<10	<10	<10	<10	--	97%	104%
Arsenic	10	430	400	<10	<10	230	250	410	5%	102%	107%
Barium	50	70	70	470	680	240	240	70	0%	113%	113%
Beryllium	10	<10	<10	<10	<10	<10	<10	<10	--	107%	110%
Boron	50	2820	2710	280	180	1860	1970	2830	0%	97%	108%
Cadmium	1	4	3	3	1	2	2	4	0%	111%	114%
Chromium	50	150	130	<50	<50	<50	<50	150	0%	91%	114%
Cobalt	10	10	10	<10	<10	<10	<10	10	0%	85%	96%
Copper	50	570	520	<50	<50	230	250	540	5%	103%	111%
Lead	10	<10	<10	<10	<10	<10	<10	<10	--	113%	108%
Manganese	50	180	150	270	220	90	90	170	6%	88%	101%
Molybdenum	10	160	150	10	10	80	90	160	0%	104%	109%
Nickel	50	<50	<50	<50	<50	<50	<50	<50	--	91%	110%
Selenium	20	100	90	<20	<20	50	50	90	11%	91%	104%
Silver	1	<1	<1	<1	<1	<1	<1	<1	--	103%	102%
Tin	10	<10	<10	<10	<10	<10	<10	<10	--	104%	106%
Thallium	5	8	7	<5	<5	6	6	8	0%	108%	106%
Zinc	50	110	120	<50	50	140	80	110	0%	106%	114%

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**113592**	**113594**	**113595**	**113596**	**crm**	**lcs**	**mb**			
Sample Identification		111	112	211	212	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		4/9/07	29/8/07	4/9/07	29/8/07	--	--	--			
Laboratory Extraction (Preparation) Date		13/9/07	13/9/07	13/9/07	13/9/07	13/9/07	13/9/07	13/9/07			
Laboratory Analysis Date		14/9/07	14/9/07	14/9/07	14/9/07	13/9/07	13/9/07	13/9/07			
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.24	0.06	<0.05	<0.05	95%	86%	<0.05			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**113592**	**113594**	**113595**	**113596**	**lcs**	**mb**				
Sample Identification		111	112	211	212	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		4/9/07	29/8/07	4/9/07	29/8/07	--	--				
Laboratory Extraction (Preparation) Date		14/9/07	14/9/07	14/9/07	14/9/07	14/9/07	14/9/07				
Laboratory Analysis Date		14/9/07	14/9/07	14/9/07	14/9/07	14/9/07	14/9/07				
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	92%	<1				

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**113592**	**113594**	**113595**	**113596**	**crm**	**lcs**	**mb**			
Sample Identification		111	112	211	212	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		4/9/07	29/8/07	4/9/07	29/8/07	--	--	--			
Laboratory Extraction (Preparation) Date		13/9/07	13/9/07	13/9/07	13/9/07	13/9/07	13/9/07	13/9/07			
Laboratory Analysis Date		14/9/07	14/9/07	14/9/07	14/9/07	14/9/07	14/9/07	14/9/07			
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	<1	<1	<1	<1	109%	95%	<1			
Arsenic	1	8	9	<1	1	111%	90%	<1			
Barium	5	1590	2570	201	239	89%	96%	<5			
Beryllium	1	10	9	<1	<1	99%	95%	<1			
Boron	5	13	21	<5	<5	79%	93%	<5			
Cadmium	0.1	*<0.5	*<0.5	<0.1	<0.1	93%	96%	<0.1			
Chromium	1	17	31	2	4	111%	102%	<1			
Cobalt	1	39	27	12	7	104%	97%	<1			
Copper	2	42	40	2	3	110%	93%	<2			
Lead	2	32	28	<2	<2	98%	103%	<2			
Manganese	5	144	357	34	18	101%	100%	<5			
Molybdenum	1	24	26	2	3	109%	94%	<1			
Nickel	1	59	50	17	15	101%	93%	<1			
Selenium	2	<2	<2	<2	<2	101%	94%	<2			
Silver	0.1	<0.1	0.1	<0.1	<0.1	94%	95%	<0.1			
Thallium	1	2	6	<1	1	95%	91%	<1			
Tin	1	4	4	<1	<1	75%	94%	<1			
Zinc	5	141	80	5	8	102%	93%	<5			

Results expressed in mg/kg dry weight unless otherwise specified

Comments: *EQL increased due to matrix interference.

