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Results of Environmental Dust Deposit Monitoring at Essendon Fields

10 February 2016 to 11 April 2016

Prepared for: Essendon Airport
Level 2, 7 English St
Essendon Fields VIC 3041

Contact: Mr Cameron Rappell
Project Engineer

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Job Number: 6946

1. INTRODUCTION

At the request of Mr Cameron Rappell, Project Manager Essendon Fields, AMCOSH conducted environmental dust monitoring at three locations along the eastern boundary of the Hart Precinct of the Essendon Fields site and at one location south-east of the Airfield to act as a control. The monitoring was conducted in response to concern being expressed by nearby residents about environmental dust levels due to the development of the Hart Precinct.

2. SAMPLING AND MEASUREMENT PROCEDURE

Static environmental dust monitoring was conducted in accordance with the Australian/New Zealand Standard 3580 Method for sampling and analysis of ambient air, Method 10.1: Determination of particulate matter- Deposited matter- Gravimetric method (AS/NZS 380.10.1:2003).

The sampling was conducted between 10th February and 11th April 2016. Photographs of the four dust gauges are shown in Appendix I. Particles that settled from the air were collected in a container together with any rainwater. At the end of the sampling period the container was replaced with a clean one and the collected sample was analysed for total solids, insoluble solids, soluble solids, ash content and combustible matter by Groundswell Laboratories Pty Ltd (Analytical reports attached, Appendix II).

Table 1- Sampling locations and periods

Location No/Location	Sampling Periods
1: Eastern boundary of Hart Precinct, South end (opposite 140 Lebanon Street), approx 15m from fence line	10/02/2016 to 10/03/2016 (29 days) 10/03/2016 to 11/04/2016 (30 days)
2: Eastern boundary of Hart Precinct, Middle (opposite 146 Lebanon Street), approx 10m from fence line	
3: Eastern boundary of Hart Precinct, North end (opposite 160 Lebanon Street), approx 6m from fence line	
4: South-east of airfield near DFO, 14m inside fencing at end of car park	25/02/2016 to 24/03/2016 (28 days)

The method provides an estimate of the mean surface concentration of deposited matter settling from the air over the sampling period (typically over one month) - i.e. the mass deposition rate of deposited matter, and the results are expressed in g/m².month.

3 RESULTS

The calculated results are shown below:

Table 2- Mass deposition rates at each location for 10 February 2016 to 10 March 2016- Hart Precinct

Location No/Location	Mass deposition rate for Sampling Session (g/m ² /month)				
	Total Solids	Insoluble Solids	Soluble Solids	Ash Content	Combustible Matter
1: Eastern boundary of Hart Precinct, South end (opposite 140 Lebanon Street), approx 15m from fence line	6.4	3.0	3.4	2.9	0.1
2: Eastern boundary of Hart Precinct, Middle (opposite 146 Lebanon Street), approx 10m from fence line	Void	-	-	-	-
3: Eastern boundary of Hart Precinct, North end (opposite 160 Lebanon Street), approx 6m from fence line	32.5	26.7	5.8	23.4	3.3

Table 3- Mass deposition rates at each location for 10 March 2016 to 11 April 2016- Hart Precinct

Location No/Location	Mass deposition rate for Sampling Session (g/m ² /month)				
	Total Solids	Insoluble Solids	Soluble Solids	Ash Content	Combustible Matter
1: Eastern boundary of Hart Precinct, South end (opposite 140 Lebanon Street), approx 15m from fence line	2.9	1.9	1.0	1.6	0.2
2: Eastern boundary of Hart Precinct, Middle (opposite 146 Lebanon Street), approx 10m from fence line	2.9	1.1	1.8	1.1	<0.1
3: Eastern boundary of Hart Precinct, North end (opposite 160 Lebanon Street), approx 6m from fence line	2.8	1.5	1.3	1.4	0.2

Table 4- Summary Mass deposition rates at each location for 10 February 2016 to 11 April 2016- Hart Precinct

