Transpacific Refiners Pty Ltd
25 June 2010
60153150

Ambient Dust Monitoring Report

Transpacific Refiners Rutherford May 2010

“This page has been left blank intentionally”

Ambient Dust Monitoring Report

Transpacific Refiners Rutherford May 2010

Prepared for

Transpacific Refiners Pty Ltd

Prepared by

AECOM Australia Pty Ltd
PO Box 73 HRMC NSW 2310 Australia
T +61 2 8484 8999 F +61 2 8484 8989 www.aecom.com
ABN 20 093 846 925

25 June 2010

60153150

"This page has been left blank intentionally"

Quality Information

Document	Ambient Dust Monitoring Report	
Reference	60153150	
Date	25 June 2010	
Prepared by	Maree Welch	Author Signature
Reviewed by	Chad Witburn NATA signatory	Technical Peer Reviewer Signature

Distribution

Copies	Recipient	Copies	Recipient
1	**Ray Carson** Transpacific Refiners Pty Ltd PO Box 246 Rutherford NSW 2320	1	**AECOM** File Copy

"This page has been left blank intentionally"

Contents

List of Tables

List of Figures

List of Appendices

"This page has been left blank intentionally"

Glossary of Terms

COC	Chain of Custody
DEC	Department of Environment and Conservation
DECCW	Department of Environment, Climate Change and Water
DG	Dust Deposition Gauge
LOR	Limit of Reporting
TPR	Transpacific Refiners Pty Ltd

"This page has been left blank intentionally"

Executive Summary

Ambient dust monitoring using depositional dust gauges was conducted at Transpacific Refiners Rutherford for the period 6 May 2010 to 3 June 2010 in general accordance with the requirements of AS/NZS 3580.10.1:2003. Monitoring was undertaken to the east, south and west of the site and samples analysed for ash content, combustible matter, soluble matter, total insoluble matter and total solids.

The on-site meteorological data showed the dominant wind direction for the month was from the west with minor winds in most directions, with an average wind speed of 0.74m/s and a calm wind percentage of 37%.

Total insoluble matter reported as an annual average for DG1, DG2 and DG3 was less than the DECCW guideline criterion of 4 g/m^2.month.

"This page has been left blank intentionally"

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was engaged by Transpacific Refiners Pty Ltd (TPR) to conduct an ambient dust monitoring program at TPR's oil hydrogenation plant located at 11 Kyle Street, Rutherford. This due diligence program was initiated to identify any potential impacts of dust fallout that may be occurring in the area surrounding the TPR facility, and together with meteorological data, identify if concentrations measured were likely to be from the TPR facility or external operators. The site location can be seen in **Figure 1**.

In this report the analytical results for dust samples collected during the May 2010 monitoring period are presented and evaluated. A summary of results is provided in **Table 2**.

1.1 Scope of Works

The ambient dust monitoring program consists of three depositional dust gauges. The depositional dust gauges (DGs) were installed in general accordance with the requirements of AS/NZS 3580.1.1:2007 on 8 May 2008 at the following Locations (**Figure 1**):

- Dust Gauge DG1 – located adjacent to the west entrance gate on Kyle Street;
- Dust Gauge DG2 – located midway along the southern boundary; and
- Dust Gauge DG3 – located near to the north-eastern corner of the site.

All dust gauges are located within the facility boundary. These dust gauges are collected every 30 ± 2 days in general accordance with the requirements of AS/NZS 3580.10.1:2003 and are analysed for the following parameters.

- Ash Content;
- Combustible Matter;
- Soluble Matter;
- Total Insoluble Matter; and
- Total Solids.

AECOM's Newcastle Office is NATA accredited (Accreditation Number 2778(14391)) for the installation and collection of depositional dust gauges.

The laboratory analysis is conducted by ALS Environmental Laboratory (NATA accreditation 825) detailed in the following report and supplied in **Appendix A:**

- EN1001316

"This page has been left blank intentionally"

2.0 Assessment Criteria

The Department of Environment, Climate Change and Water (DECCW) publication *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DEC 2005) defines the guideline value for insoluble solids as 4 g/m^2.month, reported as an annual average (refer to **Table 1**). Dust levels at or above 4 g/m^2.month may pose a nuisance resulting from dust fallout on adjacent properties. Guideline criteria have not been established for remaining parameters; however this data is used as an aid in the characterisation of dust fallout.

Table 1: Ambient Air Quality Assessment Criteria

Analyte	Criteria	Unit
Dust Deposition as Insoluble Solids Annual Average	4.0	g/m^2.month

"This page has been left blank intentionally"

3.0 Results

The DG samples for the period 6 May 2010 to 3 June 2010 were collected on the 3 June 2010 by AECOM.

Dust deposition samples consist of particles that settle from the ambient air into a dust deposition collection vessel together with any collected rainwater. On receipt at the laboratory the sample is passed through a sieve to remove any extraneous matter (e.g. leaves, insects) and the sieved sample containing the deposited matter is transferred to a filtration apparatus. The insoluble and soluble materials are separated by filtration and the mass of each portion is determined after drying and weighing.

Ash content (shown in **Figures 2 and 3**) refers to the mass remaining after combustion. Combustible matter (shown in **Figure 4**) refers to the portion lost during combustion. Total soluble matter (shown in **Figure 5**) is determined by evaporating and reweighing the filtrate. The total insoluble matter portion (shown in **Figure 6**) is combusted in a furnace at 850°C and reweighed. The total solids (shown in **Figure 8**) are obtained by the addition of the insoluble solids and the soluble solid. The mass deposition rate, reported as g/m^2.month is then calculated from the mass of solids obtained from each of the abovementioned steps, the collection funnel cross-sectional area and the sampling period.

The historical analytical results of each dust gauge are provided in graphical form in **Figures 2** to **8**. Laboratory analyses are provided in **Appendix A.** Field sheets and chain of custody documentation are provided in **Appendix B**. **Table 2** is a summary of the month's results.