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

Laboratory Identification		**113592**	**113594**	**113595**	**113596**	**lcs**	**mb**				
Sample Identification		111	112	211	212	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		4/9/07	29/8/07	4/9/07	29/8/07	--	--				
Laboratory Extraction (Preparation) Date		14/9/07	14/9/07	14/9/07	14/9/07	14/9/07	14/9/07				
Laboratory Analysis Date		14/9/07	14/9/07	14/9/07	14/9/07	14/9/07	14/9/07				
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	<10	<10	<10	<10	101%	<10				
Arsenic	10	70	50	<10	<10	90%	<10				
Barium	50	410	560	1310	1180	107%	<50				
Beryllium	10	<10	<10	<10	<10	99%	<10				
Boron	50	230	190	<50	<50	100%	<50				
Cadmium	1	11	17	<1	<1	105%	<1				
Chromium	50	<50	<50	<50	<50	96%	<50				
Cobalt	10	80	50	<10	<10	94%	<10				
Copper	50	100	380	<50	<50	88%	<50				
Lead	10	<10	<10	<10	<10	106%	<10				
Manganese	50	370	1070	<50	<50	100%	<50				
Molybdenum	10	320	590	<10	<10	104%	<10				
Nickel	50	120	70	<50	<50	87%	<50				
Selenium	20	50	30	<20	<20	97%	<20				
Silver	1	<1	<1	<1	<1	96%	<1				
Tin	10	<10	<10	<10	<10	108%	<10				
Thallium	5	62	109	<5	<5	99%	<5				
Zinc	50	650	240	90	<50	94%	<50				

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**98213**	**98214**	**98215**	**98216**	**crm**	**lcs**	**mb**			
Sample Identification		113	114	213	214	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		26/6/07	26/6/07	26/6/07	26/6/07	--	--	--			
Laboratory Extraction (Preparation) Date		5/7/07	5/7/07	5/7/07	5/7/07	5/7/07	5/7/07	5/7/07			
Laboratory Analysis Date		5/7/07	5/7/07	6/7/07	5/7/07	5/7/07	5/7/07	5/7/07			
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.37	0.34	<0.05	<0.05	92%	83%	<0.05			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Final
Certificate of Analysis

Laboratory Identification		**98213**	**98214**	**98215**	**98216**	**lcs**	**mb**				
Sample Identification		113	114	213	214	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		26/6/07	26/6/07	26/6/07	26/6/07	--	--				
Laboratory Extraction (Preparation) Date		4/7/07	4/7/07	4/7/07	4/7/07	4/7/07	4/7/07				
Laboratory Analysis Date		5/7/07	5/7/07	5/7/07	5/7/07	4/7/07	4/7/07				
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	111%	<1				

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**98213**	**98214**	**98215**	**98216**	**crm**	**lcs**	**mb**			
Sample Identification		113	114	213	214	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		26/6/07	26/6/07	26/6/07	26/6/07	--	--	--			
Laboratory Extraction (Preparation) Date		5/7/07	5/7/07	5/7/07	5/7/07	5/7/07	5/7/07	5/7/07			
Laboratory Analysis Date		6/7/07	6/7/07	6/7/07	7/7/07	6/7/07	6/7/07	6/7/07			
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	2	2	<1	<1	--	101%	<1			
Arsenic	1	6	4	1	1	107%	101%	<1			
Barium	5	85	94	63	67	101%	97%	<5			
Beryllium	1	1	1	<1	<1	110%	102%	<1			
Boron	5	127	111	19	18	100%	99%	<5			
Cadmium	0.1	0.1	<0.1	<0.1	<0.1	86%	98%	<0.1			
Chromium	1	12	10	13	25	113%	104%	<1			
Cobalt	1	1	1	1	1	103%	97%	<1			
Copper	2	8	6	18	6	105%	101%	<2			
Lead	2	6	5	4	<2	92%	89%	<2			
Manganese	5	365	450	798	442	103%	96%	<5			
Molybdenum	1	5	4	4	<1	95%	100%	<1			
Nickel	1	4	3	5	4	109%	97%	<1			
Selenium	2	4	2	<2	<2	107%	102%	<2			
Tin	1	3	3	1	<1	72%	94%	<1			
Zinc	5	26	23	49	11	98%	87%	<5			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**98213**	**98214**	**98215**	**98216**	**lcs**	**mb**				
Sample Identification		113	114	213	214	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		26/6/07	26/6/07	26/6/07	26/6/07	--	--				
Laboratory Extraction (Preparation) Date		4/7/07	4/7/07	4/7/07	4/7/07	4/7/07	4/7/07				
Laboratory Analysis Date		6/7/07	6/7/07	6/7/07	6/7/07	5/7/07	5/7/07				
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	40	30	<10	<10	103%	<10				
Arsenic	10	160	100	<10	<10	105%	<10				
Barium	50	100	130	230	250	104%	<50				
Beryllium	10	<10	<10	<10	<10	102%	<10				
Boron	50	5220	4210	420	410	107%	<50				
Cadmium	1	*<2	<1	<1	<1	102%	<1				
Chromium	50	110	100	<50	<50	101%	<50				
Cobalt	10	<10	<10	<10	<10	99%	<10				
Copper	50	<50	<50	<50	<50	103%	<50				
Lead	10	<10	<10	<10	<10	106%	<10				
Manganese	50	330	<50	570	430	100%	<50				
Molybdenum	10	170	140	<10	<10	101%	<10				
Nickel	50	<50	<50	<50	<50	101%	<50				
Selenium	20	120	70	<20	<20	106%	<20				
Tin	10	<10	<10	<10	<10	104%	<10				
Zinc	50	<50	<50	90	<50	100%	<50				

Results expressed in ug/l unless otherwise specified

Comments: *EQL increased due to matrix interference.

