

Report No: NE17394

Client Reference: -EN01669



## ANALYSIS DESCRIPTION

| METHOD         | ANALYSIS DESCRIPTION   | Sample ID | Client ID | NE17394/1Front | NE17394/1Back | NE17394/2Front | NE17394/2Back | NE17394/3Front | NE17394/3Back | NE17394/4Front | NE17394/4Back | Blank     | Spike/Control % Recovery |
|----------------|------------------------|-----------|-----------|----------------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|-----------|--------------------------|
| EP077          | Naphthalene            | 0.1       | 0.6       | 0.6            | <0.1          | <0.1           | <0.1          | 0.6            | <0.1          | 0.5            | <0.1          | <0.1      | 86%                      |
| EP077          | Acenaphthylene         | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 80%                      |
| EP077          | Acenaphthene           | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 82%                      |
| EP077          | Fluorene               | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 83%                      |
| EP077          | Phenanthrene           | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 83%                      |
| EP077          | Anthracene             | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 77%                      |
| EP077          | Fluoranthene           | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 75%                      |
| EP077          | Pyrene                 | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 80%                      |
| EP077          | Benz(a)anthracene      | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 81%                      |
| EP077          | Chrysene               | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 80%                      |
| EP077          | Benzo(b)fluoranthene   | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 77%                      |
| EP077          | Benzo(k)fluoranthene   | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 81%                      |
| EP077          | Benzo(a)pyrene         | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 75%                      |
| EP077          | Indeno(123-cd)pyrene   | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 75%                      |
| EP077          | Dibenzo(a,h)anthracene | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 74%                      |
| EP077          | Benzo(g,h,i)perylene   | 0.1       | <0.1      | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1           | <0.1          | <0.1      | 72%                      |
| EP077          | Sum of Reported PAH's  | 0.1       | 0.6       | 0.6            | <0.1          | <0.1           | <0.1          | 0.6            | <0.1          | 0.5            | <0.1          | <0.1      | 79%                      |
| Date Extracted |                        | 08-Apr-05 | 08-Apr-05 | 08-Apr-05      | 08-Apr-05     | 08-Apr-05      | 08-Apr-05     | 08-Apr-05      | 08-Apr-05     | 08-Apr-05      | 08-Apr-05     | 08-Apr-05 | 08-Apr-05                |
| Date Analysed  |                        | 08-Apr-05 | 08-Apr-05 | 08-Apr-05      | 08-Apr-05     | 08-Apr-05      | 08-Apr-05     | 08-Apr-05      | 08-Apr-05     | 08-Apr-05      | 08-Apr-05     | 08-Apr-05 | 08-Apr-05                |

Authorising Chemist

Petro Holowinskyj

Date:

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**ANALYTICAL SERVICES DIVISION**

ABN 30 008 127 802

Correspondence to:

PO Box 331

HUNTER REGIONAL MAIL

CENTRE NSW 2310

99 Mitchell Rd

CARDIFF NSW 2285

Telephone: (02) 4902 4800

Facsimile: (02) 4902 4899

**CERTIFICATE OF ANALYSIS**

**Contents :**

1. Cover Pages (2)
2. Analysis Report Pages
3. QA/QC Appendix
4. Additional Reports - External  
(if applicable)
5. Chain of Custody (if applicable)

**Report No.** : 4E2321

**Attention** : Ms Louise Macdonald

**Client** : Sinclair Knight Merz  
: PO Box 164  
: ST LEONARDS NSW 1590

**Samples** : 8

**Reference/Order** : EN01669

**Project** : MACDONALDTOWN RISK ASSESSMENT

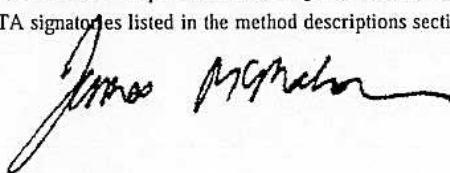
**Received Samples** : 09/12/04      **Instructions** : 09/12/04

