Contractor

FCBC
Queensferry Crossing
DRAGADOS | AMERICAN BRIDGE INTERNATIONAL
HOCHTIEF | MORRISON CONSTRUCTION

Project

FORTH REPLACEMENT CROSSING

Document title

AIR QUALITY MONITORING REPORT MARCH 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 March 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.

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_{10}) 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 March
M10	Inchgarvie Lodge	Frisbee	22/08/11	• South abutment finishing works • Internal Bridge finishing Works
		Automatic light scatter meter	17/10/11	
M11	Linn Mill	Frisbee	22/08/11	• South abutment finishing works • Internal Bridge finishing Works
		Automatic light scatter meter	06/12/11	
M12	Clufflat	Frisbee	29/08/11	• South abutment finishing works • Internal Bridge finishing Works
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.

3.2. Frisbee Dust Deposition Results

3.2.1. The Frisbee dust deposition results for March 2018 have been presented in a chart and can be found in Appendix A. Two collections were made in March; these occurred on the 7th March and 21st March.

3.2.2. The site action level for the dust deposition rate has been set at 250 mg/m^2/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^2/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 March there was an exceedance of the site review level at Inchgarvie for the period ending 7th March. There were no project related activities being undertaken in this area for the end of February and beginning of March which would give rise to dust. The Frisbee results in the vicinity at Clufflat Brae and Clufflat showed low results for this time period.

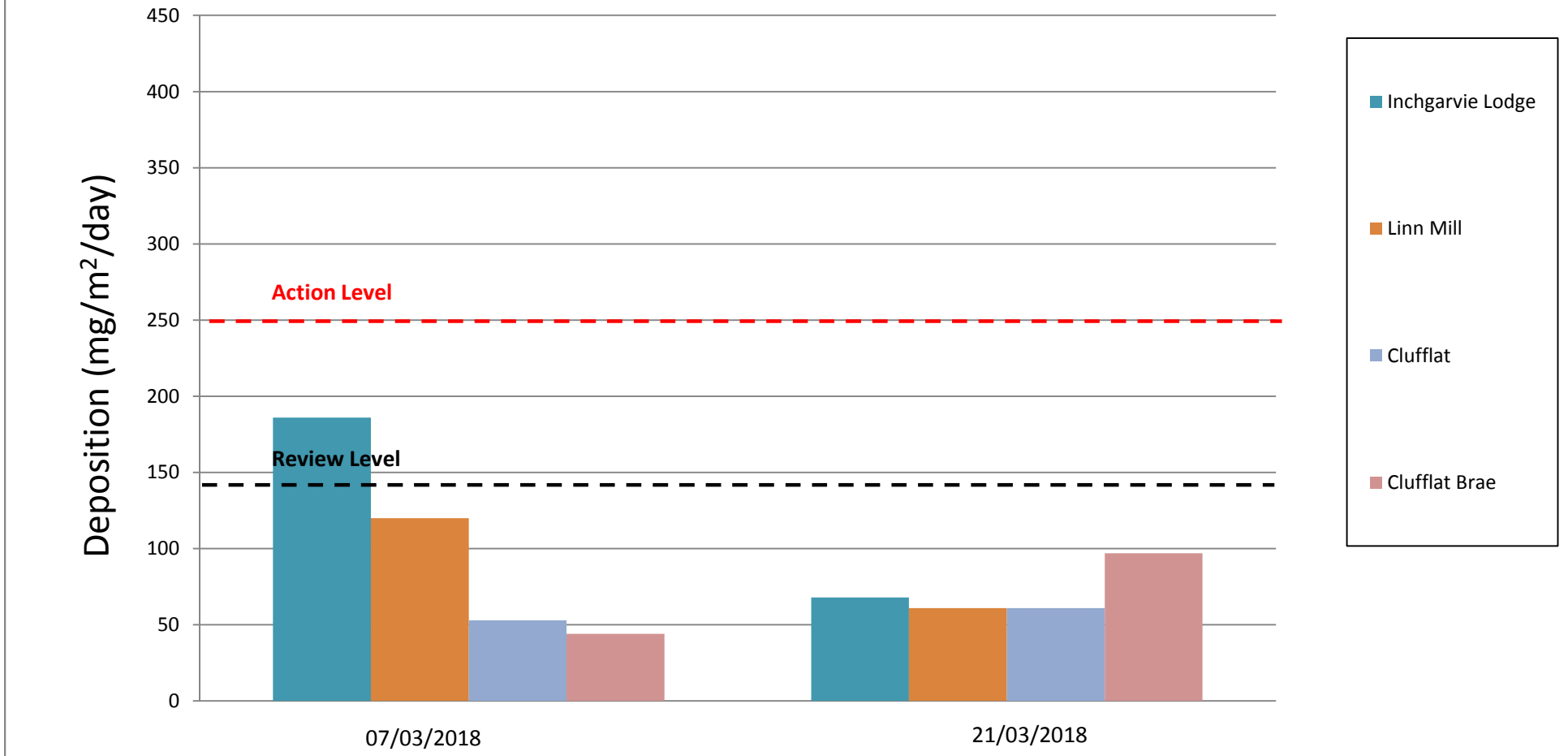
3.3. Daily Dust Log and Environmental Inspections