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**101402**	**101403**	**101404**	**101405**	**crm**	**lcs**	**mb**			
Sample Identification		115	116	215	216	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		12/7/07	12/7/07	12/7/07	12/7/07	--	--	--			
Laboratory Extraction (Preparation) Date		20/7/07	20/7/07	20/7/07	20/7/07	20/7/07	20/7/07	20/7/07			
Laboratory Analysis Date		20/7/07	20/7/07	20/7/07	20/7/07	20/7/07	20/7/07	20/7/07			
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	<0.05	<0.05	<0.05	<0.05	93%	91%	<0.05			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**101402**	**101403**	**101404**	**101405**	**lcs**	**mb**				
Sample Identification		115	116	215	216	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		12/7/07	12/7/07	12/7/07	12/7/07	--	--				
Laboratory Extraction (Preparation) Date		20/7/07	20/7/07	20/7/07	20/7/07	20/7/07	20/7/07				
Laboratory Analysis Date		20/7/07	20/7/07	20/7/07	20/7/07	20/7/07	20/7/07				
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	103%	<1				

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**101402**	**101403**	**101404**	**101405**	**crm**	**lcs**	**mb**			
Sample Identification		115	116	215	216	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		12/7/07	12/7/07	12/7/07	12/7/07	--	--	--			
Laboratory Extraction (Preparation) Date		20/7/07	20/7/07	20/7/07	20/7/07	20/7/07	20/7/07	20/7/07			
Laboratory Analysis Date		24/7/07	24/7/07	24/7/07	24/7/07	23/7/07	23/7/07	23/7/07			
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	<1	<1	<1	<1	95%	100%	<1			
Arsenic	1	10	11	1	<1	98%	88%	<1			
Barium	5	<5	5	<5	<5	85%	112%	<5			
Beryllium	1	<1	<1	<1	<1	106%	102%	<1			
Boron	5	<5	<5	<5	<5	71%	85%	<5			
Cadmium	0.1	0.2	0.2	<0.1	<0.1	101%	105%	<0.1			
Chromium	1	2	2	2	1	95%	92%	<1			
Cobalt	1	3	3	1	<1	96%	91%	<1			
Copper	2	7	8	2	<2	93%	95%	<2			
Lead	2	3	4	<2	<2	105%	109%	<2			
Manganese	5	<5	<5	<5	<5	92%	85%	<5			
Molybdenum	1	3	4	1	<1	111%	101%	<1			
Nickel	1	3	3	2	1	94%	90%	<1			
Selenium	2	<2	<2	<2	<2	97%	97%	<2			
Tin	1	1	1	<1	<1	--	99%	<1			
Zinc	5	60	64	12	5	97%	92%	<5			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**101402**	**101403**	**101404**	**101405**	**lcs**	**mb**				
Sample Identification		115	116	215	216	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		12/7/07	12/7/07	12/7/07	12/7/07	--	--				
Laboratory Extraction (Preparation) Date		20/7/07	20/7/07	20/7/07	20/7/07	20/7/07	20/7/07				
Laboratory Analysis Date		23/7/07	23/7/07	23/7/07	23/7/07	23/7/07	23/7/07				
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	10	10	<10	<10	96%	<10				
Arsenic	10	200	200	<10	<10	98%	<10				
Barium	50	<50	<50	<50	<50	103%	<50				
Beryllium	10	<10	<10	<10	<10	103%	<10				
Boron	50	190	170	<50	<50	97%	<50				
Cadmium	1	3	4	<1	<1	104%	<1				
Chromium	50	<50	<50	<50	<50	97%	<50				
Cobalt	10	<10	<10	<10	<10	96%	<10				
Copper	50	<50	<50	<50	<50	91%	<50				
Lead	10	<10	<10	<10	<10	100%	<10				
Manganese	50	<50	<50	<50	<50	97%	<50				
Molybdenum	10	170	170	20	20	104%	<10				
Nickel	50	50	50	<50	<50	91%	<50				
Selenium	20	20	20	<20	<20	103%	<20				
Silver	1	<1	<1	<1	<1	95%	<1				
Tin	10	<10	<10	<10	<10	102%	<10				
Thallium	5	<5	<5	<5	<5	100%	<5				
Zinc	50	110	120	<50	<50	101%	<50				

