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Project **FORTH REPLACEMENT CROSSING**

Document title

**AIR QUALITY MONITORING REPORT  
APRIL 2018**

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## **1. INTRODUCTION**

- 1.1.** Air quality monitoring is being undertaken by FCBC during the construction of the Forth Replacement Crossing and the associated road network. This report details the air quality monitoring that is currently being undertaken across the site and presents the monitoring results for April 2018.
  
- 1.2.** Air quality monitoring during this period has been undertaken in accordance with the Code of Construction Practice (CoCP) and the Dust and Air Quality Management Plan (DAQMP) contained within the Environmental Management Plan (EMP).
  
- 1.3.** The Queensferry Crossing opened to traffic at the end of August 2017. Therefore, the monitoring regime was reduced and a number of monitors removed.



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## **2. MONITORING EQUIPMENT AND LOCATIONS**

**2.1.** Air quality is being monitored on site using both automatic light scatter dust meters and Frisbee gauge dust deposition monitoring. Four Frisbee gauges are currently set up at sensitive locations across the site to measure dust deposition rates (Figure 1). Three automatic light scatter meters are installed at sensitive locations near the south abutment of the Queensferry Crossing to measure real time particulate matter (PM<sub>10</sub>) concentrations and the Total Suspended Particle (TSP) concentrations (Figure 2). These meters are calibrated annually. Table 1 lists the air quality monitoring equipment present at each monitoring location, including the date it was installed.

**2.2.** Light scatter type monitoring equipment have been selected as a site monitoring tool to create a live network which assesses the levels of fugitive particulate matter, principally airborne dust. These monitors require less space, maintenance and power than other real time monitors such as a Tapered Element Oscillating Microbalance (TEOM) which is used and designed to measure particulate levels to exceedingly high standards, including measuring long-term compliance to statutory limits. Light scatter meters are more practicable to deploy. However, the meters do generally record levels higher than those measured by the TEOM. The meters can also be affected by atmospheric moisture content which further increases reported levels. Accordingly, any elevations of statutory limits should be treated as precautionary exceedances. The monitors are reliable for on-site monitoring and the establishment of action thresholds to ensure unforeseen activities generating significant dust are identified and suitably controlled. Light scatter meters are becoming the construction and waste industries norm for particulate dust monitoring.

**2.3.** In association with air quality monitoring across the site, temperature and relative humidity are also continually measured by the light scatter meters at Inchgarvie Lodge and Clufflat Brae.

**2.4.** Frequent environmental site inspections are also undertaken by members of the FCBC Environmental Department. These inspections include a dust check to assess the following:

- dust levels on site;
- suppression/dampening down; and
- transportation of materials.



**Figure 1: Example of an Installed Frisbee Gauge Meter**



**Figure 2: Example of an installed Automatic Light Scatter Dust Meter**

**Table 1: Air Quality Monitoring Locations**

Ref:	Monitoring Location	Monitoring Equipment	Installation Date	Activities in April
M10	Inchgarvie Lodge	Frisbee	22/08/11	<ul style="list-style-type: none"> <li>• South abutment finishing works</li> <li>• Internal Bridge finishing Works</li> </ul>
		Automatic light scatter meter	17/10/11	
M11	Linn Mill	Frisbee	22/08/11	<ul style="list-style-type: none"> <li>• South abutment finishing works</li> <li>• Internal Bridge finishing Works</li> </ul>
		Automatic light scatter meter	06/12/11	
M12	Clufflat	Frisbee	29/08/11	<ul style="list-style-type: none"> <li>• South abutment finishing works</li> <li>• Internal Bridge finishing Works</li> </ul>
M13	Clufflat Brae	Frisbee	21/09/11	
		Automatic light scatter meter	24/10/11	
M18	Newton	TEOM	23/05/12	None

### 3. AIR QUALITY MONITORING RESULTS

#### 3.1. Automatic Light Scatter Dust Meter Monitoring Results

**3.1.1.** As noted in the Air Quality Monitoring Report for February 2018 (REP-00352), FCBC suspended the Automatic Light Scatter Meter monitoring as there were no works being undertaken in the area that would affect the air quality. FCBC will recommence air quality monitoring when work is expected to start again in the area.





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### **3.2. Frisbee Dust Deposition Results**

- 3.2.1.** The Frisbee dust deposition results for April 2018 have been presented in a chart and can be found in Appendix A. Two collections were made in April; these occurred on the 4<sup>th</sup> April and 18<sup>th</sup> April.
  
