



Strength. Performance. Passion.

Teven Quarry Air Quality Management Plan

Holcim Australia
May 2022

1.	Introduction	4
1.1	Background	4
1.2	Project Description	4
1.3	Purpose and scope	5
1.4	Objectives	5
2.	Stakeholder Consultation	8
2.1	Pre 2020 Consultation	8
2.2	2020-2021 Consultation	8
3.	Statutory Requirements	9
3.1	Legislation	9
3.2	Guidelines and Standards	9
3.3	Development Consent Requirements	9
3.4	EIS Statement of Commitments	12
4.	Baseline data	14
4.1	Background	14
4.2	Monitoring since Commencement of 2015 DPIE Development Consent	14
5.	Potential Air quality Impacts	16
6.	Air Quality Assessment Criteria	18
7.	Air Quality Management System and Greenhouse Gas Management	19
8.	Air quality monitoring protocol	22
8.1	Monitoring locations	22
8.2	Meteorological monitoring	23
8.3	Monitoring frequency	23
9.	Reporting and Compliance Management	25
9.1	Regular reporting	25
9.2	Evaluation of Air Quality Results	25
9.3	Incident management	25
9.4	Community Complaints and Independent review	26
9.4.1	Community complaints	26
9.4.2	Independent Review	26
9.5	Training	26
10.	Contingency Plan	28
11.	Review and Improvement	31
12.	Definitions	32

13. Roles and responsibilities	33
14. References	34
15. Change Information	35

Tables

Table 1	Approved activities	4
Table 2	Development Consent conditions	9
Table 3	Statement of Commitments	12
Table 4	Independent Environmental Audit – Required Updates	13
Table 5	Air quality criteria	18
Table 6	Air Quality and Greenhouse gas emission control measures	20
Table 7	Air quality monitoring locations	23
Table 8	Trigger Action Response Plan – Air Quality	29
Table 9	Definitions	32
Table 10	Roles and responsibilities	33

Figures

Figure 1	Regional Locality	6
Figure 2	Approved Extraction Area	7
Figure 3	Air Quality Monitoring Locations	24

Appendices

Appendix A Consultation

Appendix B Audit Action Plan Requirements

1. Introduction

1.1 Background

Holcim (Australia) Pty Ltd (Holcim Australia) own and operate the Teven Quarry located at Stokers Lane, Teven, New South Wales (NSW) in the Ballina Local Government Area (LGA). The quarry is approximately eight kilometres (km) north-west of Ballina town centre (**Figure 1**).

A State Significant Development (SSD) application (SSD 6422) for the quarry was approved, under delegation, by the NSW Department of Planning, Industry & Environment (DPIE), formally Department of Planning and Environment (DP&E) on 15 July 2015. The approved extraction area and associated ancillary facilities are shown in **Figure 2**.

Holcim Australia is required to prepare an Air Quality Management Plan (AQMP) for the quarry to the satisfaction of the Secretary of DPIE.

1.2 Project Description

A summary of the approved activities is provided in **Table 1**.

Table 1 **Approved activities**

Project component	Currently approved (2015-2045)
Quarry life	30 years from date of approval (15 July 2015), ie to 15 July 2045
Limits of production	500,000 tonnes per annum (tpa)
Quarry footprint	Shown on Figure 2
Overburden management	Shown on Figure 2
Hours of operation	Blasting: 10:00 am - 3:00 pm Monday–Friday, at no time on Sundays or public holidays All other activities: 7:00 am - 4:00 pm Monday–Friday 7:00 am–4:00 pm Saturday At no time on Sundays or public holidays Extended hours for product loading and dispatch: 7:00 am -10:00 pm Monday to Friday 7:00 am–4:00 pm Saturday At no time on Sundays or public holidays
Transport	Road transport at approved production level
Employment	11 full time equivalent positions
Infrastructure	Fixed primary, secondary and tertiary plants with the addition of a mobile crushing and screening plant, and a mobile pug mill
Site access	Off Stokers Lane
Concrete recycling for re-use	Recycling of up to 10,000 tpa of clean surplus concrete material on site using existing and proposed processing infrastructure for reuse as product

1.3 Purpose and scope

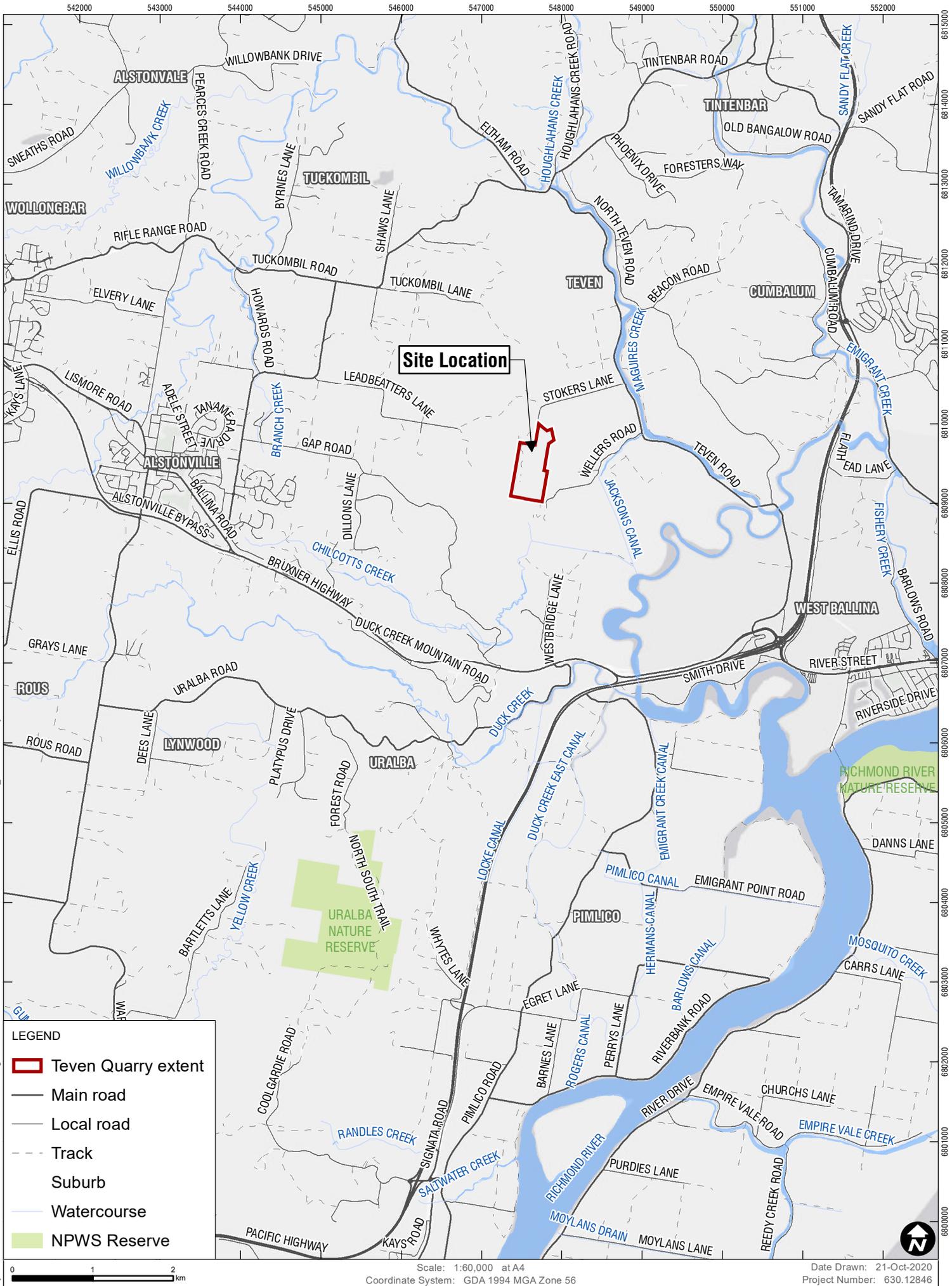
The purpose of this AQMP is to describe the air quality management strategies, procedures, controls and the monitoring programs that are to be implemented in accordance with the Teven Quarry Project Environmental Impact Statement (EIS) (Umwelt 2014) and the Development Consent.