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**113613**	**114501**	**crm**	**lcs**	**mb**					
Sample Identification		117	118	QC	QC	QC					
Depth (m)		--	--	--	--	--					
Sampling Date recorded on COC		3/9/07	3/9/07	--	--	--					
Laboratory Extraction (Preparation) Date		19/9/07	19/9/07	19/9/07	19/9/07	19/9/07					
Laboratory Analysis Date		20/9/07	20/9/07	19/9/07	19/9/07	19/9/07					
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.17	0.16	105%	85%	<0.05					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**113613**	**114501**	**lcs**	**mb**						
Sample Identification		117	118	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		3/9/07	3/9/07	--	--						
Laboratory Extraction (Preparation) Date		20/9/07	20/9/07	20/9/07	20/9/07						
Laboratory Analysis Date		20/9/07	20/9/07	20/9/07	20/9/07						
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	91%	<1						

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**113613**	**114501**	**crm**	**lcs**	**mb**					
Sample Identification		117	118	QC	QC	QC					
Depth (m)		--	--	--	--	--					
Sampling Date recorded on COC		3/9/07	3/9/07	--	--	--					
Laboratory Extraction (Preparation) Date		19/9/07	19/9/07	19/9/07	19/9/07	19/9/07					
Laboratory Analysis Date		19/9/07	19/9/07	19/9/07	19/9/07	19/9/07					
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	1	1	95%	92%	<1					
Arsenic	1	6	6	99%	100%	<1					
Barium	5	74	74	98%	93%	<5					
Beryllium	1	<1	<1	86%	94%	<1					
Boron	5	67	69	91%	88%	<5					
Cadmium	0.1	0.1	0.1	91%	92%	<0.1					
Chromium	1	12	12	97%	97%	<1					
Cobalt	1	1	<1	96%	96%	<1					
Copper	2	4	4	98%	98%	<2					
Lead	2	3	3	90%	98%	<2					
Manganese	5	177	167	92%	97%	<5					
Molybdenum	1	5	5	105%	93%	<1					
Nickel	1	3	3	99%	95%	<1					
Selenium	2	3	4	94%	96%	<2					
Silver	0.1	<0.1	<0.1	86%	98%	<0.1					
Thallium	1	<1	<1	87%	91%	<1					
Tin	1	2	2	73%	91%	<1					
Zinc	5	13	13	86%	99%	<5					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**113613**	**114501**	**lcs**	**mb**						
Sample Identification		117	118	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		3/9/07	3/9/07	--	--						
Laboratory Extraction (Preparation) Date		20/9/07	20/9/07	20/9/07	20/9/07						
Laboratory Analysis Date		20/9/07	20/9/07	20/9/07	20/9/07						
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	40	40	96%	<10						
Arsenic	10	210	210	101%	<10						
Barium	50	140	130	99%	<50						
Beryllium	10	<10	<10	102%	<10						
Boron	50	3170	3350	105%	<50						
Cadmium	1	2	2	99%	<1						
Chromium	50	<50	<50	100%	<50						
Cobalt	10	10	10	100%	<10						
Copper	50	<50	<50	98%	<50						
Lead	10	<10	<10	96%	<10						
Manganese	50	350	370	100%	<50						
Molybdenum	10	210	220	101%	<10						
Nickel	50	<50	<50	98%	<50						
Selenium	20	140	170	105%	<20						
Silver	1	<1	<1	95%	<1						
Tin	10	<10	<10	98%	<10						
Thallium	5	<5	<5	96%	<5						
Zinc	50	70	70	100%	<50						

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**113614**	**113884**	**crm**	**lcs**	**mb**					
Sample Identification		119	120	QC	QC	QC					
Depth (m)		--	--	--	--	--					
Sampling Date recorded on COC		6/9/07	6/9/07	--	--	--					
Laboratory Extraction (Preparation) Date		19/9/07	19/9/07	19/9/07	19/9/07	19/9/07					
Laboratory Analysis Date		20/9/07	20/9/07	19/9/07	19/9/07	19/9/07					
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	<0.05	<0.05	105%	85%	<0.05					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**113614**	**113884**	**lcs**	**mb**						
Sample Identification		119	120	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		6/9/07	6/9/07	--	--						
Laboratory Extraction (Preparation) Date		20/9/07	20/9/07	20/9/07	20/9/07						
Laboratory Analysis Date		20/9/07	20/9/07	20/9/07	20/9/07						
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	91%	<1						