Location No/Location	Mass deposition rate for each Sampling Session (Total Solids, g/m ² /month)	
	10/02/2016-10/03/2016	10/03/2016-11/04/2016
1: Eastern boundary of Hart Precinct, South end (opposite 140 Lebanon Street), approx 15m from fence line	6.4	2.9
2: Eastern boundary of Hart Precinct, Middle (opposite 146 Lebanon Street), approx 10m from fence line	Void	2.9
3: Eastern boundary of Hart Precinct, North end (opposite 160 Lebanon Street), approx 6m from fence line	32.5	2.8

Table 5- Mass deposition rate at control location for 25 February 2016 to 24 March 2016- South-east of Airfield

Location No/Location	Mass deposition rate for Sampling Session (g/m ² /month)				
	Total Solids	Insoluble Solids	Soluble Solids	Ash Content	Combustible Matter
4: South-east of airfield near DFO, 14m inside fencing at end of car park	1.9	1.5	0.4	1.4	0.1

The analytical report and photographs of the collected samples prior to analysis are presented in Appendix II.

4. DISCUSSION/CONCLUSION

The relevant authority for the management of pollution at federally-leased airport sites is the Airports (Environment Protection) Regulations 1997. Although the Regulations do not set limits for the generation of dust from construction sites, Regulation 4.01 sets out a general duty to avoid polluting as follows:

- (1) The operator of an undertaking at an airport must take all reasonable and practicable measures:
 - (a) to prevent the generation of pollution from the undertaking; or
 - (b) if prevention is not reasonable or practicable — to minimise the generation of pollution from the undertaking.

The monitoring results indicate that over the February/March and March/April period, all samples in the Hart Precinct had a total mass deposition rate above that of the control sample. Although it is important to note that the sampling period for the control sample at the Airfield overlapped between the two sampling sessions at the Hart Precinct.

The sample from Location 2 [Eastern boundary of Hart Precinct, Middle (opposite 146 Lebanon Street), approx 10m from fence line] during the February/March session had an extremely high dust deposition rate compared with the other two samples hence its void status in Table 4 above. In fact the result for Location 2 was 31 and 5 times higher than the results of Locations 1 and 3 respectively (refer appended analytical report). This very high result for Location 2 is highly inconsistent when taking into considering that the three samples are positioned along the same boundary, the nature and extent of the work being conducted at the site and the distance of the dust gauges from such works. The source of the dust collected at Location 2 is highly unlikely to be due to the works conducted at the site and other sources should be considered including tampering.

The same assessment as for Location 2 during February/March could be considered for the result at Location 3 which is also questionable based on the same factors stated for Location 2: its position close and in line with the other gauges, nature and extent of works at the site and distance from these works.

The result of 6.4g/m²/month for Location 1 during the February/March is also higher than expected for the conditions at the site, it was approximately twice that obtained for the same location during March/April.