3.3.1. A summary of the daily dust log for March 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.

APPENDIX A: FRISBEE GAUGE RESULTS

Frisbee Dust Deposition Results: March 2018



APPENDIX B: DAILY DUST LOG

Daily Dust Log - North - March 2018

DATE	LOCATION	WIND	WIND DIRECTION	GROUND SURFACE	VISIBLE DUST	DUST DUE TO WORKS (if applicable)	CAUSES OF DUST (if applicable)	COMMENTS AND ACTIONS
01/03/2018	N	LIGHT	NW	WET	N			
02/03/2018	N	LIGHT	SW	WET	N			
03/03/2018								
04/03/2018								
05/03/2018	N	LIGHT	SW	WET	N			
06/03/2018	N	LIGHT	SW	WET	N			
07/03/2018	N	LIGHT	W	DAMP	N			
08/03/2018	N	LIGHT	S	DAMP	N			
09/03/2018	N	LIGHT	SW	WET	N			
10/03/2018								
11/03/2018								
12/03/2018	N	LIGHT	NW	DAMP	N			
13/03/2018	N	LIGHT	SW	DRY	N			
14/03/2018	N	LIGHT	W	DAMP	N			
15/03/2018	N	LIGHT	W	DAMP	N			
16/03/2018	N	LIGHT	SW	DAMP	N			
17/03/2018								
18/03/2018								
19/03/2018	N	LIGHT	SW	DRY	N			
20/03/2018	N	LIGHT	SW	DAMP	N			
21/03/2018	N	LIGHT	S	DAMP	N			
22/03/2018	N	LIGHT	S	DAMP	N			
23/03/2018	N	LIGHT	SW	DRY	N			
24/03/2018								
25/03/2018								
26/03/2018	N	LIGHT	SW	DRY	N			
27/03/2018	N	LIGHT	S	WET	N			
28/03/2018	N	LIGHT	SW	DAMP	N			
29/03/2018	N	LIGHT	SW	DRY	N			
30/03/2018	N	LIGHT	SW	DAMP	N			
31/03/2018								

Daily Dust Log - South - March 2018

DATE	LOCATION	WIND	WIND DIRECTION	GROUND SURFACE	VISIBLE DUST	DUST DUE TO WORKS (if applicable)	CAUSES OF DUST (if applicable)	COMMENTS AND ACTIONS
01/03/2018	S	LIGHT	NW	WET	N			
02/03/2018	S	LIGHT	SW	WET	N			
03/03/2018								
04/03/2018								
05/03/2018	S	LIGHT	SW	WET	N			
06/03/2018	S	LIGHT	SW	WET	N			
07/03/2018	S	LIGHT	W	DAMP	N			
08/03/2018	S	LIGHT	S	DAMP	N			
09/03/2018	S	LIGHT	SW	WET	N			
10/03/2018								
11/03/2018								
12/03/2018	S	LIGHT	NW	DAMP	N			
13/03/2018	S	LIGHT	SW	DRY	N			
14/03/2018	S	LIGHT	W	DAMP	N			
15/03/2018	S	LIGHT	W	DAMP	N			
16/03/2018	S	LIGHT	SW	DAMP	N			
17/03/2018								
18/03/2018								
19/03/2018	S	LIGHT	SW	DRY	N			
20/03/2018	S	LIGHT	SW	DAMP	N			
21/03/2018	S	LIGHT	S	DAMP	N			
22/03/2018	S	LIGHT	S	DAMP	N			
23/03/2018	S	LIGHT	SW	DRY	N			
24/03/2018								
25/03/2018								
26/03/2018	S	LIGHT	SW	DRY	N			
27/03/2018	S	LIGHT	S	WET	N			
28/03/2018	S	LIGHT	SW	DAMP	N			
29/03/2018	S	LIGHT	SW	DRY	N			
30/03/2018	S	LIGHT	SW	DAMP	N			
31/03/2018								