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**113614**	**113884**	**crm**	**lcs**	**mb**					
Sample Identification		119	120	QC	QC	QC					
Depth (m)		--	--	--	--	--					
Sampling Date recorded on COC		6/9/07	6/9/07	--	--	--					
Laboratory Extraction (Preparation) Date		19/9/07	19/9/07	19/9/07	19/9/07	19/9/07					
Laboratory Analysis Date		19/9/07	19/9/07	19/9/07	19/9/07	19/9/07					
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	<1	<1	95%	92%	<1					
Arsenic	1	6	5	99%	100%	<1					
Barium	5	25	23	98%	93%	<5					
Beryllium	1	<1	<1	86%	94%	<1					
Boron	5	12	11	91%	88%	<5					
Cadmium	0.1	0.1	0.1	91%	92%	<0.1					
Chromium	1	5	4	97%	97%	<1					
Cobalt	1	<1	<1	96%	96%	<1					
Copper	2	3	3	98%	98%	<2					
Lead	2	2	<2	90%	98%	<2					
Manganese	5	18	14	92%	97%	<5					
Molybdenum	1	6	6	105%	93%	<1					
Nickel	1	2	2	99%	95%	<1					
Selenium	2	4	3	94%	96%	<2					
Silver	0.1	<0.1	<0.1	86%	98%	<0.1					
Thallium	1	<1	<1	87%	91%	<1					
Tin	1	1	1	73%	91%	<1					
Zinc	5	8	7	86%	99%	<5					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**113614**	**113884**	**lcs**	**mb**						
Sample Identification		119	120	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		6/9/07	6/9/07	--	--						
Laboratory Extraction (Preparation) Date		20/9/07	20/9/07	20/9/07	20/9/07						
Laboratory Analysis Date		20/9/07	20/9/07	20/9/07	20/9/07						
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	30	30	96%	<10						
Arsenic	10	60	70	101%	<10						
Barium	50	200	200	99%	<50						
Beryllium	10	<10	<10	102%	<10						
Boron	50	490	500	105%	<50						
Cadmium	1	4	4	99%	<1						
Chromium	50	90	90	100%	<50						
Cobalt	10	<10	<10	100%	<10						
Copper	50	50	50	98%	<50						
Lead	10	<10	<10	96%	<10						
Manganese	50	<50	<50	100%	<50						
Molybdenum	10	280	280	101%	<10						
Nickel	50	<50	<50	98%	<50						
Selenium	20	170	170	105%	<20						
Silver	1	<1	<1	95%	<1						
Tin	10	<10	<10	98%	<10						
Thallium	5	<5	<5	96%	<5						
Zinc	50	50	50	100%	<50						

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**100657**	**100658**	**100659**	**100660**	**crm**	**lcs**	**mb**			
Sample Identification		121	122	221	222	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		6/7/07	6/7/07	6/7/07	6/7/07	--	--	--			
Laboratory Extraction (Preparation) Date		18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07			
Laboratory Analysis Date		19/7/07	19/7/07	19/7/07	19/7/07	18/7/07	18/7/07	18/7/07			
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.19	0.17	<0.05	<0.05	89%	91%	<0.05			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**100657**	**100658**	**100659**	**100660**	**lcs**	**mb**				
Sample Identification		121	122	221	222	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		6/7/07	6/7/07	6/7/07	6/7/07	--	--				
Laboratory Extraction (Preparation) Date		19/7/07	19/7/07	19/7/07	19/7/07	19/7/07	19/7/07				
Laboratory Analysis Date		19/7/07	19/7/07	19/7/07	19/7/07	19/7/07	19/7/07				
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	87%	<1				

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**100657**	**100658**	**100659**	**100660**	**crm**	**lcs**	**mb**			
Sample Identification		121	122	221	222	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		6/7/07	6/7/07	6/7/07	6/7/07	--	--	--			
Laboratory Extraction (Preparation) Date		18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07			
Laboratory Analysis Date		18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07			
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	1	1	<1	<1	--	87%	<1			
Arsenic	1	7	8	<1	<1	92%	98%	<1			
Barium	5	410	391	29	24	82%	89%	<5			
Beryllium	1	3	2	<1	<1	111%	92%	<1			
Boron	5	497	508	10	7	73%	76%	<5			
Cadmium	0.1	0.4	0.4	<0.1	<0.1	104%	90%	<0.1			
Chromium	1	22	18	3	2	82%	108%	<1			
Cobalt	1	17	14	<1	<1	91%	98%	<1			
Copper	2	36	31	3	2	86%	96%	<2			
Lead	2	23	18	<2	<2	114%	94%	<2			
Manganese	5	640	508	161	167	79%	103%	<5			
Molybdenum	1	7	7	<1	<1	114%	95%	<1			
Nickel	1	27	21	2	1	88%	100%	<1			
Selenium	2	2	2	<2	<2	97%	100%	<2			
Tin	1	3	3	<1	<1	80%	84%	<1			
Zinc	5	50	40	<5	<5	87%	93%	<5			