This plan also outlines the control measures to be implemented as part of the continued operations at Teven Quarry to minimise the potential impacts to the local community from degraded air quality.

1.4 Objectives

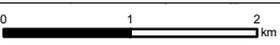
The objectives of this AQMP are to:

- Detail the site's measures to ensure:
 - Compliance with the relevant conditions of this consent;
 - Best practice management is being employed; and
 - The air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;
- Describe the air quality management system and air quality monitoring program that:
 - Is capable of evaluating the performance of the development;
 - Includes a protocol for determining any exceedances of the relevant conditions of consent;
 - Effectively supports the air quality management system; and
 - Evaluates and reports on the adequacy of the air quality management system.



LEGEND

- Teven Quarry extent
- Main road
- Local road
- Track
- Suburb
- Watercourse
- NPWS Reserve



Scale: 1:60,000 at A4
 Coordinate System: GDA 1994 MGA Zone 56

Date Drawn: 21-Oct-2020
 Project Number: 630.12846

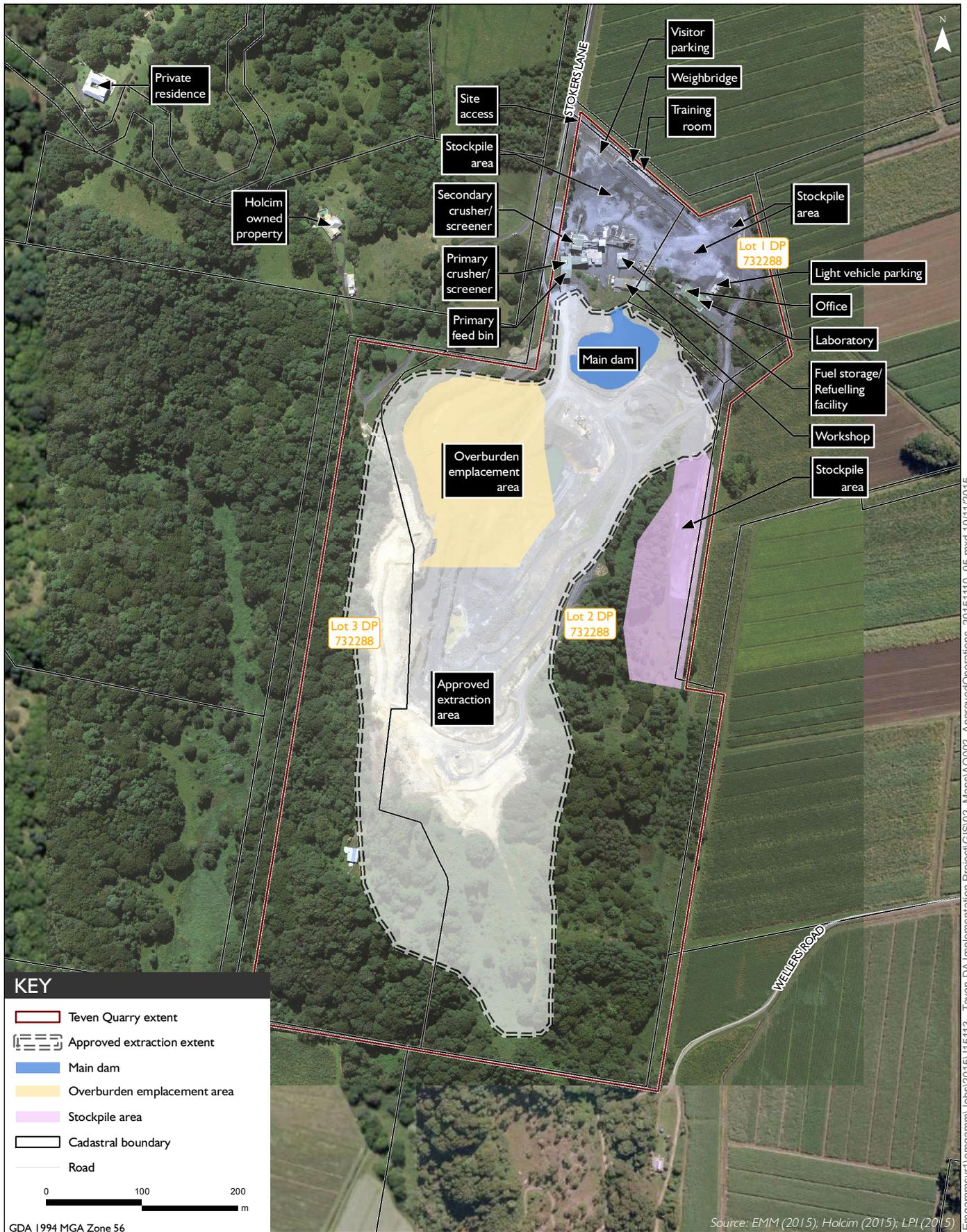


I:\u.slr.local\Corporate\Projects\SLR\630-Sr\N\TL\630-12846\Holcim_Management_Plan_Review_2019\06_SLR_Data\01_CAD\GIS\Map\GIS\RS\012846_F01_Site_Locality.mxd



