ESPERANCE PORTS SEA AND LAND

TSP EXCEEDANCE REPORT

MONITORING PERIOD 20TH NOVEMBER 2010

Revision	Prepared	Reviewed	Approved	Date	Description
1	M. Tarusello	C. Magana		06/12/2010	
2	A Leonard	A. Leonard		7/12/2010	

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FIGURE

TABLE

1. PURPOSE

The Esperance Port Sea and Land (ESPL) laboratory results from MPL Laboratories show 100 µg TSP /m^3 at site 4 from 1307 on the 20th of November 2010 to 1547 on the 21st of November 2010. This is in excess of ambient concentration targets replicated in ***Table 1*** below.

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

EPSL received the MPL laboratory report via email and officially became aware of the exceedance on the on the 30th of November 2010. A copy of the laboratory report is included as ***Appendix A***.

1.1 Relocation of Site 4

EPSL relocated site 4 from Panaroma Place to Bostock Street on the 3rd of November 2010. The owner of the property where the monitoring station Site 4 was located requested that the equipment be removed (***Figure 1***).

2. INVESTIGATION

2.1 Date & time of the exceedance

The recorded TSP concentration exceeded the emission concentration target (***Table 1***) according to the Licence L5099/1974/12 for the monitoring period of **1307 on the 20th of November 2010 to 1547 on the 21st of November 2010.** This will be referred to as the 'exceedance period'. The TSP value analysed by MPL laboratories for the High Volume Air Sampler (HVAS) was:

- Site 4 - 100 µg/m^3

Figure 1: Location of HVAS monitoring sites 1 to 4, HVAS monitoring site 5, E-Sampler 7 meteorological station, Esperance Port, relative to E-Samplers 5, 6 and 8, TEOM/HVAS monitoring sites 1 to 4 and HVAS monitoring site 5.

2.2 Port Activities

The following ship loading activities were occurring at the berth 2 of the Port during the exceedance period:

- Marine Vessel (MV) Stx Ace 6 was alongside Berth 2 unloading gas oil between 0242 hours on the 20th to 1706 hours on the 21st of November 2010.

Other activities include:

- 35,317 tonnes of iron ore averaged across 4 trains;
- 175.5 tonnes of nickel concentrate across 3 trucks (kibbles)*.

2.3 Meterorological Activities

The prevalent wind directions for the exceedance period are shown in ***(Figure 2).*** 49% of the wind was offshore (NNE to NE) but onshore for the remaining 51%. Over 50% of the strong winds (>10 m/s) occurred from the ESE direction. The highest hourly wind speed average for the period was 12.1 m/s blowing from an easterly direction at 1500 hours on the 20th of November 2010, described as a strong wind in the 'Beaufort Wind Force Scale'. The average wind speed for 8.4 m/s (30.2 km/hr) for the exceedance period is described as a fresh wind (BOM 2010).

The daily maximum temperatures reach 31.3°C for the 20th of November and 35.6°C for the 21st of November with the last rainfall of 16.8mm on the 11th of November 2010. The daily average maximum temperature since the last rain fall was 22.3°C (BOM2010).