Results expressed in mg/kg dry weight unless otherwise specified

Comments: -

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

Laboratory Identification		**100657**	**100658**	**100659**	**100660**	**lcs**	**mb**				
Sample Identification		121	122	221	222	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		6/7/07	6/7/07	6/7/07	6/7/07	--	--				
Laboratory Extraction (Preparation) Date		19/7/07	19/7/07	19/7/07	19/7/07	19/7/07	19/7/07				
Laboratory Analysis Date		19/7/07	19/7/07	19/7/07	19/7/07	19/7/07	19/7/07				
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	10	10	<10	<10	95%	<10				
Arsenic	10	90	100	<10	<10	101%	<10				
Barium	50	380	430	90	100	90%	<50				
Beryllium	10	<10	<10	<10	<10	104%	<10				
Boron	50	3360	3660	150	130	106%	<50				
Cadmium	1	2	2	<1	<1	85%	<1				
Chromium	50	<50	<50	<50	<50	102%	<50				
Cobalt	10	20	20	10	10	100%	<10				
Copper	50	120	130	<50	50	96%	<50				
Lead	10	<10	<10	20	<10	90%	<10				
Manganese	50	590	640	230	250	92%	<50				
Molybdenum	10	150	170	<10	<10	93%	<10				
Nickel	50	60	70	50	50	98%	<50				
Selenium	20	80	90	<20	<20	103%	<20				
Silver	1	<1	<1	<1	<1	95%	<1				
Tin	10	<10	<10	<10	<10	82%	<10				
Thallium	5	<5	<5	<5	<5	91%	<5				
Zinc	50	50	60	50	70	98%	<50				

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**113373**	**113402**	**113403**	**113404**	**crm**	**lcs**	**mb**			
Sample Identification		123	124	223	224	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		3/9/07	3/9/07	3/9/07	3/9/07	--	--	--			
Laboratory Extraction (Preparation) Date		11/9/07	11/9/07	11/9/07	11/9/07	11/9/07	11/9/07	11/9/07			
Laboratory Analysis Date		12/9/07	12/9/07	12/9/07	12/9/07	11/9/07	11/9/07	11/9/07			
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.23	0.14	<0.05	<0.05	97%	106%	<0.05			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**113373**	**113402**	**113403**	**113404**	**lcs**	**mb**				
Sample Identification		123	124	223	224	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		3/9/07	3/9/07	3/9/07	3/9/07	--	--				
Laboratory Extraction (Preparation) Date		13/9/07	13/9/07	13/9/07	13/9/07	13/9/07	13/9/07				
Laboratory Analysis Date		13/9/07	13/9/07	13/9/07	13/9/07	13/9/07	13/9/07				
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	94%	<1				

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**113373**	**113402**	**113403**	**113404**	**crm**	**lcs**	**mb**			
Sample Identification		123	124	223	224	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		3/9/07	3/9/07	3/9/07	3/9/07	--	--	--			
Laboratory Extraction (Preparation) Date		11/9/07	11/9/07	11/9/07	11/9/07	11/9/07	11/9/07	11/9/07			
Laboratory Analysis Date		12/9/07	12/9/07	12/9/07	12/9/07	12/9/07	11/9/07	11/9/07			
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	2	1	<1	<1	90%	92%	<1			
Arsenic	1	6	7	<1	<1	100%	100%	<1			
Barium	5	83	193	16	35	84%	95%	<5			
Beryllium	1	1	<1	<1	<1	97%	100%	<1			
Boron	5	82	78	<5	5	80%	106%	<5			
Cadmium	0.1	0.1	<0.1	<0.1	<0.1	95%	99%	<0.1			
Chromium	1	16	17	4	3	104%	107%	<1			
Cobalt	1	1	2	<1	<1	101%	103%	<1			
Copper	2	6	5	<2	<2	102%	105%	<2			
Lead	2	6	2	<2	<2	102%	109%	<2			
Manganese	5	207	69	48	58	99%	101%	<5			
Molybdenum	1	5	5	<1	<1	104%	99%	<1			
Nickel	1	3	4	<1	2	101%	102%	<1			
Selenium	2	3	3	<2	<2	95%	99%	<2			
Silver	0.1	<0.1	<0.1	<0.1	<0.1	104%	93%	<0.1			
Thallium	1	<1	<1	<1	<1	97%	99%	<1			
Tin	1	3	2	<1	<1	76%	92%	<1			
Zinc	5	19	12	<5	<5	99%	101%	<5			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**113373**	**113402**	**113403**	**113404**	**lcs**	**mb**				
Sample Identification		123	124	223	224	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		3/9/07	3/9/07	3/9/07	3/9/07	--	--				
Laboratory Extraction (Preparation) Date		13/9/07	13/9/07	13/9/07	13/9/07	13/9/07	13/9/07				
Laboratory Analysis Date		13/9/07	13/9/07	13/9/07	13/9/07	13/9/07	13/9/07				
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	40	40	<10	<10	96%	<10				
Arsenic	10	230	260	10	<10	106%	<10				
Barium	50	120	830	360	360	97%	<50				
Beryllium	10	<10	<10	<10	<10	103%	<10				
Boron	50	4100	4080	<50	130	105%	<50				
Cadmium	1	2	<1	<1	<1	92%	<1				
Chromium	50	70	110	<50	<50	106%	<50				
Cobalt	10	<10	20	<10	<10	105%	<10				
Copper	50	<50	50	<50	<50	98%	<50				
Lead	10	<10	<10	<10	<10	100%	<10				
Manganese	50	370	190	110	60	105%	<50				
Molybdenum	10	240	270	<10	<10	103%	<10				
Nickel	50	<50	<50	<50	<50	102%	<50				
Selenium	20	130	140	<20	<20	102%	<20				
Silver	1	<1	<1	<1	<1	94%	<1				
Tin	10	<10	<10	<10	<10	92%	<10				
Thallium	5	<5	<5	<5	<5	92%	<5				
Zinc	50	70	60	<50	<50	98%	<50				

