



TSP EXCEEDANCE REPORT

MONITORING PERIOD

28 – 29 JANUARY 2011

Revision	Prepared	Reviewed	Approved	Date	Description
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1. INTRODUCTION

On the 14th of February 2011, the Esperance Port Sea and Land (ESPL) 'became aware' of laboratory results from MPL Laboratories detailing dust (TSP) exceedences (refer to Table 1). This report is being submitted to DEC (on 23rd of February 2011) within the seven working days following becoming aware of the exceedance, which is consistent with the latest amended Licence (L5099/1974/12) requirement of Condition 7.

Table 1: Emission Concentration Targets from DEC Licence Number L5099/1974/12 issued to EPSL on 6 January 2009.

Emission	Ambient concentration target
Nickel in air	0.14 µg/m ³
Dust as PM ₁₀	50 µg/m ³
Dust as TSP	90 µg/m ³
Silica in air	5 µg/m ³

This exceedance was recorded at Site 1 for the ***monitoring period of 1506hrs 28th of January 2011 to 1609hrs on 29th of January 2011.*** EPSL has also reported a PM10 exceedance at all four of its sites to DEC for almost the same period from 1200hrs 28/1/2011 to 1200hrs 29/1/2011. Site 1 was also reporting the highest values of dust, albeit the smaller (<10µm) particulates. So this exceedance came as no surprise since during these days large amounts of foreshore sand were mobilised and complaints of cars being sand blasted were received from guests staying in motels along the Esperance foreshore.

2. INVESTIGATION

2.1 Date, time and location of exceedance

The recorded TSP concentration above the emission concentration target (*Table 1*) according to the Licence L5099/1974/12 for the monitoring period of **1506 hours 28th January 2011 to 1609 hours 29th January** is as follows:

- Site 1: 91.0 µg/m³

Site 1 is located downwind of berths 1 and 2 in a south easterly wind but downwind of berth 3 in an easterly wind (*Figure 1*).



Disclaimer: This map consists of shape files generated by EPSL (2011) and Landgate (2010). This map is not to be used for navigational purposes. Positional accuracy should be considered as approximate.



Title: Location of HVAS/TEOM monitoring sites 1 to 4, HVAS community monitoring site 5, E-Sampler 5 to 8 (EP5-EP8) and EP7 - Meteorological station

Scale: 1:10,000



Date: 5 January 2011

Map no.

Figure 1: Location of air quality monitoring stations.

2.2 Port Activities

The following Port activities occurred during the monitoring period:

- Clipper Kiku was along side Berth 1 being loaded with wheat between 0031 hours 28th of January 2011 to 1557 hours 29th of January 2011.
- 34,362 tonnes of iron ore averaged across 4 trains
- 124 tonnes of nickel concentrate across 2 trucks

2.3 Meteorological Activities

The wind directions for the 24 hour period are in the wind arc from W to ESE (**Figure 2**). The maximum hourly average wind speed of 6.8 m/s (24.3km/hr) was recorded from the S at 1400 on the 29th of January 2011. The ‘Beaufort Wind Force Scale’ is a measure of understanding wind speeds in descriptive terminology. A wind speed of 6.8 m/s is described as a ‘moderate winds’ (BOM, 2011).