Site Locality

Figure 1



Source: EMM (2015); Holcim (2015); LPI (2015)

Approved operations
 Teven Quarry
 Air Quality Management Plan

Figure 2

2. Stakeholder Consultation

2.1 Pre 2020 Consultation

The previous AQMP was approved by the DPIE and finalised on 4 May 2016.

2.2 2020-2021 Consultation

Engagement with surrounding landowners regarding air quality will be undertaken through the site's community webpage as described in **Section 6.3.2** of the *Environmental Management Strategy*. A feedback mechanism is also available on the website.

A copy of the 2020 updated management plan was provided to DPIE in August 2020. Holcim received comments from DPIE on 7 October 2020 and updated this document.

A copy of the 2021 updated management plan was provided to DPIE in April 2021 in response to DPIE's October 2020 review. Holcim received comments from DPIE on 15 September 2021 and updated this document.

This will be resubmitted to DPIE as required by the Development Consent (SSD 6422). Refer **Appendix A** for consultation.

3. Statutory Requirements

3.1 Legislation

Legislation relevant to air quality management includes:

- *Environmental Planning and Assessment Act 1979 (EP&A Act);*
- *National Greenhouse and Energy Reporting Act 2007;*
- *Protection of the Environment Operations Act 1997 (POEO Act); and*
- *Protection of the Environment Operations (Clean Air) Regulation 2000.*

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Section 3 of the EMS.

3.2 Guidelines and Standards

The main guidelines, specifications and policy documents relevant to this AQMP include:

- *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (Department of Environment and Conservation NSW);*
- *AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method (Standards Australia); and*
- *Holcim Environmental Standards for Aggregate Operations (May, 2014).*

3.3 Development Consent Requirements

This AQMP is required by Schedule 3 Condition 14 of the Teven Quarry Development Consent. The requirements from the Development Consent relating to air quality, and where these requirements are addressed within this document, are provided in **Table 2**.

Table 2 Development Consent conditions

Development Consent Conditions	Section Addressed
<p>Schedule 3 – Air Quality Impact Assessment Criteria</p> <p>11. The Applicant shall ensure that all reasonable and feasible avoidances and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in [Table 4.1] at any residence on privately-owned land.</p>	Section 6
<p>Schedule 3 – Quarry-owned land</p> <p>12. The Applicant shall ensure that all reasonable and feasible avoidances and mitigation measures are employed so that particular matter emissions generated by the development do not cause exceedances of the criteria in [Table 4.1] at any residence on quarry-owned land unless:</p> <p>a) the tenant has been notified of any health risks associated with such exceedances in accordance with the notification requirements under schedule 4 of this consent; and</p> <p>b) the tenant of any land owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving reasonable notice;</p> <p>to the satisfaction of the Secretary.</p>	Section 6
<p>Schedule 3 – Operating Conditions.</p> <p>The applicant shall:</p>	Section 7

Development Consent Conditions	Section Addressed
<ul style="list-style-type: none"> a) implement best practice management to minimise the dust emissions of the development; b) regularly assess meteorological and air quality monitoring data and relocate, modify and/or stop operations on site to ensure compliance with the air quality criteria in the Development Consent; c) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events; d) monitor and report on compliance with the relevant air quality conditions in this consent; e) minimise the area of surface disturbance and undertake progressive rehabilitation of the site, to the satisfaction of the Secretary. 	
<p>Schedule 3 – Air Quality Management Plan 14. The Applicant shall prepare and implement an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:</p>	Entire Plan
<ul style="list-style-type: none"> a) be submitted to the Secretary for approval within 6 months of the date of this consent, unless otherwise agreed by the Secretary; 	Entire Plan
<ul style="list-style-type: none"> b) describe the measures that would be implemented to ensure: <ul style="list-style-type: none"> ▪ compliance with the relevant conditions of this consent; ▪ best practice management is being employed; and ▪ the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events 	Section 3 Section 7 Section 7
<ul style="list-style-type: none"> c) Describe the proposed air quality management systems; 	Section 7
<ul style="list-style-type: none"> d) Include an air quality monitoring program that: <ul style="list-style-type: none"> ▪ Is capable of evaluating the performance of the development; ▪ Includes a protocol for determining any exceedances of the relevant conditions of consent; ▪ Effectively support the air quality management systems; and ▪ Evaluates and reports to the adequacy of the air quality management system 	Section 8
<p>Schedule 3 – Meteorological Monitoring 15. For the life of the development, the Applicant shall ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline</p>	Section 8.2
<p>Schedule 3 – Greenhouse Gas Emissions 16. The Applicant shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.</p>	Section 7
<p>Schedule 5 - Management Plan Requirements The Applicant shall ensure that the Management Plans required under this consent are prepared in accordance with any relevant guidelines, and include:</p> <ul style="list-style-type: none"> a) detailed baseline data; 	Section 4
<ul style="list-style-type: none"> b) a description of: <ul style="list-style-type: none"> ▪ the relevant statutory requirements (including any relevant approval, licence or lease conditions); ▪ any relevant limits or performance measures/criteria; and ▪ the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; 	Section 3; Section 6; and Section 7

Development Consent Conditions	Section Addressed
c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 7
d) a program to monitor and report on the: <ul style="list-style-type: none"> ▪ impacts and environmental performance of the development; and ▪ effectiveness of any management measures (see (c) above); 	Section 8 and 9
e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 10
f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 11
g) a protocol for managing and reporting any: <ul style="list-style-type: none"> ▪ incidents; ▪ complaints; ▪ non-compliances with statutory requirements; and ▪ exceedances of the impact assessment criteria and/or performance criteria; and 	Section 9
h) a protocol for periodic review of the plan.	Section 11

3.4 EIS Statement of Commitments

The table below outlined the Statement of Commitment requirements.