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**99799**	**99800**	**99801**	**99802**	**crm**	**lcs**	**mb**			
Sample Identification		125	126	225	226	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		5/7/07	5/7/07	5/7/07	5/7/07	--	--	--			
Laboratory Extraction (Preparation) Date		17/7/07	17/7/07	17/7/07	17/7/07	17/7/07	17/7/07	17/7/07			
Laboratory Analysis Date		18/7/07	18/7/07	18/7/07	18/7/07	17/7/07	17/7/07	17/7/07			
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.21	0.22	<0.05	<0.05	75%	86%	<0.05			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Laboratory Identification		**99799**	**99800**	**99801**	**99802**	**lcs**	**mb**				
Sample Identification		125	126	225	226	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		5/7/07	5/7/07	5/7/07	5/7/07	--	--				
Laboratory Extraction (Preparation) Date		18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07				
Laboratory Analysis Date		18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07				
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	90%	<1				

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**99799**	**99800**	**99801**	**99802**	**crm**	**lcs**	**mb**			
Sample Identification		125	126	225	226	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		5/7/07	5/7/07	5/7/07	5/7/07	--	--	--			
Laboratory Extraction (Preparation) Date		17/7/07	17/7/07	17/7/07	17/7/07	17/7/07	17/7/07	17/7/07			
Laboratory Analysis Date		17/7/07	17/7/07	17/7/07	17/7/07	17/7/07	17/7/07	17/7/07			
Method : E022.2											
Acid extractable metals	**EQL**										
Antimony	1	1	1	<1	<1	107%	94%	<1			
Arsenic	1	14	14	<1	<1	93%	100%	<1			
Barium	5	282	261	56	56	75%	88%	<5			
Beryllium	1	<1	<1	<1	<1	93%	98%	<1			
Boron	5	105	104	<5	<5	0%	81%	<5			
Cadmium	0.1	0.1	0.1	<0.1	<0.1	93%	90%	<0.1			
Chromium	1	19	16	1	1	96%	102%	<1			
Cobalt	1	4	3	<1	<1	96%	99%	<1			
Copper	2	7	6	<2	<2	92%	101%	<2			
Lead	2	4	3	<2	<2	100%	103%	<2			
Manganese	5	88	76	108	55	94%	99%	<5			
Molybdenum	1	6	6	<1	<1	104%	97%	<1			
Nickel	1	8	7	4	1	99%	99%	<1			
Selenium	2	4	4	<2	<2	76%	103%	<2			
Tin	1	2	2	<1	<1	84%	90%	<1			
Zinc	5	18	16	<5	<5	89%	96%	<5			