**Date Reported** : 24/12/04

PLEASE SEE FOLLOWING PAGES FOR METHOD LISTING AND RESULTS

**RESULTS**

All samples were analysed as received. This report relates specifically to the samples as received. Results relate to the source material only to the extent that the samples as supplied are truly representative of the sample source. This report replaces any preliminary results issued. Note that for methods indicated with "#", NATA accreditation does not cover the performance of this service. Three significant figures (or 2 for <10PQL) are reported for statistical purposes only. Where "Total" concentrations are reported for organic suites of compounds this is the summation of the individual compounds and the PQL is noted for reporting purposes only. This report has been authorized by the NATA signatories listed in the method descriptions section on the following page.



**James McMahon B.Sc., Ph.D. (Chem.)**  
**Manager - Environmental**

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Please note: Where samples are collected/submitted over several days, the date on which the last samples were analysed or extracted is reported.

Unless Ferrous Iron is determined on site, the possibility of a ferrous-ferric ratio change may occur.

| <u>Method</u> | <u>Description</u>                       | <u>Extracted</u> | <u>Analysed</u> | <u>Authorised</u> |
|---------------|--|------------------|-----------------|-------------------|
| E7500         | Moisture (%w/w)                          | 13/12/04         | 13/12/04        | ZSI 096           |
| E1224         | #HRAF in Soil for Health based guideline | 10/12/04         | 17/12/04        | MNG 094           |
| E1010         | Benzene,Toluene,Ethylbenzene & Xylene    | 09/12/04         | 13/12/04        | MNG 094           |



# NATA Signatory

| <u>Initials</u> | <u>Name</u>        | <u>Sections/Methods</u> |
|-----------------|--------------------|-------------------------|
| MCM             | James McMahon      | 093, 094, 095, 101      |
| MNG             | Minh Nguyen        | 094, 095                |
| MFA             | Mark Fahmy         | 094, 095                |
| LHA             | Ly Kim Ha          | 094, 095                |
| DJA             | Dilanthi Jayamanne | 094                     |
| GTO             | Greg Towers        | 094                     |
| GPE             | Geoff Peterson     | 095                     |
| DLU             | Darrel Luck        | 093                     |
| MAV             | Merrin Avery       | 101                     |
| DBL             | Dianne Blane       | 101                     |
| NCO             | Nathan Cooper      | 101                     |
| AGR             | Alison Graham      | 101                     |
| PKE             | Peter Keyte        | 101                     |



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| Analyte                                | Lab No    | E164612 | E164613  | E164615 | E164616  | E164618 |
|--|-----------|---------|----------|---------|----------|---------|
|  |           | MW30    | MW31     | MW32    | MW33     | MW34    |
|  | Sample Id | 0-0.45  | 0-5-0.95 | 1.2     | 0.5-0.95 | 1.4     |
|  | PQL       |         |          |         |          |         |
| E7500 Moisture (%w/w) in Soil          |           |         |          |         |          |         |
| Moistures test performed at 105oC      |           |         |          |         |          |         |
| Moisture Content                       | 1         | 6%      | 11%      | 11%     | 14%      | 24%     |
| #E1223 HRAF in Soil                    |           |         |          |         |          |         |
| Not covered by NATA Accreditation 1464 |           |         |          |         |          |         |
| > nC9-C12 aliphatic*                   | 10        | nd      | nd       | nd      | 13       | 55      |
| > nC12-C16 aliphatic*                  | 10        | nd      | nd       | nd      | 218      | 30      |
| > nC16-C28 aliphatic*                  | 50        | 75      | 65       | nd      | 217      | nd      |
| > nC28-C35 aliphatic*                  | 50        | 79      | nd       | nd      | nd       | nd      |
| > nC9-C12 aromatic*                    | 10        | nd      | nd       | nd      | 24       | 30      |
| > nC12-C16 aromatic*                   | 10        | nd      | nd       | nd      | 151      | 29      |
| > nC16-C28 aromatic*                   | 50        | 113     | nd       | nd      | 2124     | 92      |
| > nC28-C35 aromatic*                   | 50        | 131     | 50       | nd      | nd       | nd      |
| E1010 BTEX (P&T) in Soil               |           |         |          |         |          |         |
| Benzene                                | 0.2       | nd      | nd       | nd      | nd       | nd      |
| Toluene                                | 1         | nd      | nd       | nd      | nd       | nd      |
| Ethylbenzene                           | 1         | nd      | nd       | nd      | nd       | nd      |
| m&p-Xylene                             | 2         | nd      | nd       | nd      | nd       | nd      |
| o-Xylene                               | 1         | nd      | nd       | nd      | nd       | nd      |
| 4-Bromofluorobenzene-SURROGATE         | 1         | 106%    | 72%      | 72%     | 96%      | 100%    |
|  |           |         |          |         |          |         |
|  |           |         |          |         |          |         |
|  |           |         |          |         |          |         |
|  |           |         |          |         |          |         |
|  |           |         |          |         |          |         |