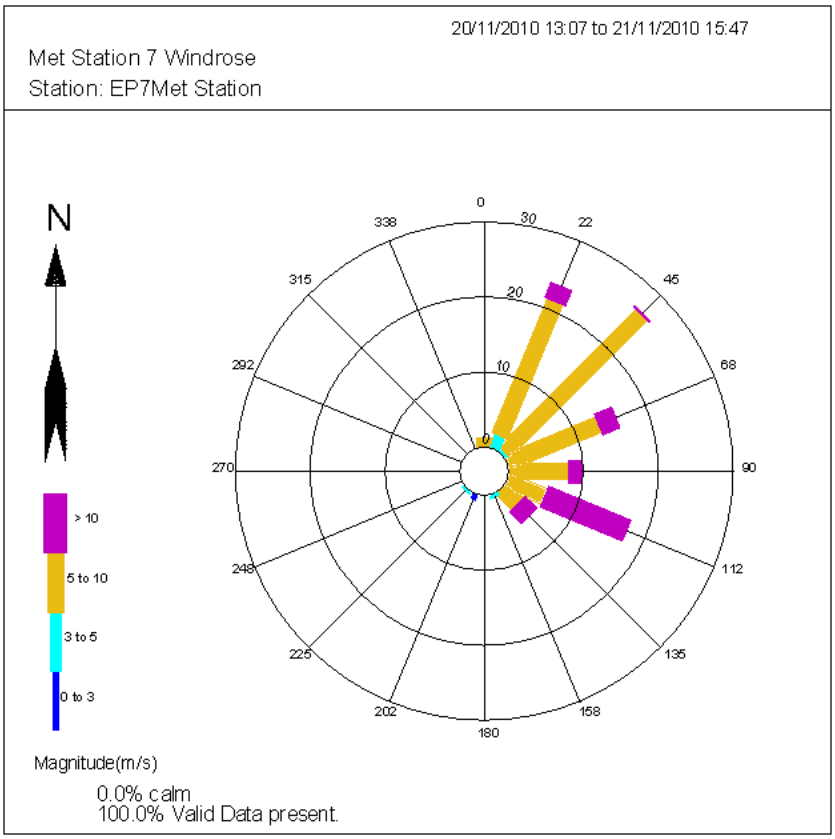

Figure 2: Wind rose for the monitoring period 1307 hrs 20/11/2010 to 1547 hrs 21/11/2010. Raw data source: EP7 monitoring station, Berth 3.

2.4 Reason for exceedance

The strong winds most conducive to causing dust during the exceedance period were from the ESE, putting the CBH/Summit lease areas and the Ports' Shed 3 upwind of site 4. The source of the dust is likely to be unsealed surfaces since the Port activities where minimal at that time except for the fuel ship and traffic. We are not aware of any unusual activity from CBH or Summit and are not aware of any dust management program from unsealed surfaces on these premises. EPSL will use its influence as a landlord to these companies to request that a dust management strategy be implemented on non-sealed surfaces. .

During the monitoring period EPSL had watered down the unsealed surfaces of the Port three times to help reduce dust impact and the residual dust binding agent used by the Port would have also helped reduce dust. The Port implemented dust control strategies by using the dust binding agent "Dustex" on the 26th of February 2010. The Port has applied several maintenance coats since this initial application and completed another application of the dust binding agent Dustex on the 1st December 2010.

Iron ore and nickel concentrates did not contribute significantly to TSP exceedance at Site 4 given:

- Fe was only 2.5% of total TSP and, no iron ore ship loading occurred;
- Nickel was 0.02% of total TSP and, no nickel ship loading occurred.

3. CONCLUSIONS

The TSP exceedance of 100µg/m^3 recorded at site 4 between 20/11/2010 and 21/10/2011 is likely to have resulted from “strong” (>10 m/s) winds from the ESE direction, mobilising dust from unsealed surfaces between EPSL areas local to iron ore Shed 3, and the Summit and CBH lease areas.

EPSL already has a dust management strategy on its unsealed areas. EPSL will endeavour to pursue lessees (CBH and Summitt) to request that a dust management strategy be implemented on non-sealed surfaces by CBH and Summit, the occupiers of their respective lease areas.

APPENDIX A PL LABORATORY REPORTS

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CERTIFICATE OF ANALYSIS 107182

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:	42 High Volume Filters
Date samples received:	23/11/10
Date completed instructions received:	23/11/10
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:	25/11/10
Date of Preliminary Report:	Not issued
Issue Date:	30/11/10

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

Results Approved By:

Dr Monika Boerger
Supervisor – Micro, Asbestos, Dust

Client Reference: Dust Analysis

Metals in High Volume Filters							
Our Reference:	UNITS	PQL	107182-1	107182-2	107182-3	107182-4	107182-5
Your Reference	--	--	EAP87	EAP88	EAP89	EAP90	EAP91
Location	--	--	Site 4	Site 3	Site 2	Site 1	Site 5
Date Sampled			14/11/10	14/11/10	14/11/10	14/11/10	14/11/10
Air Volume	m^3		1,621	1,610	1,603	1,620	1,618
Weight of Filter (initial)	mg	0.02	3501.90	3513.30	3514.40	3,500.00	3,507.00
Weight of Filter (final)	mg	0.02	3,538.00	3539.10	3544.10	3526.30	3556.70
Dust	mg/filter	0.04	36	26	30	26	50
Dust in Air	$\mu g/m^3$	0.1	22	16	19	16	31