Table 2: Analytical Results – Dust Deposition – May 2010

Parameter	Unit	DG1	DG2	DG3
Ash Content	g/m^2.month	1.9	0.4	0.4
Percentage Ash content	%	79	57	44
Combustible Matter	g/m^2.month	0.5	0.3	0.5
Total Soluble Matter	g/m^2.month	0.2	0.9	1.0
Total Insoluble Matter	g/m^2.month	2.4	0.7	0.9
Annual Average Total Insoluble Matter	g/m^2.month	2.5	1.7	1.9
	Assessment Criteria	4 g/m^2.month		
Total Solids	g/m^2.month	2.6	1.6	1.9

The meteorological data for the month was sourced from the TPR on-site meteorological station. The data showed the dominant wind direction was from the west with minor winds in most directions, with an average wind speed of 0.74 m/s and a calm wind percentage of 37%. A wind rose for the month is provided in **Appendix C**

"This page has been left blank intentionally"

4.0 Discussion

Examination of the ambient dust monitoring data obtained between to 6 May 2010 to 3 June 2010 (refer to **Figures 2** to **8**) indicates the following:

- The ash content increased for DG1 whilst DG2 and DG3 decreased compared to last month. The percentage of ash to total insoluble matter decreased for DG1 and DG3 whilst DG2 increased compared to last month. DG1 showed the highest results for the month with 79%;
- The combustible matter increased for DG1 whilst DG2 and DG3 decreased compared to last month;
- The total soluble matter decreased for DG1, DG2 and DG3 compared to last month;
- The total insoluble matter increased for DG1 whilst DG2 and DG3 decreased compared to last month. Total insoluble matter reported as an annual average for DG1, DG2 and DG3 were less than the guideline criterion of 4 g/m^2.month.
- The total solids increased for DG1 whilst DG2 and DG3 decreased compared to last month; and
- Meteorological data sourced from the site indicates the dominant wind direction was from the west with minor winds in most directions. As such, it is expected that DG3 (located on the Eastern side of the plant) would show the highest results if the plant was a potential significant contributor to off-site dust. The analytical data shows that DG1 had the highest results for 4 of the measured parameters.

"This page has been left blank intentionally"

5.0 Conclusion

The on-site meteorological data showed the dominant wind direction for the month was from the west with an average wind speed of 0.74 m/s and a calm wind percentage of 37%. Total insoluble matter reported as an annual average for DG1, DG2 and DG3 were less than the guideline criterion of 4 g/m^2.month.

“This page has been left blank intentionally”

6.0 References

The New South Wales Department of Environment and Conservation (DEC) (2005) *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*, Sydney.

Standards Australia (2003) AS/NZS 3580.10.1:2003, *Methods for sampling and analysis of ambient air; Method 10.1: Determination of particulate matter – Deposited matter – Gravimetric method*.

Standards Australia (2007) AS/NZS 3580.1.1:2007, *Methods for sampling and analysis of ambient air; Part 1.1: Guide to siting air monitoring equipment*.

"This page has been left blank intentionally"

Figures

"This page has been left blank intentionally"