- 3.2.2.** The site action level for the dust deposition rate has been set at 250 mg/m<sup>2</sup>/day. Exceedances of this level are treated as a potential incident and a review of the works in the vicinity of the site is instigated. A lower site review level has been set at 140 mg/m<sup>2</sup>/day. Where concentrations exceed the lower review threshold the site works are reviewed to ensure good practice is implemented; it is essentially a warning that additional controls may be required.
  
- 3.2.3.** During April there were no exceedances of either the site review or action levels.

### **3.3. Daily Dust Log and Environmental Inspections**

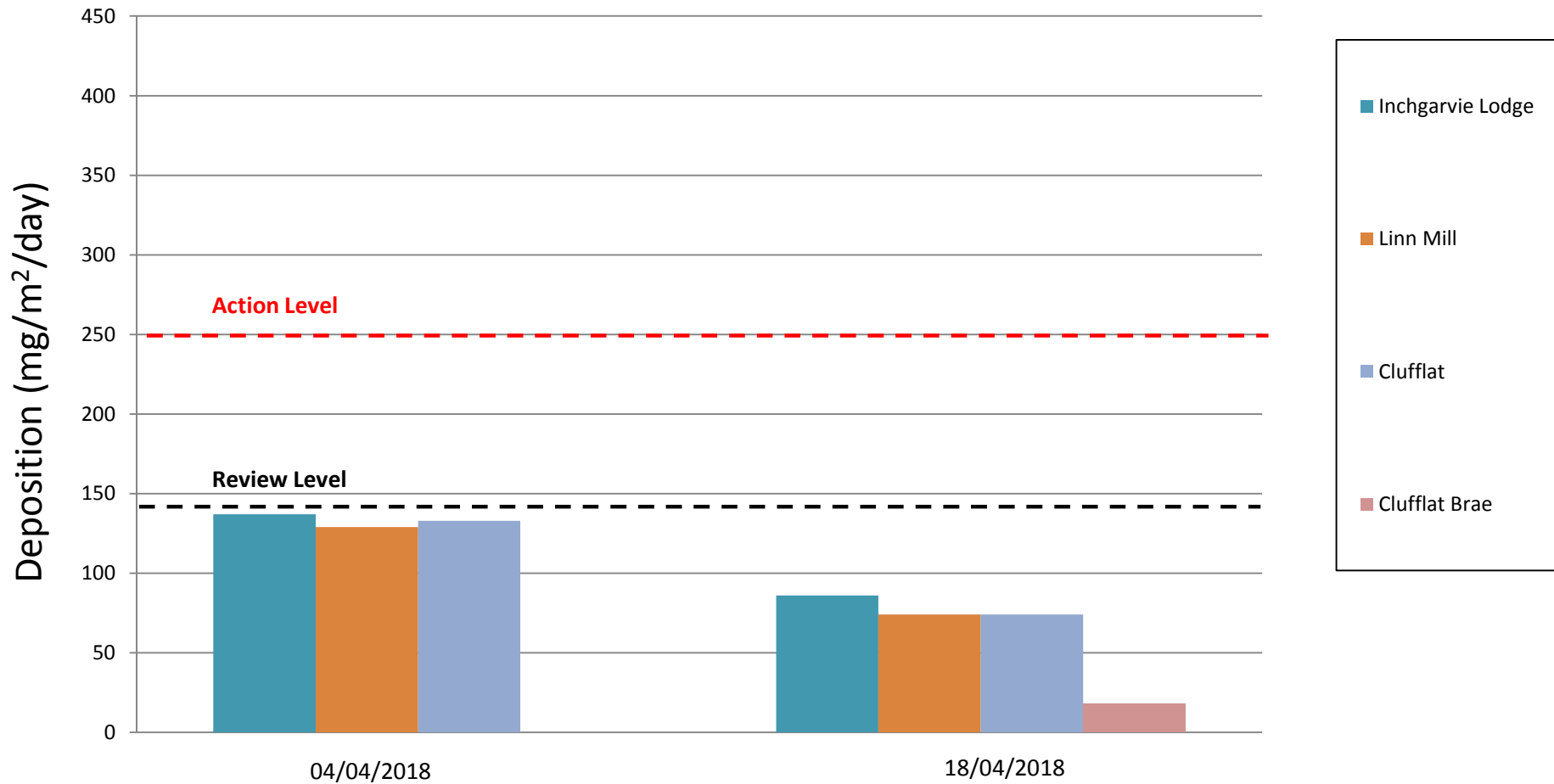
- 3.3.1.** A summary of the daily dust log for April can be found in Appendix B.
  