Metals in High Volume Filters							
Our Reference:	UNITS	PQL	107182-6	107182-7	107182-8	107182-9	107182-10
Your Reference	--	--	EAP92	EAP93	EAP94	EAP95	EAP96
Location	--	--	Blank	Site 4	Site 3	Site 2	Site 1
Date Sampled				15/11/10	15/11/10	15/11/10	15/11/10
Air Volume	m^3		[NA]	1,473	1,478	1,477	1,480
Weight of Filter (initial)	mg	0.02	3,510.00	3,516.00	3506.40	3516.60	3,514.00
Weight of Filter (final)	mg	0.02	3,514.00	3549.10	3550.50	3534.50	3,560.00
Dust	mg/filter	0.04	4.0	33	44	18	46
Dust in Air	$\mu g/m^3$	0.1	[NA]	22	30	12	31
Iron	µg/filter	20	[NA]	990	840	1,300	620
Iron in Air	$\mu g/m^3$	0.01	[NA]	0.67	0.57	0.90	0.42
Nickel	µg/filter	5	[NA]	<5.0	7.8	6.9	6.4
Nickel in Air	$\mu g/m^3$	0.002	[NA]	<0.002	0.010	<0.002	<0.002
Lead	µg/filter	5	[NA]	<5.0	<5.0	<5.0	<5.0
Lead in Air	$\mu g/m^3$	0.003	[NA]	<0.003	<0.003	<0.003	<0.003
Lithium	µg/filter	5	[NA]	<5.0	<5.0	<5.0	<5.0
Lithium in Air	$\mu g/m^3$	0.002	[NA]	<0.002	<0.002	<0.002	<0.002
Sulfur	µg/filter	50	[NA]	1,000	950	900	950
Sulfur in Air	$\mu g/m^3$	0.03	[NA]	0.70	0.64	0.61	0.64

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Sea & Land

Client Reference: Dust Analysis

Metals in High Volume Filters Our Reference: Your Reference Location Date Sampled	UNITS -- -- --	PQL -- --	107182-11 EAP97 Site 5 15/11/10	107182-12 EAP98 Blank	107182-13 EAP99 Site 4 16/11/10	107182-14 EAP100 Site 3 16/11/10	107182-15 EAP102 Site 1 16/11/10
Air Volume	m^3		1,488	[NA]	1,601	1,608	1,616
Weight of Filter (initial)	mg	0.02	3526.90	3519.60	3511.30	3515.60	3510.40
Weight of Filter (final)	mg	0.02	3,546.00	3,524.00	3576.20	3555.80	3542.10
Dust	mg/filter	0.04	19	4.4	65	40	32
Dust in Air	$\mu g/m^3$	0.1	13	[NA]	41	25	20
Iron	µg/filter	20	490	170	[NA]	[NA]	[NA]
Iron in Air	$\mu g/m^3$	0.01	0.33	[NA]	[NA]	[NA]	[NA]
Nickel	µg/filter	5	<5.0	<5.0	[NA]	[NA]	[NA]
Nickel in Air	$\mu g/m^3$	0.002	<0.002	[NA]	[NA]	[NA]	[NA]
Lead	µg/filter	5	<5.0	<5.0	[NA]	[NA]	[NA]
Lead in Air	$\mu g/m^3$	0.003	<0.003	[NA]	[NA]	[NA]	[NA]
Lithium	µg/filter	5	<5.0	<5.0	[NA]	[NA]	[NA]
Lithium in Air	$\mu g/m^3$	0.002	<0.002	[NA]	[NA]	[NA]	[NA]
Sulfur	µg/filter	50	970	720	[NA]	[NA]	[NA]
Sulfur in Air	$\mu g/m^3$	0.03	0.65	[NA]	[NA]	[NA]	[NA]

Metals in High Volume Filters Our Reference: Your Reference Location Date Sampled	UNITS -- -- --	PQL -- --	107182-16 EAP103 Site 5 16/11/10	107182-17 EAP104 Blank	107182-18 EAP105 Site 4 17/11/10	107182-19 EAP106 Site 3 17/11/10	107182-20 EAP107 Site 2 17/11/10
Air Volume	m^3		1,622	[NA]	1,619	1,628	1,626
Weight of Filter (initial)	mg	0.02	3,511.00	3520.60	3514.70	3527.60	3509.90
Weight of Filter (final)	mg	0.02	3539.30	3525.50	3558.40	3573.60	3572.80
Dust	mg/filter	0.04	28	4.9	44	46	63
Dust in Air	$\mu g/m^3$	0.1	17	[NA]	27	28	39