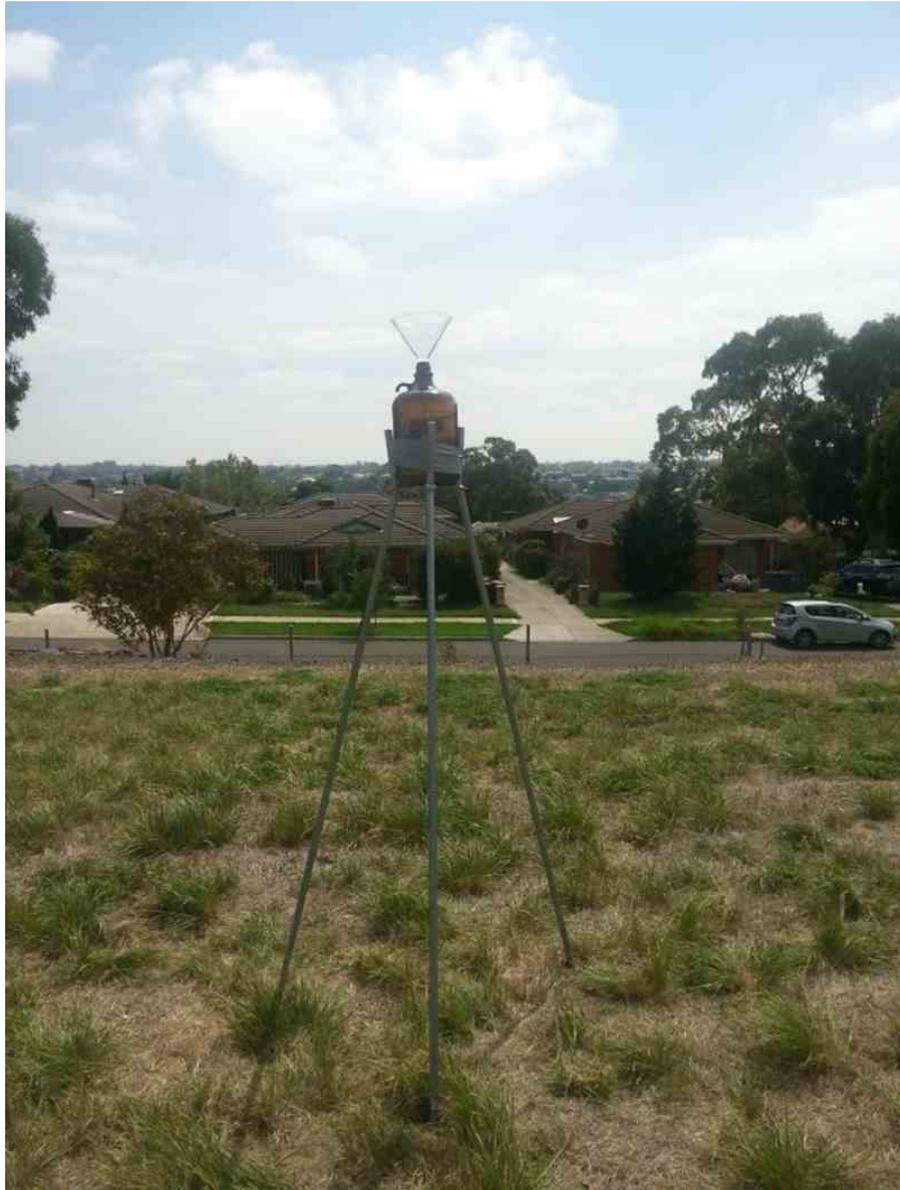
On the other hand, the results of the three Hart Precinct samples for the March/April period were consistent and close to the control sample (approximately only 1.5 times higher) at the Airfield. These three results were as expected based on their proximity to each other, distance from the site activities and the nature of such activities.



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APPENDIX I

Photographs of Dust Gauges



Photograph 1- Location 1- Eastern boundary of Hart Precinct, South end (opposite 140 Lebanon Street), approx 15m from fence line



Photograph 2- Location 2- Eastern boundary of Hart Precinct, Middle (opposite 146 Lebanon Street), approx 10m from fence line