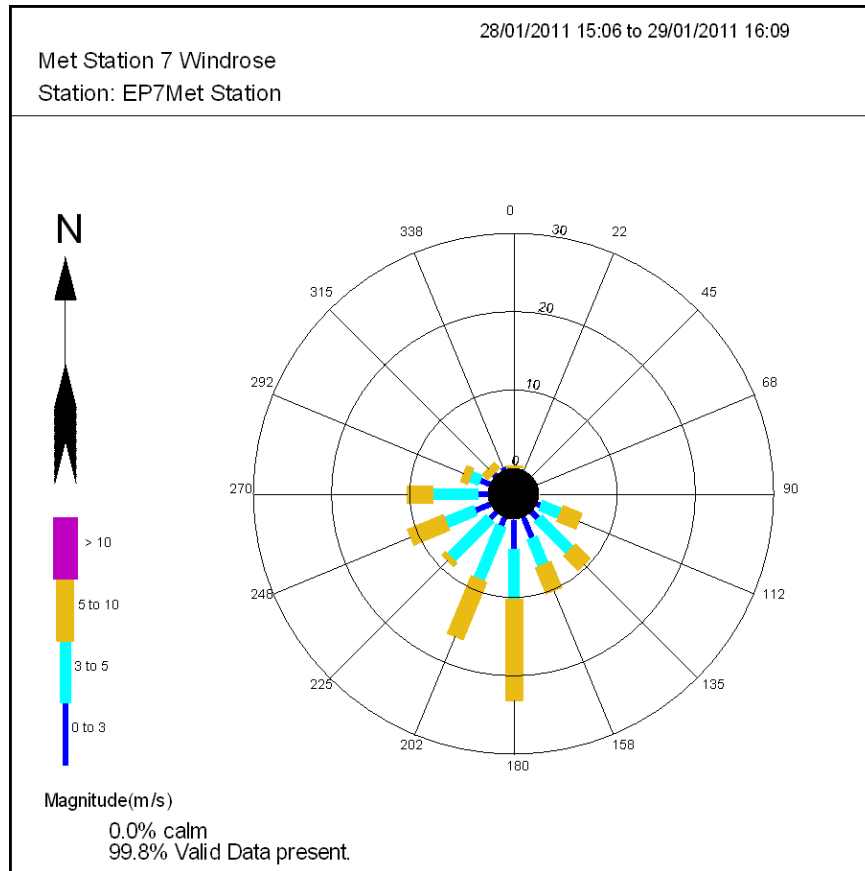


Figure 2 Windrose for the monitoring period 1506 hrs 28/01/2011 to 1609 hrs 29/01/2011. Raw data source: EP7 monitoring station, Berth 3.

2.4 TSP Dust Levels (24hour period)

The likely sources of TSP for site 1 accounting for the value of $91\mu\text{g}/\text{m}^3$ are mainly (74%) the Esperance Township in winds S to WNW Site 1 (refer to Figure 2). For the remaining 26% of the time, light to moderate winds from ESE to SE potentially carried TSP from the Esperance Port beach, Berth 1 grain loading activity and unsealed surfaces the CBH lease area. EPSL uses a dust binding agent to reduce its dust emissions from unsealed areas surrounding iron sheds 1, 2, 3 and 4. Iron ore and nickel concentrates did not contribute significantly to TSP exceedance at Site 1 given:

- Fe 0.5% of total TSP and
- Nickel less than laboratory detection limit.

3. CONCLUSIONS

The TSP dust exceedance at site 1 (1506hr 28/01/2011 to 1609 29/01/2011) is likely to be mainly due to the combination of hot, dry conditions and winds mobilising TSP from the Esperance Town south to west of the Port for 74% of the period was the main contributor to the exceedance. Also based on wind direction, the TSP contribution from the Port can only be attributed to 26% of the period. This includes the Esperance Port Beach, grain ship loading activities at Berth 1, and unsealed surfaces of the CBH lease area where there is no dust binding agent being applied.

3.1 Corrective Action

The event is predominately due to meteorological conditions, and the Port is not the main contributor of the TSP exceedance, consistent with the conclusions of the PM10 exceedance report also submitted to DEC. EPSL has already suggested to its lessee (CBH) it should use a dust binding agent to reduce dust emissions from its unsealed areas.

APPENDIX A MPL LABORATORY REPORTS

Client Reference: Dust Analysis



Part of the EnviroLab Group



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CERTIFICATE OF ANALYSIS 108838

Client:
Esperance Ports - Sea and Land
 PO Box 35
 Esperance
 WA 6450

Attention: C Magana

Sample log in details:

Your Reference: Dust Analysis
 No. of samples: 36 High Volume Filters
 Date samples received: 7/02/11
 Date completed instructions received: 7/02/11
 Location:

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: 14/02/11
 Date of Preliminary Report: Not issued
 Issue Date: 11/02/11

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 Accredited for compliance with ISO/IEC 17025.
 Tests not covered by NATA are denoted with *.

Results Approved By:


 Dr Monika Berger
 Supervisor - Micro, Asbestos, Dust

MPL Reference: 108838
 Revision No: R 00

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Metals in High Volume Filters							
Our Reference:	UNITS	PQL	108838-1	108838-2	108838-3	108838-4	108838-5
Your Reference	--	--	EAP511	EAP512	EAP513	EAP514	EAP515
Location	--	--	Site 4	Site 3	Site 2	Site 1	Site 5
Date Sampled			26/01/11	26/01/11	26/01/11	26/01/11	26/01/11
Dust	mg/Filter	0.1	43	42	62	74	44
Dust in Air	µg/m ³	0.1	28	28	41	49	29
Iron	µg/Filter	20	580	620	1,500	1,300	370
Iron in Air	µg/m ³	0.01	0.39	0.41	1.0	0.83	0.24
Nickel	µg/Filter	5	<5.0	<5.0	13	<5.0	<5.0
Nickel in Air	µg/m ³	0.002	<0.002	<0.002	0.010	<0.002	<0.002
Lead	µg/Filter	5	<5.0	<5.0	<5.0	<5.0	<5.0
Lead in Air	µg/m ³	0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lithium	µg/Filter	5	<5.0	<5.0	<5.0	<5.0	<5.0
Lithium in Air	µg/m ³	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sulfur	µg/Filter	50	1,200	1,300	1,500	1,300	1,200
Sulfur in Air	µg/m ³	0.03	0.82	0.86	0.97	0.88	0.80