Table 3 Statement of Commitments

Commitment	Section Addressed
<p>The existing dust control measures implemented onsite will continue to be implemented as part of the Project. These controls include:</p> <ul style="list-style-type: none"> • watering of unsealed roads, working areas and stockpiles; • water sprays on conveyors; • dust suppression systems on drill rigs; • primary and secondary crushing plants are enclosed; • water sprays on the entrance to the primary crusher bin; water sprays on product stockpiles; • wheel wash at weighbridge; and • progressive rehabilitation of overburden emplacement areas. <p>In addition to the existing dust controls, Holcim Australia will implement the following controls as part of the Project:</p> <ul style="list-style-type: none"> • installation of sprinklers along haul roads to work in combination with water carts or equivalent measures to achieve the same level of dust control; • water sprays on the mobile crushing and screening plant; • defining all roads and limiting access to minor and non-designated access alignments roads; • imposition of speed limits on all internal roads; • disturbance of the minimum area practicable for quarry operations; • designing of blasts to minimise dust, including adequate stemming; • consideration of current weather conditions prior to blasting. This includes visual observations of wind speed and wind direction to determine whether any dust emissions from the blast will be carried in the direction of nearest sensitive receptors; • implementation of blast fume management procedures; and • awareness training regarding air quality management for employees and contractors, where relevant. 	<p>Section 7</p>

3.5 2019 Independent Environmental Audit – Updates

An Independent Environmental Audit (IEA) was completed for Teven Quarry by GHD, with the report dated April 2020. There were several recommendations from that report relevant to this management plan. A full copy of the recommendations and Holcim responses are provided in **Appendix 1**. A copy of the required updates is provided in **Table 4** below.

Table 4 Independent Environmental Audit – Required Updates

Recommendation from Auditor	Comment/Section Covered by Management Plan
Review the dust monitoring program to ensure it provides representative results that can be used to confirm compliance with the relevant criteria and update the Air Quality Management Plan accordingly.	See Section 8 and 9
Update the management plans required under the consent to include a contingency plan to manage unpredicted impacts.	See Section 10
Review the strategies, plans and programs following the annual review, incident report, audit report or modification and maintain evidence of the reviews.	Section 11
Regularly maintain and monitor the weather station to ensure it is working.	See Section 8.2
Notify affected landowners in accordance with Schedule 4, Condition 1, if monitoring results indicate an exceedance of the relevant criteria if required with justification why the exceedance was not associated with Holcim activities, if applicable.	See Section 8 and 9
Notify the Secretary, in accordance with Schedule 5, Condition 3, if monitoring results indicate an exceedance of the relevant criteria and, when relevant, document justification why the exceedance was not associated with Holcim activities.	See Section 8 and 9
Notify the Secretary and any other relevant agencies of any incident, within 7 days of the date of the incident, in accordance with Schedule 5, Condition 7.	See Section 9

4. Baseline data

4.1 Background

A comprehensive Air Quality Impact Assessment was undertaken for the Project by Jacobs SKM in 2014. The assessment utilised air dispersion modelling to predict air quality impacts of the Project compared to those of the existing operations. SKM's assessment noted that the Project Area is surrounded by predominantly rural land uses, noting that the existing air quality is likely to be influenced by agricultural activities, sea salt, pollens, traffic on local roads, dust storms and bush fires.

The comprehensive Air Quality Impact Assessment modelling indicated that the annual average PM₁₀ and annual average dust deposition levels were predicted to comply with the EPA criteria at all sensitive receptor locations, for all modelled scenarios, noting that the change in off-site dust impacts due to the Project were expected to be negligible since the results for the existing, Year 1 and Year 11 scenarios are very similar. The modelling indicated the following results.

Annual average PM₁₀ concentrations (µg/m³)

- Maximum annual average PM₁₀ concentrations of 1.2 µg/m³ for any residence on privately-owned land from the project's quarry operations.
- It is noted that this is 23 times lower than the Project's Development Consent's annual air quality criteria of 30 µg/m³ for PM₁₀.
- It is noted that the estimated annual average PM₁₀ concentrations on privately-owned land from non-quarry operations is of 14 µg/m³ (i.e. rural land uses, likely to be influenced by agricultural activities, sea salt, pollens, traffic on local roads, dust storms and bush fires). This value is based data from the former Office of Environment and Heritage air quality monitoring network for a similar, semi-rural, coastal environment site that was most likely to be representative of conditions near the site.

Annual average dust deposition (g/m²/month)

- A maximum annual average dust deposition of 0.3 g/m²/month for any residence on privately-owned land from the project's quarry operations.
- This is 13 times lower than the Project's Development Consent's annual cumulative air quality criteria of 4 g/m²/month for dust deposition (i.e. increase in concentrations due to the development plus background concentrations due to all other sources).
- This is 6 times lower than the Project's Development Consent's annual incremental impact air quality criteria (i.e. incremental increase in concentrations due to the development on its own).

4.2 Monitoring since Commencement of 2015 DPIE Development Consent

During preparation of the 2016 Annual Review for Teven Quarry, Holcim discovered that EAL Laboratories were incorrectly providing Holcim with the dust deposition results from the nearby Boral Teven Quarry. Immediately upon identifying this non-compliance, Holcim commissioned new consultants in February 2017 to undertake monthly monitoring in accordance with the Air Quality Management Plan to ensure full compliance with this condition. As such, any trends analysis of depositional dust prior to 2017 is not possible.

It is noted that there has been an ongoing issue of the site's dust depositional dust bottles being contaminated from the surrounding land activities (farming, cane growing and slashing, dirt roads etc.). As a result the ability to discuss trends for the annual average depositional dust result has been impacted due to the number of samples contaminated from non-quarry sources. The annual depositional dust in 2019 was consistent with monitoring in 2017 and 2018, however, it is difficult to discuss trends for the annual depositional dust result considering the number of samples which are contaminated. Due to the ongoing issue of the contamination of the depositional dust results from

Teven AQMP

outside sources including the cutting of cane and slashing, the monitoring program has been reviewed and updated for the 202 AQMP update.