Metals in High Volume Filters Our Reference: Your Reference Location Date Sampled	UNITS -- -- --	PQL -- --	107182-21 EAP108 Site 1 17/11/10	107182-22 EAP109 Site 5 17/11/10	107182-23 EAP110 Blank	107182-24 EAP21 Site 4 18/11/10	107182-25 EAP111 Site 3 18/11/10
Air Volume	m^3		1,634	1,642	[NA]	1,521	1,525
Weight of Filter (initial)	mg	0.02	3518.90	3511.20	3497.30	3471.80	3521.60
Weight of Filter (final)	mg	0.02	3568.90	3540.20	3501.60	3558.40	3592.30
Dust	mg/filter	0.04	50	29	4.3	87	71
Dust in Air	$\mu g/m^3$	0.1	31	18	[NA]	57	46
Iron	µg/filter	20	[NA]	[NA]	[NA]	1,300	1,100
Iron in Air	$\mu g/m^3$	0.01	[NA]	[NA]	[NA]	0.88	0.72
Nickel	µg/filter	5	[NA]	[NA]	[NA]	5.0	9.5
Nickel in Air	$\mu g/m^3$	0.002	[NA]	[NA]	[NA]	<0.002	0.010
Lead	µg/filter	5	[NA]	[NA]	[NA]	<5.0	<5.0

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Client Reference: Dust Analysis

Metals in High Volume Filters Our Reference: Your Reference Location Date Sampled	UNITS -- -- --	PQL -- --	107182-21 EAP108 Site 1 17/11/10	107182-22 EAP109 Site 5 17/11/10	107182-23 EAP110 Blank	107182-24 EAP21 Site 4 18/11/10	107182-25 EAP111 Site 3 18/11/10
Lead in Air	$\mu g/m^3$	0.003	[NA]	[NA]	[NA]	<0.003	<0.003
Lithium	µg/filter	5	[NA]	[NA]	[NA]	<5.0	<5.0
Lithium in Air	$\mu g/m^3$	0.002	[NA]	[NA]	[NA]	<0.002	<0.002
Sulfur	µg/filter	50	[NA]	[NA]	[NA]	1,100	1,200
Sulfur in Air	$\mu g/m^3$	0.03	[NA]	[NA]	[NA]	0.72	0.82

Metals in High Volume Filters Our Reference: Your Reference Location Date Sampled	UNITS -- -- --	PQL -- --	107182-26 EAP112 Site 2 18/11/10	107182-27 EAP113 Site 1 18/11/10	107182-28 EAP114 Site 5 18/11/10	107182-29 EAP115 Blank	107182-30 EAP116 Site 4 19/11/10
Air Volume	m^3		1,522	1,531	1,534	[NA]	1,538
Weight of Filter (initial)	mg	0.02	3515.10	3515.60	3500.50	3500.10	3497.40
Weight of Filter (final)	mg	0.02	3569.20	3573.80	3546.10	3504.60	3617.90
Dust	mg/filter	0.04	54	58	46	4.5	120
Dust in Air	$\mu g/m^3$	0.1	36	38	30	[NA]	78
Iron	µg/filter	20	1,900	1,200	450	140	[NA]
Iron in Air	$\mu g/m^3$	0.01	1.2	0.80	0.29	[NA]	[NA]
Nickel	µg/filter	5	12	5.2	<5.0	<5.0	[NA]
Nickel in Air	$\mu g/m^3$	0.002	0.010	<0.002	<0.002	[NA]	[NA]
Lead	µg/filter	5	5.4	<5.0	<5.0	<5.0	[NA]
Lead in Air	$\mu g/m^3$	0.003	<0.003	<0.003	<0.003	[NA]	[NA]
Lithium	µg/filter	5	<5.0	<5.0	<5.0	<5.0	[NA]
Lithium in Air	$\mu g/m^3$	0.002	<0.002	<0.002	<0.002	[NA]	[NA]
Sulfur	µg/filter	50	1,300	1,200	1,100	590	[NA]
Sulfur in Air	$\mu g/m^3$	0.03	0.87	0.81	0.73	[NA]	[NA]

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Client Reference Dust Analysis