AECOM

Figure 1 Dust Gauge Locations at TPR Rutherford

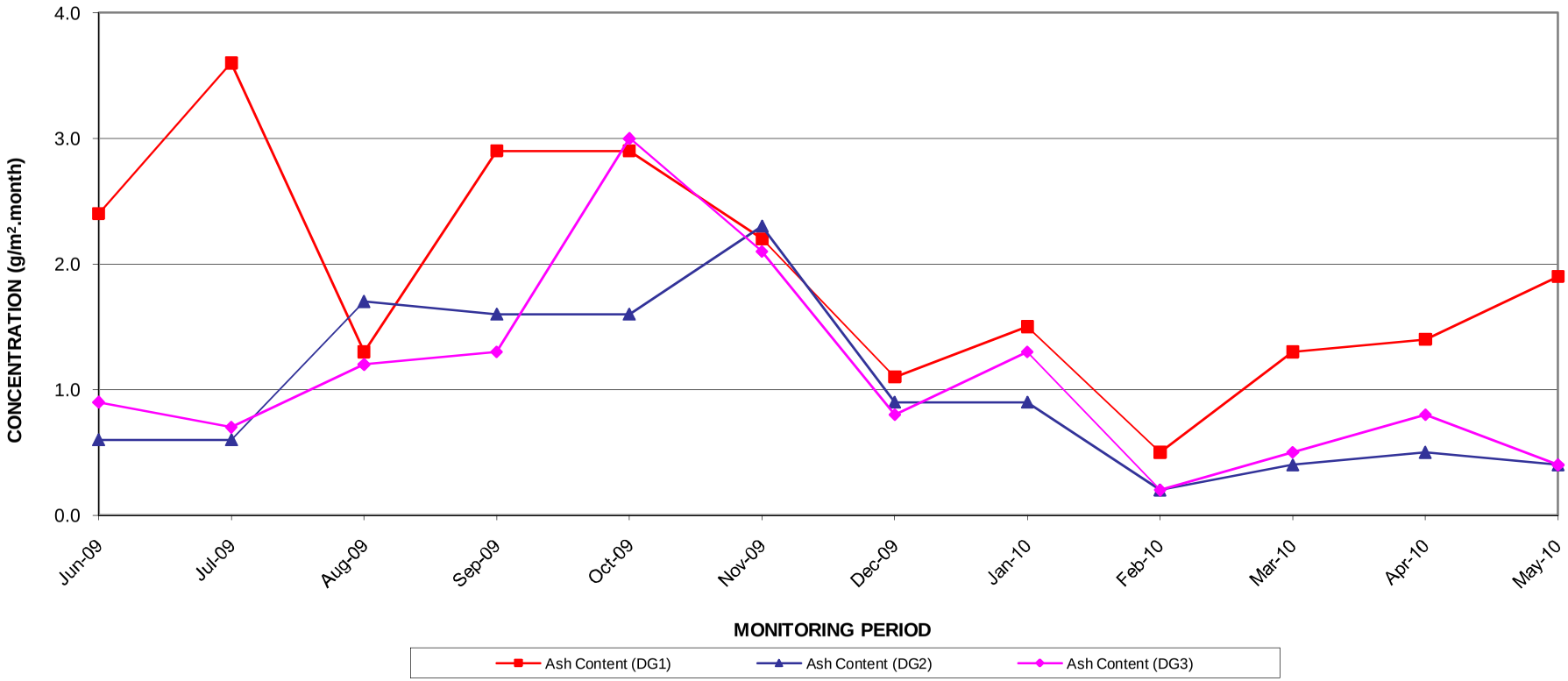
Transpacific Refiners Pty Ltd

Ambient Dust Monitoring

Rutherford, NSW

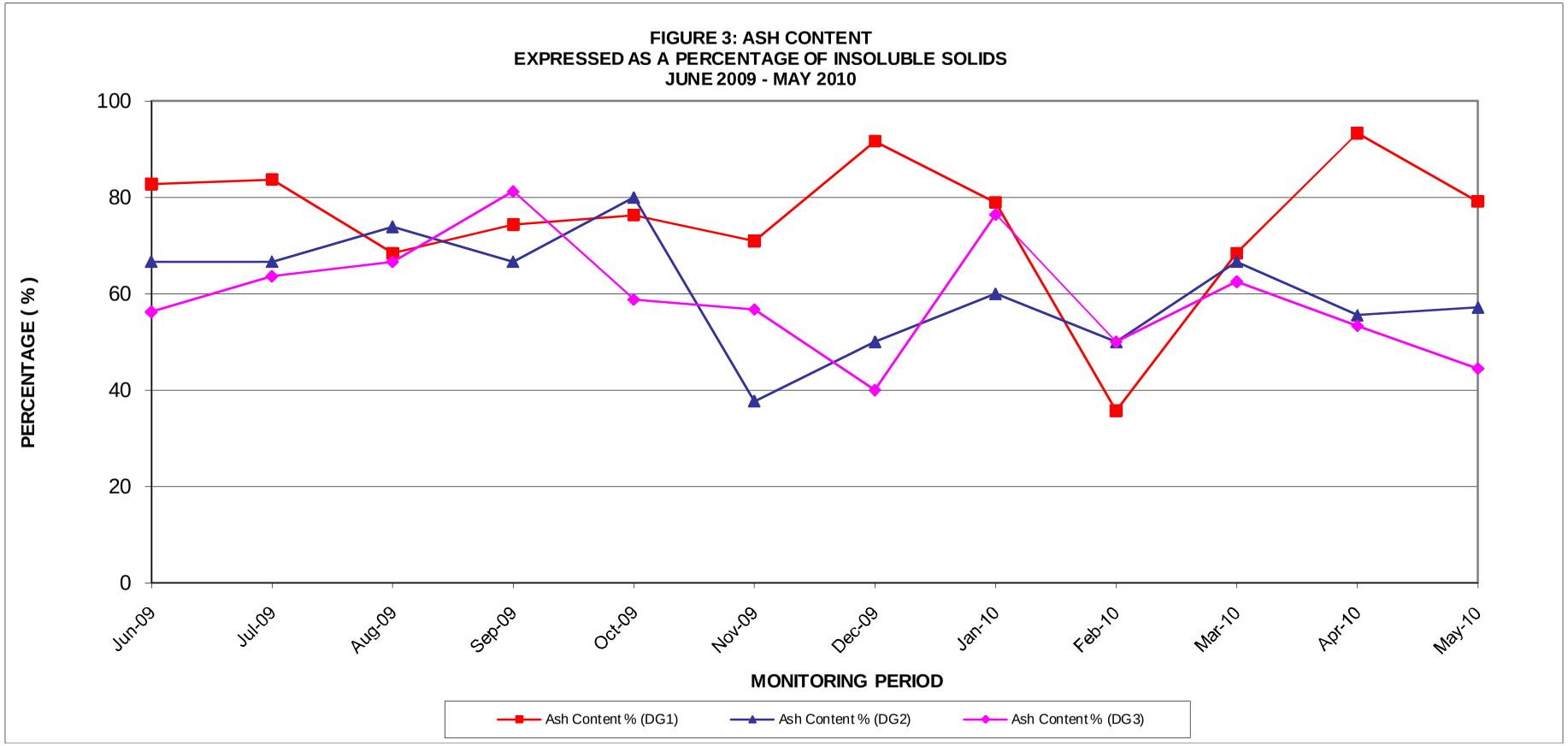
“This page has been left blank intentionally”

FIGURE 2: ASH CONTENT
JUNE 2009 - MAY 2010



“This page has been left blank intentionally”

FIGURE 3: ASH CONTENT
EXPRESSED AS A PERCENTAGE OF INSOLUBLE SOLIDS
JUNE 2009 - MAY 2010



“This page has been left blank intentionally”