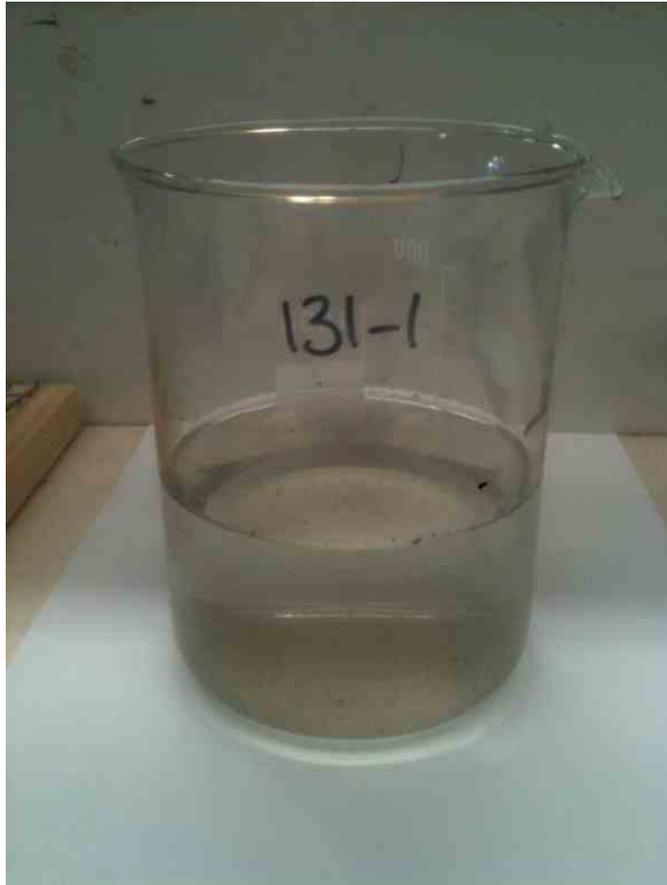
Photograph 3- Location 3- : Eastern boundary of Hart Precinct, North end (opposite 160 Lebanon Street), approx 6m from fence line



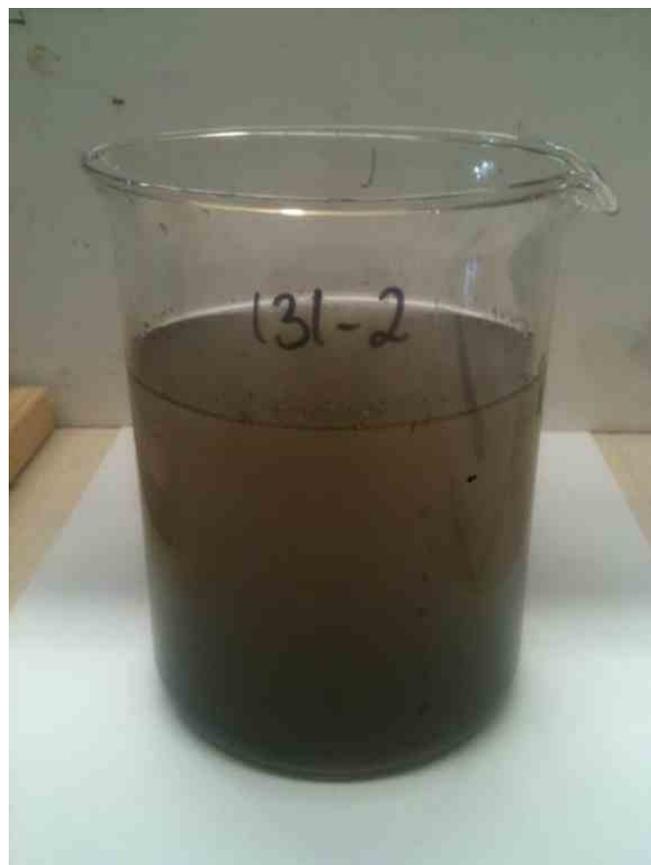
Photograph 4- Location 4- : South-east of airfield near DFO, 14m inside fencing at end of car park