Metals in High Volume Filters Our Reference: Your Reference Location Date Sampled	UNITS -- -- --	PQL -- --	107182-31 EAP117 Site 3 19/11/10	107182-32 EAP118 Site 2 19/11/10	107182-33 EAP119 Site 1 19/11/10	107182-34 EAP120 Site 5 19/11/10	107182-35 EAP189 Blank
Air Volume	m^3		1,547	1,536	1,547	1,547	[NA]
Weight of Filter (initial)	mg	0.02	3497.80	3494.60	3,498.00	3494.20	3505.90
Weight of Filter (final)	mg	0.02	3577.40	3575.10	3585.90	3534.90	3508.90
Dust	mg/filter	0.04	80	80	88	41	3.0
Dust in Air	$\mu g/m^3$	0.1	51	52	57	26	[NA]

Metals in High Volume Filters Our Reference: Your Reference Location Date Sampled	UNITS -- -- --	PQL -- --	107182-36 EAP121 Site 4 20/11/10	107182-37 EAP122 Site 3 20/11/10	107182-38 EAP123 Site 2 20/11/10	107182-39 EAP124 Site 1 20/11/10	107182-40 EAP125 Site 5 20/11/10
Air Volume	m^3		1,720	1,713	1,714	1,726	1,733
Weight of Filter (initial)	mg	0.02	3502.60	3513.80	3499.80	3500.90	3513.20
Weight of Filter (final)	mg	0.02	3677.90	3627.60	3,613.00	3641.50	3586.30
Dust	mg/filter	0.04	180	110	110	140	73
Dust in Air	$\mu g/m^3$	0.1	100	66	66	81	42
Iron	µg/filter	20	4,300	[NA]	[NA]	[NA]	[NA]
Iron in Air	$\mu g/m^3$	0.01	2.5	[NA]	[NA]	[NA]	[NA]
Nickel	µg/filter	5	34	[NA]	[NA]	[NA]	[NA]
Nickel in Air	$\mu g/m^3$	0.002	0.020	[NA]	[NA]	[NA]	[NA]
Lead	µg/filter	5	5.0	[NA]	[NA]	[NA]	[NA]
Lead in Air	$\mu g/m^3$	0.003	<0.003	[NA]	[NA]	[NA]	[NA]
Lithium	µg/filter	5	5.0	[NA]	[NA]	[NA]	[NA]
Lithium in Air	$\mu g/m^3$	0.002	<0.002	[NA]	[NA]	[NA]	[NA]
Sulfur	µg/filter	50	4,600	[NA]	[NA]	[NA]	[NA]
Sulfur in Air	$\mu g/m^3$	0.03	2.7	[NA]	[NA]	[NA]	[NA]

Client Reference Dust Analysis

Metals in High Volume Filters Our Reference: Your Reference Location Date Sampled	UNITS -- -- --	PQL -- --	107182-41 EAP126 Blank 20/11/10	107182-42 EAP101 Site 2 16/11/10	107182-43 Lab Blank
Air Volume	m^3		[NA]	1,608	[NA]
Weight of Filter (initial)	mg	0.02	3499.40	3506.20	[NA]
Weight of Filter (final)	mg	0.02	3504.10	3548.70	[NA]
Dust	mg/filter	0.04	4.7	42	[NA]
Dust in Air	$\mu g/m^3$	0.1	[NA]	26	[NA]
Iron	µg/filter	20	[NA]	[NA]	160
Nickel	µg/filter	5	[NA]	[NA]	<5.0
Lead	µg/filter	5	[NA]	[NA]	<5.0
Lithium	µg/filter	5	[NA]	[NA]	<5.0
Sulfur	µg/filter	50	[NA]	[NA]	640

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Client Reference: Dust Analysis

Method ID	Methodology Summary
WILA B4	Airborne samples analysed according to AS 2985 for Respirable Dust or AS 3640 for Inhalable Dust . Sample results based on volume data supplied by client. Samples tested as received, *accreditation does not cover sampling.
WILA B17	Metals in soil and water by ICP-OES.

Client Reference: Dust Analysis

Report Comments:
This report replaces the one dated 29/11/10 due to reporting metals results for sample no 36

INS: Insufficient sample for this test; NT: Not tested; PQL: Practical Quantitation Limit; <: Less than; >: Greater than
RPD: Relative Percent Difference; NA: Test not required; LCS: Laboratory Control Sample; NR: Not requested
NS: Not specified; NEPM: National Environmental Protection Measure
DOL: Sample rejected due to particulate overload

Quality Control Definitions
Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria
Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however were analysed at a frequency to meet of exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD a matrix spike recoveries for the sample batch were within laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spike and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and Speciated Phenols is acceptable.
Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and Speciated Phenols.

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