The 2019 Annual Review summarises the most recent PM₁₀ air quality monitoring data. The 2019 annual average for PM₁₀ remains below long-term criteria which is consistent with 2017 and 2018 trends.

The proposed future monitoring network is outlined in **Section 8**.

5. Potential Air quality Impacts

Activities undertaken at Teven Quarry utilising various heavy machinery, plant and equipment that may generate air emissions and associated risks are identified below.

- Clearing:
 - May generate dust from exposed surface especially during high winds having the potential to impact visibility on-site and lead to offsite emissions and potential complaints from nearby residents. Dust generation will be controlled by mitigation measures provided in **Table 6** including AQM1, AQM7, AQM12, AQM16 and measures associated with visual dust and high winds in the Trigger Action Response Plan (TARP) (**Table 8**).
- Earthworks;
 - May generate dust from movement of earth and exposure to winds having the potential to impact visibility on-site and lead to offsite emissions and potential complaints from nearby residents. Dust generation will be controlled by mitigation measures in **Table 6** including AQM1, AQM8, AQM11, AQM12, AQM16 and measures associated with visual dust and high winds, in pit dust and haul road dust in the TARP (**Table 8**).
- Drilling and blasting;
 - May generate dust during drilling and blast fumes following a blast which has the potential to settle near the ground and impact workers health or the health of nearby residents if the fumes are transported via wind. Dust and fume generation will be controlled by mitigation measures in **Table 6** including AQM3, AQM13, AQM14, AQM15, AQM16 and measures associated with visual dust and high winds and in pit dust in the TARP (**Table 8**).
- Crushing and screening;
 - May generate dust from interactions between machinery and rocks/ dirt. If dust is not properly managed this may have the potential to impact visibility on-site and lead to offsite emissions and potential complaints from nearby residents. Dust generation will be controlled by mitigation measures in **Table 6** including AQM2, AQM4, AQM9, AQM16 and measures associated with visual dust and high winds and crusher plant dust in the TARP (**Table 8**).
- Stockpiling;
 - May generate dust from exposed dry stockpiles especially during high winds having the potential to impact visibility on-site and lead to offsite emissions and potential complaints from nearby residents. Dust generation will be controlled by mitigation measures in **Table 6** including AQM1, AQM5, AQM16 and measures associated with visual dust and high winds in the TARP (**Table 8**).
- Material handling and dispatch;
 - May generate dust from material movement within the site using heavy machinery and poorly covered trucks during movement of material offsite. Material movement has the potential to decrease visibility at site and dispatch of material has the potential to track dust off-site resulting in a poor image and potential complaints. Dust generation will be controlled by mitigation measures in **Table 6** including AQM1, AQM5, AQM6, AQM8, AQM10, AQM11, AQM16 and measures associated with visual dust and high winds and haul road dust in the TARP (**Table 8**).

- Vehicle and plant emissions:
 - May generate excessive greenhouse gasses from inefficient vehicle and plant use. This may have the potential to create local pollution, impact on the health of workers, increase running costs and create a poor image for the site. Greenhouse gas generation will be managed by mitigation measures in **Table 6** including GHGM1, GHGM2, GHGM3 and GHGM4.

6. Air Quality Assessment Criteria

The air quality criteria for any privately owned land in Schedule 3 Condition 11 of the Development Consent, are detailed in Table 1 of the Teven Quarry Development Consent and are replicated in **Table 5** below.

Table 5 Air quality criteria

Pollutant	Averaging Period	Criterion
Particulate matter <10µm (PM ₁₀)	Annual	^{a,d} 30 µg/m ³
Particulate matter <10µm (PM ₁₀)	24 hour	^b 50 µg/m ³
Total suspended particles (TSP)	Annual	^{a,d} 90 µg/m ³
^c Deposited dust	Annual	^b 2 g/m ² /month
		^{a,d} 4 g/m ² /month

Notes:

- Cumulative impact (ie increase in concentrations due to the development plus background concentrations due to all other sources).
- Incremental impact (ie incremental increase in concentrations due to the development on its own, with zero allowable exceedances of the criteria over the life of the development).
- Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1.2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particular Matter – Deposited Matter – Gravimetric Method.
- Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed to by the Secretary.
- “Reasonable and feasible avoidance and mitigation measures” includes, but is not limited to, the operational requirements in conditions 12 and 13 to develop and implement an air quality management system that ensures operational response to the risks of exceedances of the criteria.

These limits are sourced from air quality criteria in the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC 2005), provided by the EPA. These apply to sensitive receivers in the vicinity of the Teven Quarry (**Section 4.1**). Further information on monitoring locations are provided within **Section 8**.

There is a condition within the Development Consent relating to managing health from dust impacts. The condition is reporting requirement are summarised below.

Schedule 3 Condition 12–Quarry-owned land

The Applicant shall ensure that all reasonable and feasible avoidances and mitigation measures are employed so that particular matter emissions generated by the development do not cause exceedances of the criteria in [Table 4.1] at any residence on quarry-owned land unless:

- the tenant has been notified of any health risks associated with such exceedances in accordance with the notification requirements under schedule 4 of this consent; and*
- the tenant of any land owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving reasonable notice; to the satisfaction of the Secretary.*

7. Air Quality Management System and Greenhouse Gas Management

Teven Quarry is committed to implementing reasonable and feasible avoidance and mitigation measures and to continue to investigate ways to minimise any air quality impacts from the Teven Quarry.

Air quality management system controls have been implemented throughout the life of the operation, as outlined in:

- The Teven Quarry Project EIS (Umwelt 2014);
- The Development Consent air quality management conditions (Schedule 3 Conditions 11 to 16);
- General management plan requirements listed in Schedule 5 Conditions 2 and 3 of the Development Consent; and
- The Development Consent Statement of Commitments (Appendix 3 Conditions 20–23 of the Development Consent).

Air quality management system mitigation measures relating to air quality and greenhouse gas are outlined in **Table 6** below.