APPENDIX II

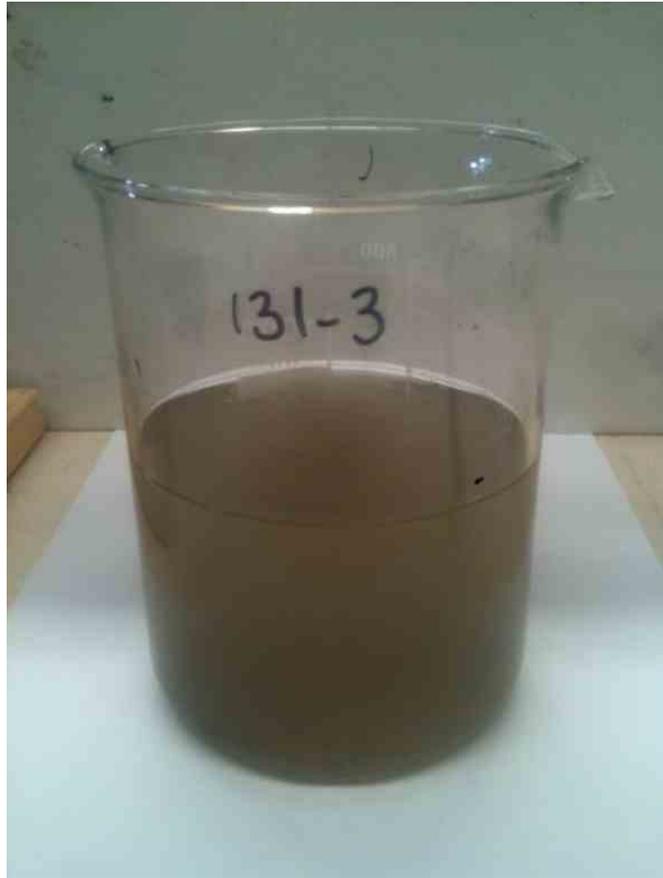
Analytical Reports and Photographs of Deposited Dust



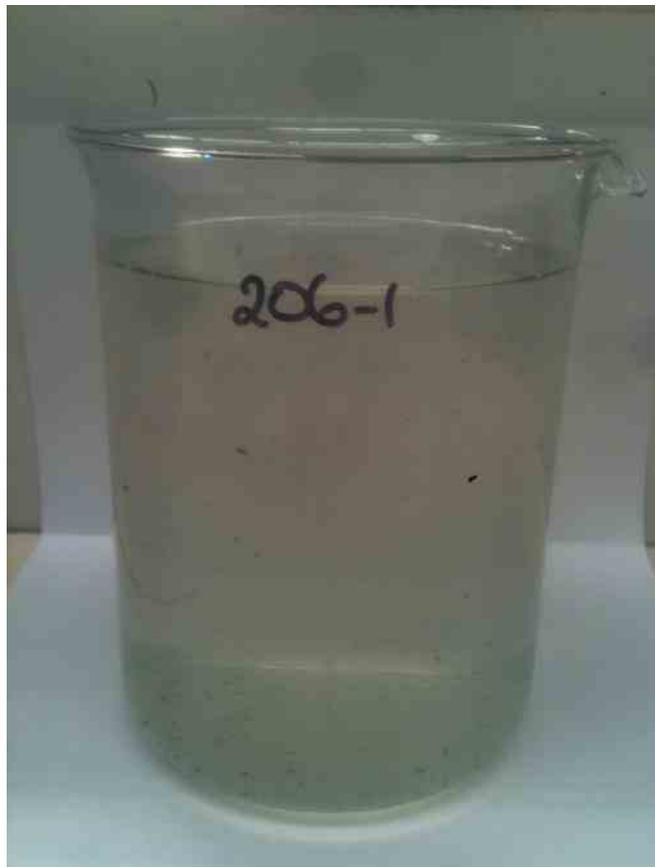
Sample 6946 #1- Location 1 (10/02/2016-10/03/2016)



Sample 6946 #2- Location 2 (10/02/2016-10/03/2016)