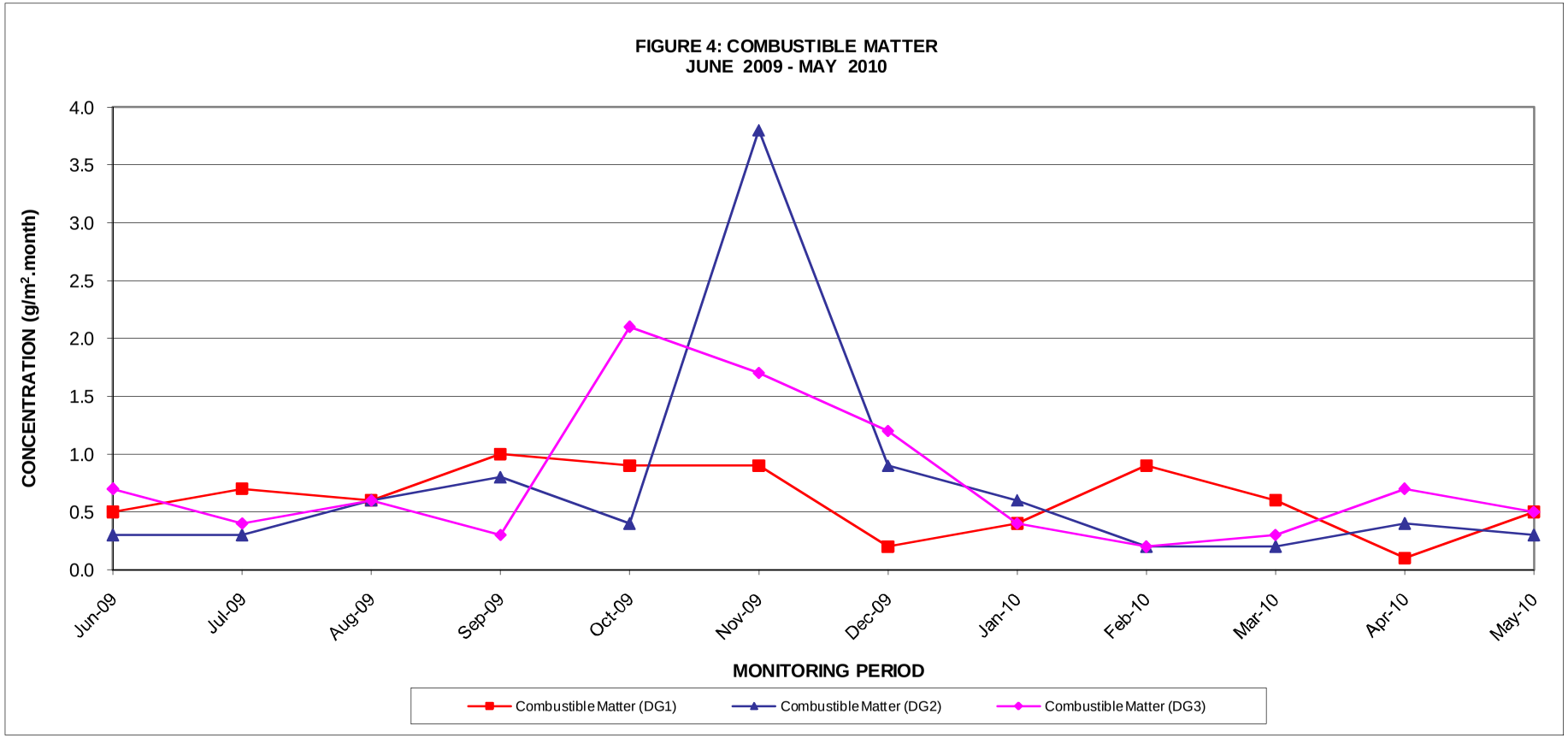
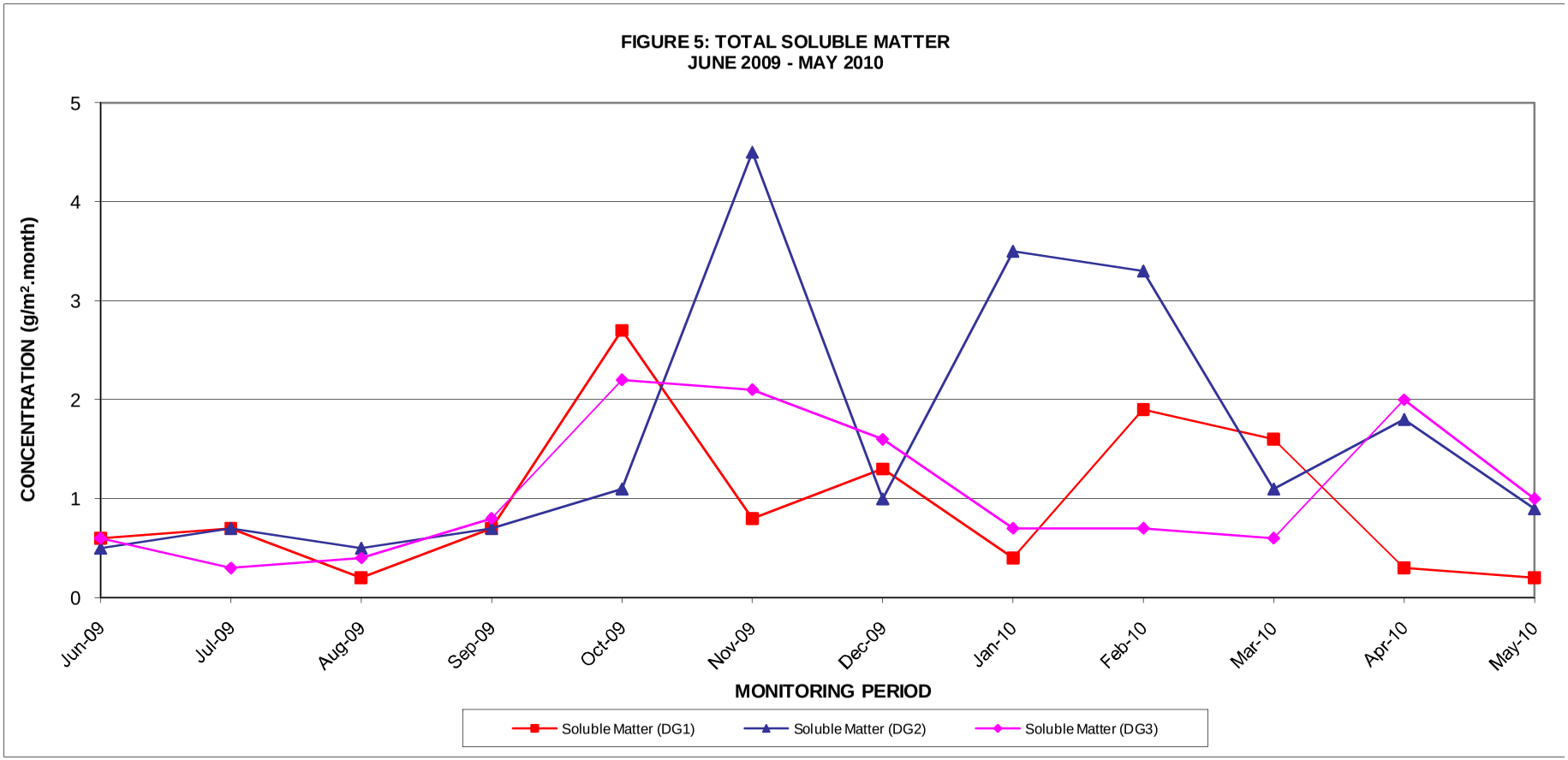