Table 6 Air Quality and Greenhouse gas emission control measures

Activity	Control Measure	Reference Document	When/Where Required	Responsibility
Air Quality Measures				
AQM1	Watering of unsealed roads, working areas and stockpiles.	Appendix 3, Commitment 20	As required to minimize dust	Quarry Manager
AQM2	Water sprays used on all conveyors.	Appendix 3, Commitment 20	On all conveyors	Quarry Manager
AQM3	Dust suppression systems on drill rigs.	Appendix 3, Commitment 20	On all drill rigs	Quarry Manager
AQM4	Primary and secondary crushing plants are enclosed.	Appendix 3, Commitment 20	On all crushers	Quarry Manager
AQM5	Water sprays on product stockpiles.	Appendix 3, Commitment 20	On product stockpiles	Quarry Manager
AQM6	Wheel wash at weighbridge.	Appendix 3, Commitment 20	At wheel washes	Quarry Manager
AQM7	Progressive rehabilitation of overburden emplacement areas.	Appendix 3, Commitment 20	As areas are available	Quarry Manager
AQM8	Installation of sprinklers along haul roads to work in combination with water carts, or equivalent measures, to achieve the same level of dust control.	Appendix 3, Commitment 21	In these locations	Quarry Manager
AQM9	Water sprays on the mobile crushing and screening plant.	Appendix 3, Commitment 21	In these locations	Quarry Manager
AQM10	Defining all roads and limiting access to minor and non-designated access alignments roads.	Appendix 3, Commitment 21	All roads	Quarry Manager
AQM11	Imposition of speed limits on all internal roads. The speed limit for the internal haul road is 30km/hr.	Appendix 3, Commitment 21	All roads	Quarry Manager
AQM12	Disturbance of the minimum area practicable for quarry operations.	Appendix 3, Commitment 21	During the life of the quarry	Quarry Manager
AQM13	Designing of blasts to minimise dust, including adequate stemming.	Appendix 3, Commitment 21	During blasting	Quarry Manager and Blast specialist
AQM14	Consideration of current weather conditions prior to blasting. This will include visual observations of wind speed and wind direction to determine whether any dust emissions from the blast will be carried in the direction of nearest sensitive receptors.	Appendix 3, Commitment 21	During blasting	Quarry Manager and Blast specialist
AQM15	Implementation of blast fume management procedures.	Appendix 3, Commitment 21	During blasting	Quarry Manager and Blast specialist
AQM16	Awareness training regarding air quality management for employees and contractors, where relevant.	Appendix 3, Commitment 21	As required.	Quarry Manager

Activity	Control Measure	Reference Document	When/Where Required	Responsibility
Greenhouse Gas Measures				
GHGM1	Holcim Australia will continue to investigate and where feasible, implement initiatives to reduce energy consumption and greenhouse gas emissions.	Appendix 3, Commitment 26	At all times	Quarry Manager
GHGM2	Reducing onsite diesel use: <ul style="list-style-type: none"> • Scheduling activities so that equipment and vehicle use are optimised. • Use alternative low-emissions fuels where possible. • Use fuel-efficient equipment where possible. • Use blasting strategies to improve extraction efficiency. • Maximise resource recovery efficiency. • Work machines to their upper design performance. • Use electric drills. 	EIS – Greenhouse Gas and Energy Assessment, Section 5.2 Assessment of Potential Management Measures	At all times	Quarry Manager
GHGM3	Managing Haul Trucks <ul style="list-style-type: none"> • Holcim Australia will limit the length of material haulage routes where possible. • Replace trucks with conveyors where possible. • Optimise ramp gradients. • Use fuel efficient truck hauls. • Maximise payload and increase haul truck payload. • Improve roll resistance haul roads. • Reduce idle times. 	EIS – Greenhouse Gas and Energy Assessment, Section 5.2 Assessment of Potential Management Measures	At all times	Quarry Manager
GHGM4	Processing equipment <ul style="list-style-type: none"> • Process plants will be configured to automatically shut down/hibernate when not in use. • Processing equipment will run high efficiency motors. • Processing equipment will be enabled with variable speed drives. • Equipment will be optimised to ensure the motor size efficiency reflects the load. • Basalt throughput will be optimised to ensure efficient processing. • Where possible, on-site renewable energy (solar) will be used to power processing equipment. 	EIS – Greenhouse Gas and Energy Assessment, Section 5.2 Assessment of Potential Management Measures	At all times	Quarry Manager

8. Air quality monitoring protocol

8.1 Monitoring locations

As noted above a comprehensive Air Quality Impact Assessment was undertaken for the Project by Jacobs SKM in 2014. The assessment utilized air dispersion modelling to predict air quality impacts of the Project compared to those of the existing operations. SKM assessment noted that the Project Area is surrounded by predominantly rural land uses, noting that the existing air quality is likely to be influenced by agricultural activities, sea salt, pollens, traffic on local roads, dust storms and bush fires.

The comprehensive Air Quality Impact Assessment modelling indicated that the annual average PM₁₀ and annual average dust deposition levels were predicted to comply with the EPA criteria at all sensitive receptor locations, for all modelled scenarios, noting that the change in off-site dust impacts due to the Project were expected to be negligible since the results for the existing, Year 1 and Year 11 scenarios are very similar. The modelling indicated the following results in relation to annual average dust deposition (g/m²/month):

- A maximum annual average dust deposition of 0.3 g/m²/month for any residence on privately-owned land from the project's quarry operations.
- This is 13 times lower than the Project's Development Consent's annual cumulative air quality criteria of 4 g/m²/month for dust deposition (i.e. increase in concentrations due to the development plus background concentrations due to all other sources).
- This is 6 times lower than the Project's Development Consent's annual incremental impact air quality criteria (i.e. incremental increase in concentrations due to the development on its own).

It is noted that there has been an ongoing issue with the site's dust depositional dust bottles being contaminated from the surrounding land activities (farming, cane growing and slashing, dirt roads etc.). As a result, the ability to discuss trends for the annual average depositional dust result has been impacted due to the number of samples contaminated from non-quarry sources. Due to the ongoing issue of the contamination of the depositional dust results from outside sources including the cutting of cane and slashing, the monitoring program has been reviewed and updated for the 2020 AQMP update.