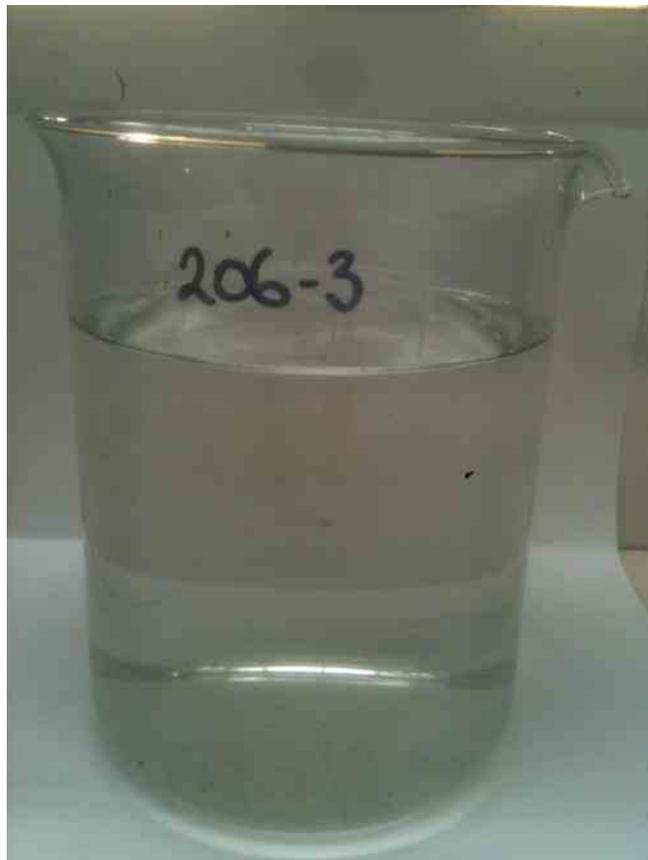
Sample 6946 #3- Location 3 (10/02/2016-10/03/2016)



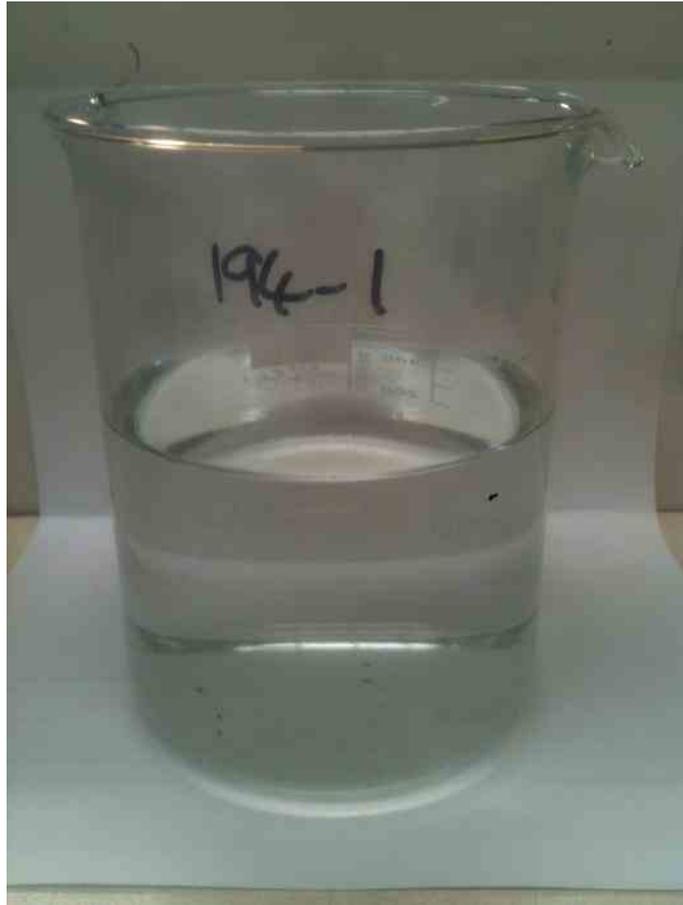
Sample 6946 #1- Location 1 (10/03/2016-11/04/2016)



Sample 6946 #2- Location 2 (10/03/2016-11/04/2016)



Sample 6946 #3- Location 3 (10/03/2016-11/04/2016)



Sample 6946 #4- Location 4 (25/02/2016-24/03/2016)