FIGURE 4: COMBUSTIBLE MATTER
JUNE 2009 - MAY 2010
CONCENTRATION (g/m².month)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Jun-09
Jul-09
Aug-09
Sep-09
Oct-09
Nov-09
Dec-09
Jan-10
Feb-10
Mar-10
Apr-10
May-10
MONITORING PERIOD
Combustible Matter (DG1)
Combustible Matter (DG2)
Combustible Matter (DG3)

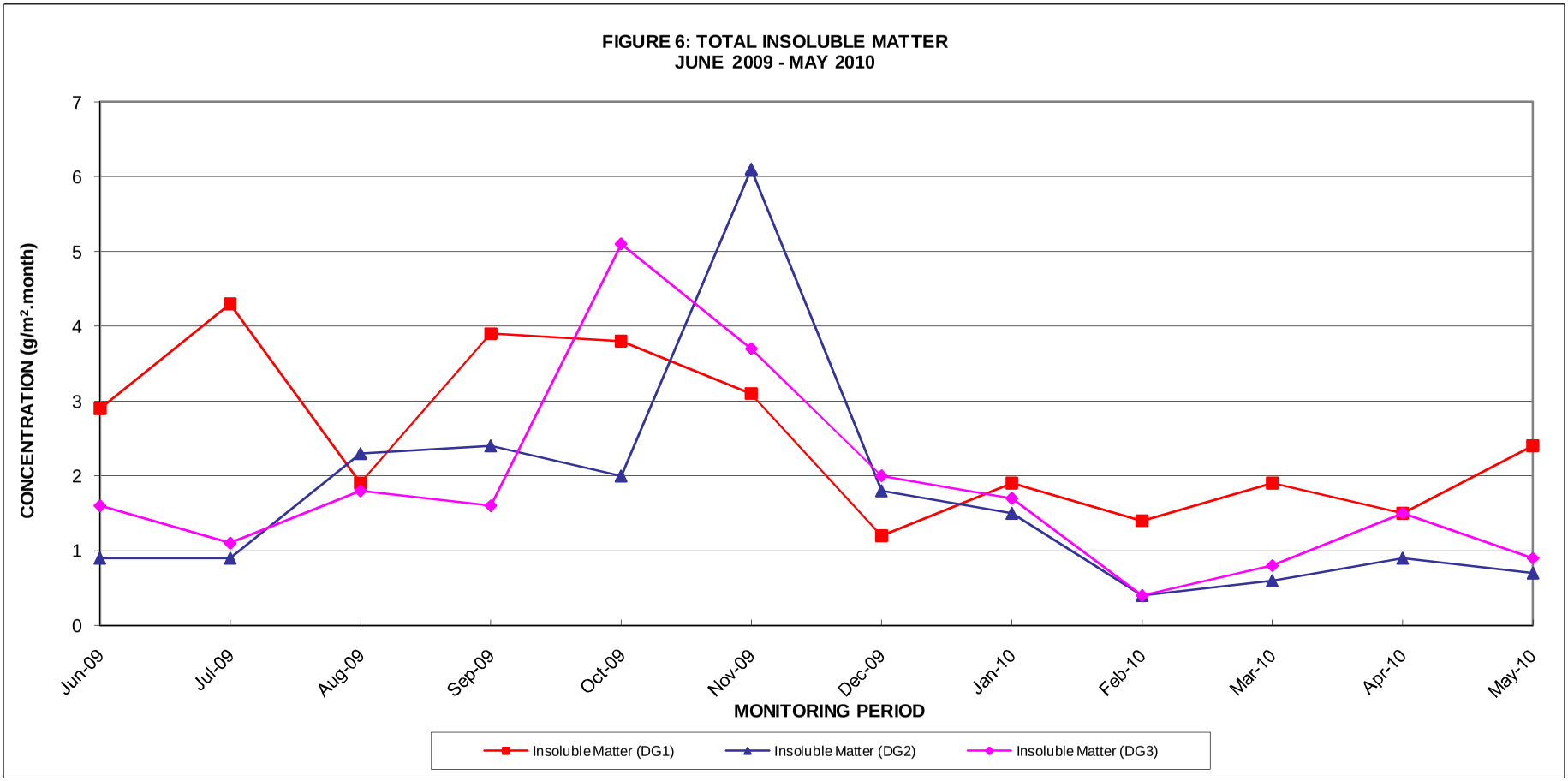
“This page has been left blank intentionally”