The air quality monitoring locations have been revised as part of the 2020 AQMP review. Prior to the 2020 AQMP review, the air quality monitoring network included:

- Four depositional dust gauges (DD01-DD04); and
- One PM₁₀ air quality sampler (HV01).

The dust deposition gauges will be relocated to locations more appropriate for identifying potential dust impacts on sensitive receivers from the Quarry's operations. The new monitoring points will be established in areas unlikely to become contaminated.

Dust deposition, Total Suspended Particulates (TSP) and PM₁₀ air quality will be monitored at the following locations shown in **Figure 3**:

- PM₁₀ and TSP air quality sampler (PM1) – Residence 9;
- Depositional dust gauges DG1 – Residence 9, DG2 and DG3;
- If the quarry received a complaint regarding dust nuisance, a dust deposition gauge would be offered and installed on the privately-owned land of the complainant (pending approval) to assess any potential dust deposition nuisance from the quarry's operations.

Both the DG1 (Formally D3); and PM1 (Formally HV01) are located at Residence 9 (See **Figure 3** on Holcim privately owned property). DG2 is located to the northeast of the Quarry near Residence 3 and

4. DG 3 is located to the south of the Quarry near residence 2 and 12. DG1, DG3 and PM1 are located close to the quarry disturbance footprint (~200m) while DG2 is located approximately 1 km from the quarry disturbance footprint. These monitoring locations will continue to provide an accurate reading of dust levels from the quarry and monitor potential air quality impacts on sensitive receivers in all directions from the quarry disturbance footprint.

8.2 Meteorological monitoring

Meteorological data will be obtained from an Automated Weather Station (AWS) installed in compliance with *Approved Methods for the sampling and Analysis of Air Pollutants in New South Wales*.

The AWS meets the requirements of Schedule 3 Condition 15 of the Development Consent. Real-time meteorological data (wind speed, direction, rainfall and temperature) from the AWS will be made available to the Quarry Manager to assist in operational monitoring and real time response. During adverse meteorological conditions (e.g high wind or temperature inversions) and extraordinary events (as declared by DPIE), the Quarry Manager will consult with the TARP (**Table 8**) and manage air quality impacts as appropriate. The location of the AWS has been shown on **Figure 3**.

8.3 Monitoring frequency

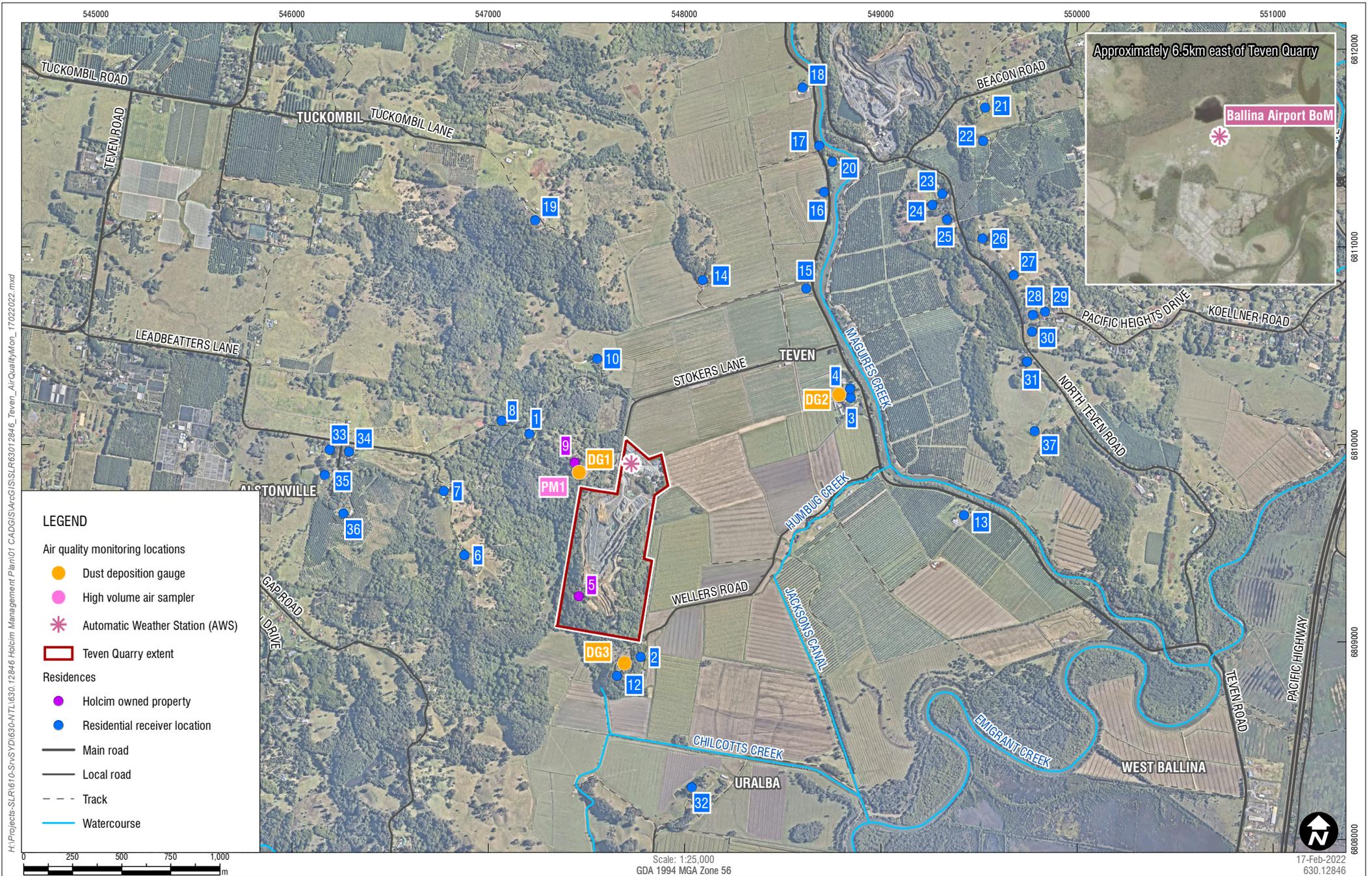
The frequency of air quality monitoring is provided in **Table 7**.