PQL = Practical Quantitation Limit  
 LNR = Samples Listed not Received  
 nd = < PQL  
 -- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified  
 Waters : mg/L (ppm) unless otherwise specified in Method Header  
 Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.



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Client : Sinclair Knight Merz

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| Analyte                                | Lab No    | E164619 |  |  |  |  |
|--|-----------|---------|--|--|--|--|
|  |           | EN01669 |  |  |  |  |
|  | Sample Id | DUP     |  |  |  |  |
|  | PQL       |         |  |  |  |  |
| E7500 Moisture (%w/w) in Soil          |           |         |  |  |  |  |
| Moistures test performed at 105oC      |           |         |  |  |  |  |
| Moisture Content                       | 1         | 14%     |  |  |  |  |
| #E1223 HRAF in Soil                    |           |         |  |  |  |  |
| Not covered by NATA Accreditation 1464 |           |         |  |  |  |  |
| > nC9-C12 aliphatic*                   | 10        | nd      |  |  |  |  |
| > nC12-C16 aliphatic*                  | 10        | nd      |  |  |  |  |
| > nC16-C28 aliphatic*                  | 50        | 220     |  |  |  |  |
| > nC28-C35 aliphatic*                  | 50        | nd      |  |  |  |  |
| > nC9-C12 aromatic*                    | 10        | nd      |  |  |  |  |
| > nC12-C16 aromatic*                   | 10        | nd      |  |  |  |  |
| > nC16-C28 aromatic*                   | 50        | nd      |  |  |  |  |
| > nC28-C35 aromatic*                   | 50        | nd      |  |  |  |  |
| E1010 BTEX (P&T) in Soil               |           |         |  |  |  |  |
| Benzene                                | 0.2       | --      |  |  |  |  |
| Toluene                                | 1         | --      |  |  |  |  |
| Ethylbenzene                           | 1         | --      |  |  |  |  |
| m&p-Xylene                             | 2         | --      |  |  |  |  |
| o-Xylene                               | 1         | --      |  |  |  |  |
| 4-Bromofluorobenzene-SURROGATE         | 1         | --      |  |  |  |  |
|  |           |         |  |  |  |  |
|  |           |         |  |  |  |  |
|  |           |         |  |  |  |  |
|  |           |         |  |  |  |  |
|  |           |         |  |  |  |  |

PQL = Practical Quantitation Limit  
LNR = Samples Listed not Received  
nd = <PQL  
-- = Not Applicable

Soils : mg/kg (ppm) dry weight unless otherwise specified  
Waters : mg/L (ppm) unless otherwise specified in Method Header  
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

Refer to Amdel standard laboratory qualifier codes for comments.