FIGURE 5: TOTAL SOLUBLE MATTER
JUNE 2009 - MAY 2010



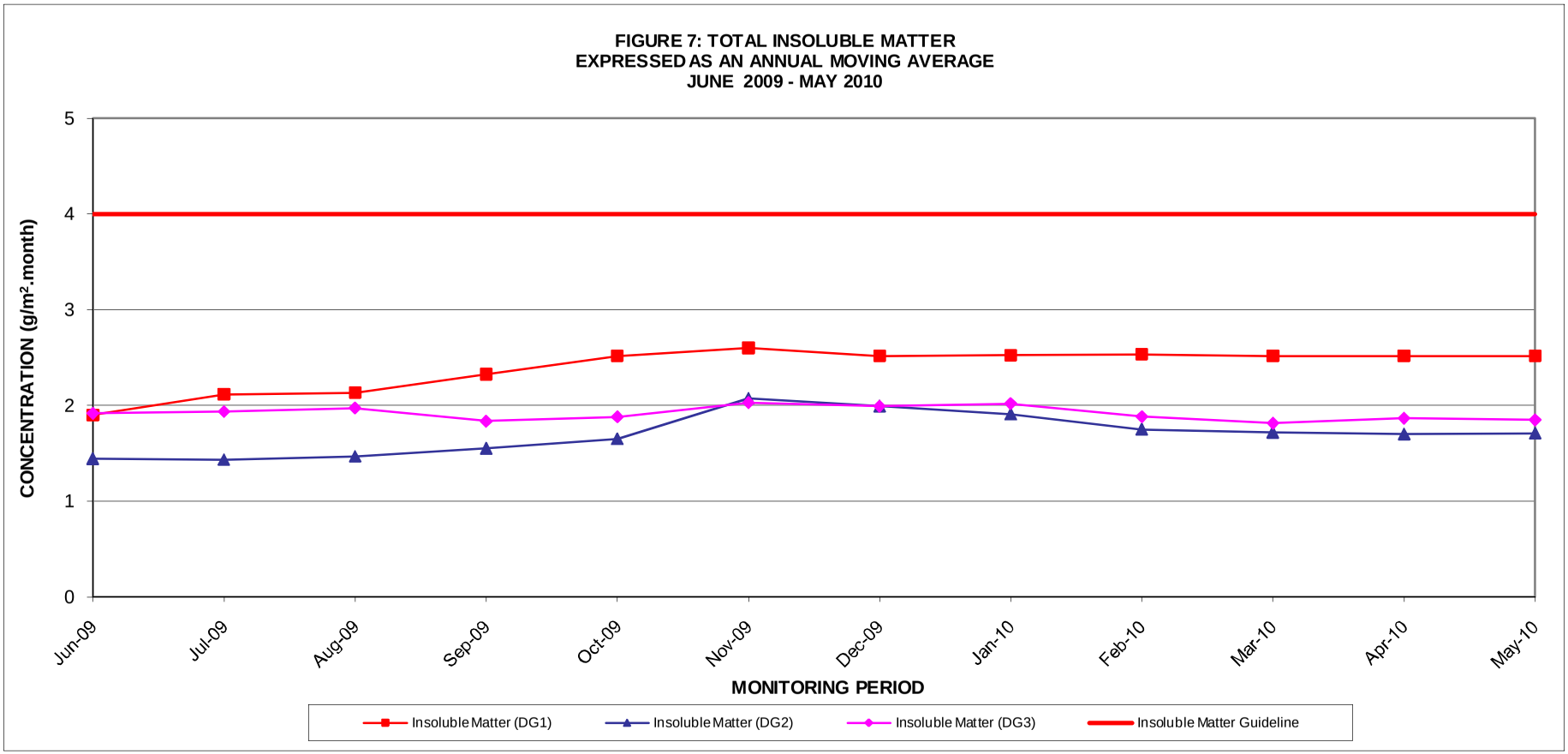
“This page has been left blank intentionally”

FIGURE 6: TOTAL INSOLUBLE MATTER
JUNE 2009 - MAY 2010



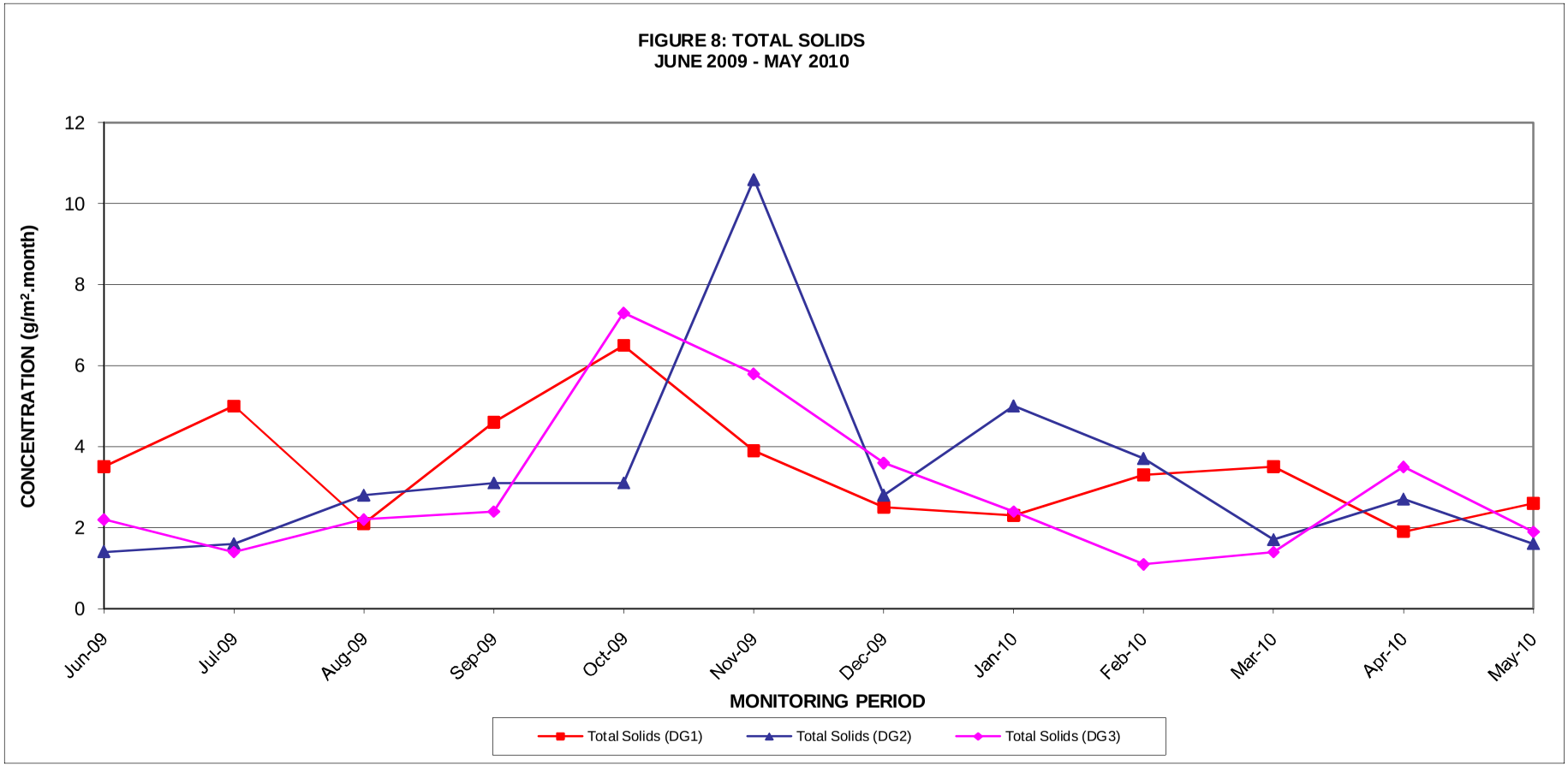
“This page has been left blank intentionally”