Metals in High Volume Filters							
Our Reference:	UNITS	PQL	108838-6	108838-7	108838-8	108838-9	108838-10
Your Reference	--	--	EAP516	EAP517	EAP518	EAP519	EAP520
Location	--	--	Blank	Site 4	Site 3	Site 2	Site 1
Date Sampled			27/01/11	27/01/11	27/01/11	27/01/11	27/01/11
Dust	mg/Filter	0.1	1.7	98	81	110	110
Dust in Air	µg/m ³	0.1	[NA]	61	50	70	69
Iron	µg/Filter	20	200	[NA]	[NA]	[NA]	[NA]
Nickel	µg/Filter	5	<5.0	[NA]	[NA]	[NA]	[NA]
Lead	µg/Filter	5	<5.0	[NA]	[NA]	[NA]	[NA]
Lithium	µg/Filter	5	<5.0	[NA]	[NA]	[NA]	[NA]
Sulfur	µg/Filter	50	720	[NA]	[NA]	[NA]	[NA]

Metals in High Volume Filters							
Our Reference:	UNITS	PQL	108838-11	108838-12	108838-13	108838-14	108838-15
Your Reference	--	--	EAP521	EAP522	EAP523	EAP524	EAP525
Location	--	--	Site 5	Blank	Site 4	Site 3	Site 2
Date Sampled			27/01/11	28/01/11	28/01/11	28/01/11	28/01/11
Dust	mg/Filter	0.1	97	3.1	110	110	130
Dust in Air	µg/m ³	0.1	60	[NA]	67	67	80

Metals in High Volume Filters							
Our Reference:	UNITS	PQL	108838-16	108838-17	108838-18	108838-19	108838-20
Your Reference	--	--	EAP526	EAP527	EAP528	EAP529	EAP530
Location	--	--	Site 1	Site 5	Blank	Site 4	Site 3
Date Sampled			28/01/11	28/01/11	29/01/11	29/01/11	29/01/11
Dust	mg/Filter	0.1	140	120	0.50	57	58
Dust in Air	µg/m ³	0.1	91	74	[NA]	38	38
Iron	µg/Filter	20	700	[NA]	[NA]	430	700

MPL Reference: 108838
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Client Reference: Dust Analysis

Metals in High Volume Filters							
Our Reference:	UNITS	PQL	108838-26	108838-27	108838-28	108838-29	108838-30
Your Reference	--	--	EAP536	EAP537	EAP538	EAP539	EAP540
Location	--	--	Site 3	Site 2	Site 1	Site 5	Blank
Date Sampled			30/01/11	30/01/11	30/01/11	30/01/11	
Dust	mg/filter	0.1	70	78	81	71	4.3
Dust in Air	µg/m ³	0.1	48	53	55	48	[NA]
Iron	µg/filter	20	830	1,100	960	470	200
Iron in Air	µg/m ³	0.01	0.43	0.73	0.66	0.32	[NA]
Nickel	µg/filter	5	<5.0	7.0	<5.0	<5.0	<5.0
Nickel in Air	µg/m ³	0.002	<0.002	<0.002	<0.002	<0.002	[NA]
Lead	µg/filter	5	<5.0	<5.0	<5.0	<5.0	<5.0
Lead in Air	µg/m ³	0.003	<0.003	<0.003	<0.003	<0.003	[NA]
Lithium	µg/filter	5	<5.0	<5.0	<5.0	<5.0	<5.0
Lithium in Air	µg/m ³	0.002	<0.002	<0.002	<0.002	<0.002	[NA]
Sulfur	µg/filter	50	1,700	1,600	1,800	2,000	750
Sulfur in Air	µg/m ³	0.03	1.2	1.1	1.2	1.4	[NA]

Metals in High Volume Filters							
Our Reference:	UNITS	PQL	108838-31	108838-32	108838-33	108838-34	108838-35
Your Reference	--	--	EAP541	EAP542	EAP543	EAP544	EAP545
Location	--	--	Site 4	Site 3	Site 2	Site 1	Site 5
Date Sampled			31/01/11	31/01/11	31/01/11	31/01/11	31/01/11
Dust	mg/filter	0.1	33	34	46	49	37
Dust in Air	µg/m ³	0.1	22	23	31	33	25

Metals in High Volume Filters				
Our Reference:	UNITS	PQL	108838-36	108838-37
Your Reference	--	--	EAP546	Lab Blank
Location	--	--	Blank	
Date Sampled				
Dust	mg/filter	0.1	2.9	[NA]
Iron	µg/filter	20	[NA]	190
Nickel	µg/filter	5	[NA]	<5.0
Lead	µg/filter	5	[NA]	<5.0
Lithium	µg/filter	5	[NA]	<5.0
Sulfur	µg/filter	50	[NA]	680