- 3.3.2.** During this period, full environmental inspections were also undertaken across the site and covered areas where works were being carried out.



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## **APPENDIX A: FRISBEE GAUGE RESULTS**

## Frisbee Dust Deposition Results: April 2018



Note: Data missing from Clufflat Brae on 4/4/18 due to access issues. Results for Clufflat Brae on 18/4 /2018 cover a 4 week period.



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## **APPENDIX B: DAILY DUST LOG**

### Daily Dust Log - North - April 2018

DATE	LOCATION	WIND	WIND DIRECTION	GROUND SURFACE	VISIBLE DUST	DUST DUE TO WORKS (if applicable)	CAUSES OF DUST (if applicable)	COMMENTS AND ACTIONS
01/04/2018								
02/04/2018	N	LIGHT	SW	WET	N			
03/04/2018	N	LIGHT	SW	WET	N			
04/04/2018	N	LIGHT	W	DAMP	N			
05/04/2018	N	LIGHT	SW	DRY	N			
06/04/2018	N	LIGHT	SW	DAMP	N			
07/04/2018								
08/04/2018								
09/04/2018	N	LIGHT	W	DRY	N			
10/04/2018	N	LIGHT	SW	DAMP	N			
11/04/2018	N	LIGHT	SW	DAMP	N			
12/04/2018	N	LIGHT	SW	DRY	N			
13/04/2018	N	LIGHT	S	DAMP	N			
14/04/2018								
15/04/2018								
16/04/2018	N	LIGHT	SW	DRY	N			
17/04/2018	N	LIGHT	S	DRY	N			
18/04/2018	N	LIGHT	SW	DRY	N			
19/04/2018	N	LIGHT	SW	DRY	N			
20/04/2018	N	LIGHT	S	DRY	N			
21/04/2018								
22/04/2018								
23/04/2018	N	LIGHT	W	DRY	N			
24/04/2018	N	LIGHT	S	DRY	N			
25/04/2018	N	LIGHT	SW	DRY	N			
26/04/2018	N	LIGHT	NW	DRY	N			
27/04/2018	N	LIGHT	SW	DRY	N			
28/04/2018								
29/04/2018								
30/04/2018	N	LIGHT	NW	DRY	N			

### Daily Dust Log - South - April 2018

DATE	LOCATION	WIND	WIND DIRECTION	GROUND SURFACE	VISIBLE DUST	DUST DUE TO WORKS (if applicable)	CAUSES OF DUST (if applicable)	COMMENTS AND ACTIONS
01/04/2018								
02/04/2018	S	LIGHT	SW	WET	N			
03/04/2018	S	LIGHT	SW	WET	N			
04/04/2018	S	LIGHT	W	DAMP	N			
05/04/2018	S	LIGHT	SW	DRY	N			
06/04/2018	S	LIGHT	SW	DAMP	N			
07/04/2018								
08/04/2018								
09/04/2018	S	LIGHT	W	DRY	N			
10/04/2018	S	LIGHT	SW	DAMP	N			
11/04/2018	S	LIGHT	SW	DAMP	N			
12/04/2018	S	LIGHT	SW	DRY	N			
13/04/2018	S	LIGHT	S	DAMP	N			
14/04/2018								
15/04/2018								
16/04/2018	S	LIGHT	SW	DRY	N			
17/04/2018	S	LIGHT	S	DRY	N			
18/04/2018	S	LIGHT	SW	DRY	N			
19/04/2018	S	LIGHT	SW	DRY	N			
20/04/2018	S	LIGHT	S	DRY	N			
21/04/2018								
22/04/2018								
23/04/2018	S	LIGHT	W	DRY	N			
24/04/2018	S	LIGHT	S	DRY	N			
25/04/2018	S	LIGHT	SW	DRY	N			
26/04/2018	S	LIGHT	NW	DRY	N			
27/04/2018	S	LIGHT	SW	DRY	N			
28/04/2018								
29/04/2018								
30/04/2018	S	LIGHT	NW	DRY	N			