FIGURE 7: TOTAL INSOLUBLE MATTER
EXPRESSED AS AN ANNUAL MOVING AVERAGE
JUNE 2009 - MAY 2010



“This page has been left blank intentionally”

FIGURE 8: TOTAL SOLIDS
JUNE 2009 - MAY 2010



“This page has been left blank intentionally”

Appendix A

Laboratory Certificates of Analysis

"This page has been left blank intentionally"

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: **EN1001316**	Page	: 1 of 3
Client	: **AECOM Australia Pty Ltd**	Laboratory	: Environmental Division Newcastle
Contact	: MR ADAM PLANT	Contact	: Peter Keyte
Address	: 17 WARABROOK BOULEVARDE PO BOX 73, HUNTER REGION MC NSW 2310 WARABROOK NSW, AUSTRALIA 2304	Address	: 5 Rosegum Road Warabrook NSW Australia 2304
E-mail	: adam.plant@aecom.com	E-mail	: peter.keyte@als.com.au
Telephone	: +61 02 4911 4900	Telephone	: 61-2-4968-9433
Facsimile	: +61 02 4911 4999	Facsimile	: +61-2-4968 0349
Project	: 60153150 TPR DUST	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: 60153150		
C-O-C number	: ----	Date Samples Received	: 04-JUN-2010
Sampler	: JP	Issue Date	: 16-JUN-2010
Site	: ----		
		No. of samples received	: 3
Quote number	: EN/004/10	No. of samples analysed	: 3

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Peter Keyte	Newcastle Manager	Newcastle

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insuffient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **Analysis as per AS3580.10.1-2003. Samples passed through a 1mm sieve prior to analysis. NATA accreditation is not held for results reported in g/m².mth.**

Analytical Results

Sub-Matrix: **DUST**

Compound	CAS Number	LOR	Unit	Client sample ID: DG1 06/05/10 - 03/06/10	DG2 06/05/10 - 03/06/10	DG3 06/05/10 - 03/06/10	----	----
			Client sampling date / time	03-JUN-2010 15:00	03-JUN-2010 15:00	03-JUN-2010 15:00	----	----
				EN1001316-001	EN1001316-002	EN1001316-003	----	----
EA120: Ash Content								
Ash Content	----	0.1	g/m².month	**1.9**	**0.4**	**0.4**	----	----
Ash Content (mg)	----	1	mg	**28**	**7**	**7**	----	----
EA125: Combustible Matter								
Combustible Matter	----	0.1	g/m².month	**0.5**	**0.3**	**0.5**	----	----
Combustible Matter (mg)	----	1	mg	**8**	**3**	**7**	----	----
EA139: Total Soluble Matter								
Total Soluble Matter	----	0.1	g/m².month	**0.2**	**0.9**	**1.0**	----	----
Total Soluble Matter (mg)	----	1	mg	**4**	**14**	**15**	----	----
EA141: Total Insoluble Matter								
Total Insoluble Matter	----	0.1	g/m².month	**2.4**	**0.7**	**0.9**	----	----
Total Insoluble Matter (mg)	----	1	mg	**36**	**10**	**14**	----	----
EA142: Total Solids								
Total Solids	----	0.1	g/m².month	**2.6**	**1.6**	**1.9**	----	----
Total Solids (mg)	----	1	mg	**40**	**24**	**29**	----	----

“This page has been left blank intentionally”

Appendix B

Field Sheets and Chain of Custody

"This page has been left blank intentionally"

AECOM

Air Analysis – Dust Monitoring Field Sheet

Client: Transpacific Refiners

Project No.: 60153250 - N5037401

Collection Start Date: 6.5.10

By Whom: JD + KP

Lab ID No.: –

Collection Stop Date: 3.6.10

By Whom: JD

Site	Location	Height Above Ground (M)	Area Classification	Funnel Diameter (mm)	Field Water Level Est. (mL)	Field Water Colour Assessment	Field Turbidity Assessment	Decomposing Matter	Comments
DG1	359190 / 6379822	2.0	I	142	1500	C	ST	P	Veg
DG2	359685 / 6379772	2.0	I	145	1500	C	ST	P	Insects / Veg
DG3	359422 / 6379656	1.8	I	145	1500	C	ST	P	Insects

Turbidity – Clear (C), Slightly Turbid (ST), Turbid (T), Very Turbid (VT).

Decomposing Matter – Present (P), Absent (A).

Area Classification – Industrial (I), Residential (R), Agricultural (A), Urban (U).

Sampling conducting in conformance with AS 3580.1.1 – 2007 and AS 3580.10.1 – 2003

NATA Signatory .....

“This page has been left blank intentionally”

AECOM

CHAIN OF CUSTODY

AECOM Australia - Newcastle
Address: 17 Warabrook Blvd
PO Box 73
HRMC NSW 2310 Australia
Tel: 61 2 4911 4900
Fax: 61 2 4911 4999
Email: adam.plant@aecom.com

Laboratory Details

Lab. Name: ALS
Lab. Address: Warabrook
Contact Name:
Lab. Ref:
Tel: (02) 4968 9433
Fax:
Preliminary Report by:
Final Report by:
Lab Quote No:

Sampled By: JD
AECOM Project No: 60153150 - N5037401 TPR - Dust
PO No.