Results expressed in mg/kg dry weight unless otherwise specified

Comments: -

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

Laboratory Identification		**99799**	**99800**	**99801**	**99802**	**lcs**	**mb**				
Sample Identification		125	126	225	226	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		5/7/07	5/7/07	5/7/07	5/7/07	--	--				
Laboratory Extraction (Preparation) Date		18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07				
Laboratory Analysis Date		18/7/07	18/7/07	18/7/07	18/7/07	18/7/07	18/7/07				
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	20	30	<10	<10	97%	<10				
Arsenic	10	540	570	<10	<10	101%	<10				
Barium	50	590	640	350	300	95%	<50				
Beryllium	10	<10	<10	<10	<10	100%	<10				
Boron	50	5430	5850	100	50	97%	<50				
Cadmium	1	2	2	<1	<1	99%	<1				
Chromium	50	100	120	<50	<50	100%	<50				
Cobalt	10	20	20	<10	<10	95%	<10				
Copper	50	60	60	<50	<50	93%	<50				
Lead	10	<10	<10	<10	<10	97%	<10				
Manganese	50	220	220	60	60	108%	<50				
Molybdenum	10	260	280	<10	<10	97%	<10				
Nickel	50	70	70	<50	<50	96%	<50				
Selenium	20	160	180	<20	<20	105%	<20				
Tin	10	<10	<10	<10	<10	96%	<10				
Zinc	50	70	80	<50	<50	96%	<50				

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.

Laboratory Identification		**117788**	**117796**	**117797**	**117798**	**crm**	**lcs**	**mb**			
Sample Identification		129	130	229	230	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		30/9/07	30/9/07	30/9/07	30/9/07	--	--	--			
Laboratory Extraction (Preparation) Date		4/10/07	4/10/07	4/10/07	4/10/07	4/10/07	4/10/07	4/10/07			
Laboratory Analysis Date		5/10/07	5/10/07	5/10/07	5/10/07	4/10/07	4/10/07	4/10/07			
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	0.1	0.87	*<0.25	*<0.25	103%	83%	<0.05			

Results expressed in mg/kg dry weight unless otherwise specified

Comments: *EQL increased due to matrix interference.

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

Laboratory Identification		**117788**	**117796**	**117797**	**117798**	**lcs**	**mb**				
Sample Identification		129	130	229	230	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		30/9/07	30/9/07	30/9/07	30/9/07	--	--				
Laboratory Extraction (Preparation) Date		5/10/07	5/10/07	5/10/07	5/10/07	5/10/07	5/10/07				
Laboratory Analysis Date		8/10/07	8/10/07	8/10/07	8/10/07	8/10/07	8/10/07				
Method : E026.1											
TCLP mercury	**EQL**										
Mercury	1	<1	<1	<1	<1	93%	<1				

Results expressed in ug/l unless otherwise specified

Comments:

E026.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS. Results are expressed as per the leachate.

Laboratory Identification		**117788**	**117796**	**117797**	**117798**	**crm**	**lcs**	**mb**			
Sample Identification		129	130	229	230	QC	QC	QC			
Depth (m)		--	--	--	--	--	--	--			
Sampling Date recorded on COC		30/9/07	30/9/07	30/9/07	30/9/07	--	--	--			
Laboratory Extraction (Preparation) Date		4/10/07	4/10/07	4/10/07	4/10/07	4/10/07	4/10/07	4/10/07			
Laboratory Analysis Date		4/10/07	4/10/07	4/10/07	4/10/07	4/10/07	4/10/07	4/10/07			
Method : E022.2											
Acid extractable metals	**EQL**										
Cadmium	0.1	0.2	<0.1	<0.1	<0.1	102%	92%	<0.1			
Lead	2	7	2	<2	<2	107%	100%	<2			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

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

Final
Certificate
of Analysis

Laboratory Identification		**117788**	**117796**	**117797**	**117798**	**lcs**	**mb**				
Sample Identification		129	130	229	230	QC	QC				
Depth (m)		--	--	--	--	--	--				
Sampling Date recorded on COC		30/9/07	30/9/07	30/9/07	30/9/07	--	--				
Laboratory Extraction (Preparation) Date		5/10/07	5/10/07	5/10/07	5/10/07	5/10/07	5/10/07				
Laboratory Analysis Date		6/10/07	6/10/07	6/10/07	6/10/07	6/10/07	6/10/07				
Method : E022.1											
TCLP metals	**EQL**										
Antimony	10	<10	<10	<10	<10	94%	<10				
Arsenic	10	30	20	<10	<10	97%	<10				
Barium	50	50	180	460	350	99%	<50				
Beryllium	10	<10	<10	<10	<10	101%	<10				
Cadmium	1	<1	<1	<1	<1	98%	<1				
Chromium	50	<50	<50	<50	<50	102%	<50				
Copper	50	380	130	<50	<50	96%	<50				
Lead	10	<10	<10	<10	<10	97%	<10				
Nickel	50	<50	60	<50	<50	100%	<50				
Selenium	20	360	90	<20	<20	97%	<20				
Silver	1	<1	3	<1	<1	75%	<1				
Thallium	5	<5	<5	<5	<5	94%	<5				
Zinc	50	90	50	<50	<50	100%	<50				

Results expressed in ug/l unless otherwise specified

Comments:

E022.1: Filtered TCLP leachate acidifed with nitric/hydrochloric acid. Analysis by ICP/MS. Results are expressed as in the leachate.