Job No. 4E2321

General

1. Laboratory QA/QC including Method Blanks, Duplicates, Matrix Spikes, Laboratory Control Samples or CRM's are included in this QA/QC appendix. (Where applicable)
2. Inter-Laboratory proficiency trial results are available upon request.
3. PQLs are matrix dependent and are increased accordingly where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spike or surrogate recoveries.
5. Where 3 and 2 significant figures are reported for >10x PQL and <10x PQL respectively, the last figure is uncertain and is provided for statistical purposes only.
6. Samples duplicated or spiked are from this job only and are identified in the following QA/QC report.
7. SVOC analyses on waters are performed on homogenized, unfiltered samples, unless noted otherwise.

Maximum Holding Times for Soils, Sediments and Waters

Parameter

Holding Times

Soils

Volatile and Semi-Volatile Organic Analysis.

Extracted in 14 days, analysed within 40 days.

Metals

Extracted and analysed within 28 days-6 months.

Inorganics\*

Extracted and analysed within 7-28 days.

TCLPs\*

Extracted and analysed within 14 days,  
(Zero Headspace-TCLP 7 days).

Waters

Volatile Organic Analysis

Analysed within 7 days (USEPA requires 14 days).

Semi-Volatile Organic Analysis

Extracted in 7 days, analysed within 40 days.

Inorganics\*

Analysed within 24 hrs-28 days.

Metals (dissolved metals should be supplied field filtered)

Prepared and analysed within 28 days.

\* Please refer to 'Preservation Information Chart for Soils, Sediments & Waters' for further information. (ISFORM.098). Holding times may be extended with the use of preservation bottles and/or freezing samples. Holding times can be calculated from dates reported in the body of the report. Tests clearly exceeding holding times will be noted when sufficient information is provided.  
Reference: USEPA SW846 and AMDEL SPM-01 (incorporating NEPM Guidelines).

Chain of Custody and Sample Integrity

Yes/NO/NA

Chain of Custody / instructions received with samples  
Custody seals were received intact, if used  
Samples were received chilled and in good condition  
Samples received appropriately preserved for all tests  
VOC/SVOC samples were received in teflon lined containers  
Samples received with Zero Headspace  
Chain of Custody completed and attached (if applicable)

Yes  
NA  
Yes  
Yes  
Yes  
Yes  
Yes

Chromatography Calibration/Acceptance Criteria (if applicable)

Retention time window meets acceptance criteria (+/-2%)  
Reference standard meets acceptance criteria (+/-10%)  
Recalibration standard meets acceptance criteria (+/-15%)  
Internal standard recovery acceptable.

Yes  
Yes  
Yes  
Yes

AMDEL INTERNAL QUALITY ASSURANCE REVIEW Cont..

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Amdel QA/QC Compliance AssessmentCompliance

Surrogates performed on all appropriate GC analyses and meet acceptance limits (70% - 130% recovery\*).

Please see body of report

Matrix Spikes performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery\* or 80% - 120% recovery\* for inorganics in water.)

Please see body of report

Laboratory Control samples performed once per process batch and at least 1 in 20 samples (Results meet acceptance limits - 70% - 130% recovery\* in soil or 70%-130%/90-110% recovery\* for waters.)

Yes

Laboratory Duplicate samples performed once per process batch and at least 1 in 10 samples

Yes

Laboratory duplicates meet acceptance criteria  
<4 PQL - +/- 2 PQL  
4-10 PQL - 25-50 or 50% RPD  
>10 PQL - 10-30 or 30% RPD

Please see body of report

Method Blanks performed once per process batch and at least 1 in 20 samples (Results not detected at the PQL).

Yes

N/A=Not Applicable.

- \* Phenols 50% - 130% recovery
- \* SVOCs 60% - 130% recovery
- \* Phenoxy Acid Herbicides 60% - 140% recovery

QA/QC Appendix

Please refer to the following pages for the QA/QC data.  
For further information on samples or non-conformance in QC protocols please see notations in the body of the report plus comments on the following page.

Additional Comments

James McMahon B.Sc., Ph.D. (Chem.)  
Manager - Environmental