	Yes (tick)
1. Urgent TAT required? (please circle: 24hr 48hr _____days)	
2. Fast TAT Guarantee Required?	
3. Is any sediment layer present in waters to be excluded from extractions?	
4. % extraneous material removed from samples to be reported as per NEPM 5.1.1?	
5. Special storage requirements? (details: _____)	
6. Shell Quality Partnership:	

7. Report Format: ☐ Fax ☐ Hardcopy ☐ Email : _____

Lab. ID	Sample ID	Sampling Date	Matrix			Preservation				Container (No. & type)	Analysis Request: Insoluble Solids	Ash Residue	Combustible Matter	Total Solids	Soluble Matter	Funnel Diameter (mm)
			soil	water	other	filt'ed	acid	ice	other							
1	DG1	6.5.10 - 3.6.10			X					DDG	X	X	X	X	X	142
2	DG2	↓			X					DDG	X	X	X	X	X	145
3	DG3				X					DDG	X	X	X	X	X	145

Environmental Division
Newcastle
Work Order
EN1001316

Telephone : +61-2-4968 9433

Comments: **May Contain Asbestos**

Lab Report No.
Esky ID

Relinquished by:	Signed:	Date: 3.6.10	Relinquished by:	Signed:	Date:
Recieved by:	Signed:	Date: 4.6.10	Recieved by:	Signed:	Date:

“This page has been left blank intentionally”

Appendix C

Meteorological Data for May 2010

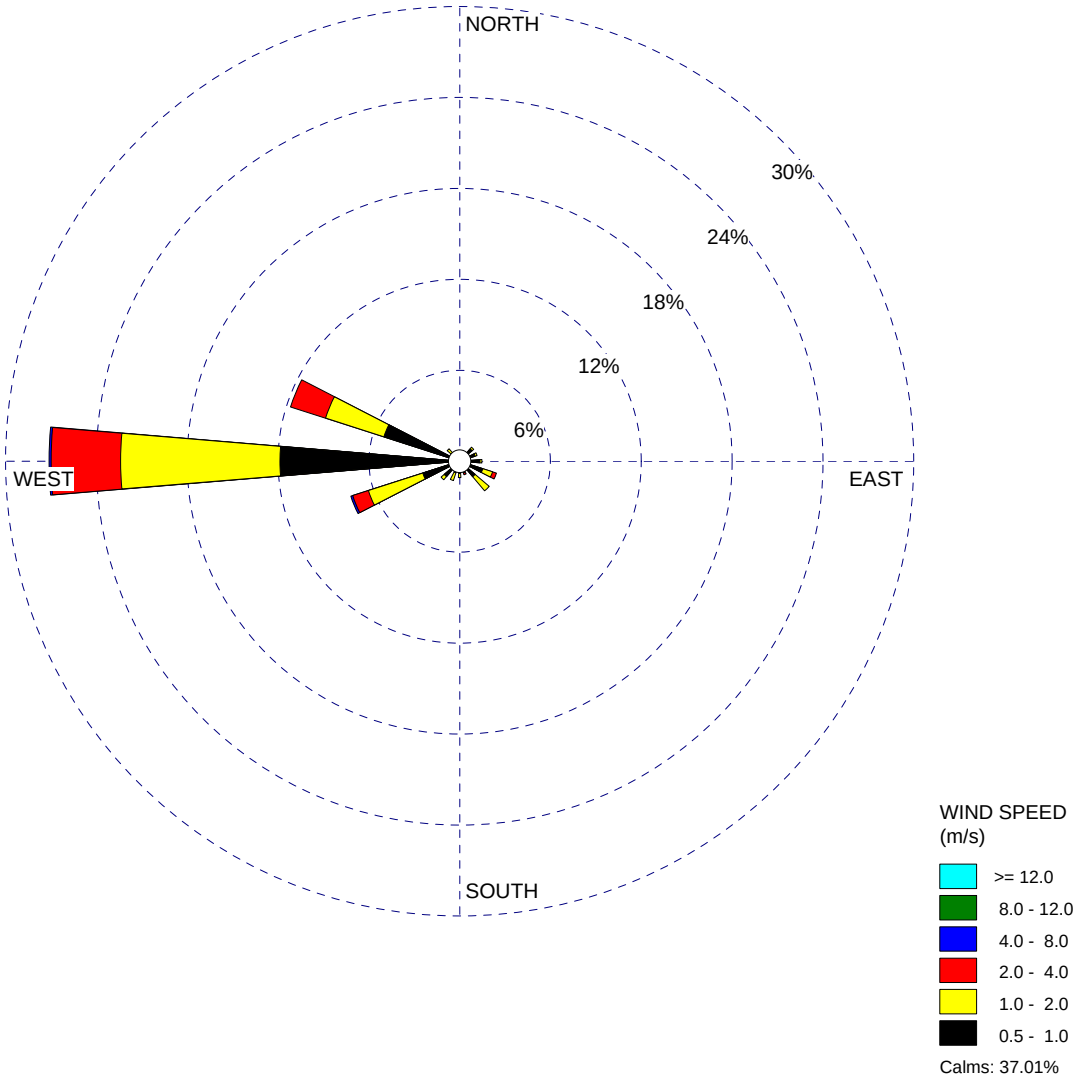
"This page has been left blank intentionally"

WIND ROSE PLOT:

Transpacific Refiners Rutherford Meteorological Data
May 2010

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **2010** **May 1 - May 31** **00:00 - 23:00**	COMPANY NAME:	
		MODELER:	AECOM
	CALM WINDS: **37.01%**	TOTAL COUNT: **743 hrs.**	
	AVG. WIND SPEED: **0.74 m/s**	DATE: **21/06/2010**	PROJECT NO.: **60153150**

“This page has been left blank intentionally”

Worldwide Locations

Australia	+61-2-8484-8999
Azerbaijan	+994 12 4975881
Belgium	+32-3-540-95-86
Bolivia	+591-3-354-8564
Brazil	+55-21-3526-8160
China	+86-20-8130-3737
England	+44 1928-726006
France	+33(0)1 48 42 59 53
Germany	+49-631-341-13-62
Ireland	+353 1631 9356
Italy	+39-02-3180 77 1
Japan	+813-3541 5926
Malaysia	+603-7725-0380
Netherlands	+31 10 2120 744
Philippines	+632 910 6226
Scotland	+44 (0) 1224-624624
Singapore	+65 6295 5752
Thailand	+662 642 6161
Turkey	+90-312-428-3667
United States	+1 978-589-3200
Venezuela	+58-212-762-63 39

Australian Locations

Adelaide
Brisbane
Canberra
Darwin
Melbourne
Newcastle
Perth
Sydney
Singleton

www.aecom.com