Table 7 Air quality monitoring locations

Monitoring Unit	Parameter/s Measured	Units of Measurement	Averaging Period	Sample / Data Collection Frequency
Dust deposition gauge	Deposited dust	g/m ² /month	Annual	Monthly
PM ₁₀ air quality sampler	PM ₁₀ (and TSP by calculation) ¹	µg/m ³	24 hour, annual	Every 6 days
AWS	Wind speed, direction, rainfall and temperature	km/hr, mm, c	15 minute	Monthly

The criteria for depositional dust is annual and non – compliances will only be reported if the site is above the annual criteria (not monthly total). Contaminated material will be reviewed in the depositional dust gauge laboratory analysis. The amount of contaminated material will be outlined in the Annual Review but will not contribute to the monthly totals and annual average for depositional dust.

¹ TSP factor from overburden US EPA AP42 2015, where PM₁₀ is 35% of TSP



H:\Projects\SLR\610-SWS\YD\630-WTL\630_12846_Holcim_Management_Plan\01_CADGIS\ArcGIS\SLR\63012846_Teven_AirQualityMon_17022022.mxd

- LEGEND**
- Air quality monitoring locations
 - Dust deposition gauge
 - High volume air sampler
 - ✱ Automatic Weather Station (AWS)
 - Teven Quarry extent
 - Residences
 - Holcim owned property
 - Residential receiver location
 - Main road
 - Local road
 - Track
 - Watercourse



Scale: 1:25,000
GDA 1994 MGA Zone 56



17-Feb-2022
630.12846

Source: Nearmap (January 2020)

Air quality monitoring locations

Figure 3

9. Reporting and Compliance Management

9.1 Regular reporting

A summary of air quality monitoring results, indicating the following information will be provided in the Teven Quarry Annual Report, in accordance with Schedule 5 Condition 4 of the Development Consent.

In addition, and in accordance with the *Protection of the Environment Legislation Amendment Act 2011* (Amendment Act) and Condition 11, Schedule 5 of the Development Consent, Holcim Australia will also publish a summary of air quality monitoring results on the Holcim Australia website (<http://www.holcim.com.au>).

9.2 Evaluation of Air Quality Results

This section has been updated for the 2020 AQMP review.

The Quarry Manager will review monitoring results against the air quality criteria cited in **Section 6**. It should be noted that the dust monitoring locations DG1 and PM1 are located at Residence 9 (Holcim privately owned property) while DG3 is located to the south near Residence 2 and 12. DG1, DG3 and PM1 are located close to the quarry disturbance footprint (~200m) and will continue to provide an accurate reading of dust levels to the west and south of the quarry disturbance footprint. DG2 will provide depositional dust levels to the northeast of the quarry disturbance footprint.

To determine compliance with air quality criteria (**Table 5**), an air quality investigation will be conducted following the exceedance of criteria. The investigation will include a microscopic analysis of dust deposition samples and investigation into the prevailing wind conditions experienced at the time of the exceedance to identify the source of the dust.

If required, an additional HVAS sampler will be installed at an appropriate residential location based on the outcomes of the investigation.

If the annual average criteria for PM₁₀, TSP or depositional dust are above the privately – owned land air quality criteria in **Section 6**, then the following will be undertaken:

- As soon as practical after becoming aware of the exceedance, the Quarry Manager will notify the Holcim Environment Manager and enter the incident into the Holcim Safety, Health & Environment (SHE) reporting database (INX);
- The site will review the cause of elevated dust levels including a review of meteorological data, extraordinary events, site activities and other activities surrounding the site;
- Elevated results will be reported in the Annual Review and the EPL Annual Return. The site will proactively report any elevated dust levels; and
- Identify and implement corrective actions refer to the TARP (**Table 8**) which functions as the Contingency Plan for the site.

9.3 Incident management

All employees and contractors undertaking work at Teven Quarry will be required to report any air quality non-conformances or environmental incidents to their supervisor. The supervisor is responsible for triggering the Holcim incident management system. This system provides alerts to relevant personnel based on the incidents outcome and potential consequence. The Teven Quarry Manager (or delegate), in consultation with the Holcim environmental personnel, is responsible for responding to complaints and incidents, and determining the appropriate corrective action.

The site's Development Consent (SSD 6422) defines an incident as the following:

A set of circumstances that:

- *causes or threatens to cause material harm to the environment; and/or*

- *breaches or exceeds the limits or performance measures/criteria in this consent.*

If an 'incident' occurs, Holcim will immediately notify the DPIE. Within 7 days of the date of the incident, Holcim will provide DPIE with a detailed report on the incident. For any other incidents associated with the site, Holcim will notify DPIE within 7 days of the date of the incident or when Holcim becomes aware of the incident. Holcim will provide a detailed report on the incident.

In addition to reporting to DPIE, incidents (as set out in Part 5.7 of the *Protection of the Environment Operations Act*) will also be reported to the NSW EPA in accordance with the requirements of the *Protection of the Environment Operations Act 1997*, EPL 3293 and the Teven Quarry Pollution Incident Response Management Plan (PIRMP).

Part 5.7 of the NSW *Protection of the Environment Operations Act* defines the meaning of 'material harm to the environment' as follows:

- (a) *harm to the environment is material if—*
 - (i) *it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or*
 - (ii) *it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and*
- (b) *loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.*

All environmental incidents with a medium or high actual or potential risk rating will be investigated using a root cause methodology. All environmental incidents will be reported annually in the Annual Review.

9.4 Community Complaints and Independent review

9.4.1 Community complaints

Complaints relating to air quality from Teven Quarry are to be managed in accordance with the requirements of the Teven Quarry EMS. A summary of complaints will be published on the Teven Quarry website and provided in the Annual Review. If Teven Quarry receives an air quality complaint the site will investigate the source of the complaint and if Teven Quarry was a contributing factor, activities will be altered to reduce dust emissions. If Teven Quarry was a contributing factor to the dust complaint then the site will discuss with the residence whether they would like a depositional dust gauge installed for a period of two months. All complaints regardless of whether Teven was the source will be logged and investigated by Holcim.

9.4.2 Independent Review

In the event that a landowner considers that Teven Quarry is exceeding air quality criteria at their property, the landowner may request an independent review of the air quality impacts at the property. The independent review will be conducted in accordance with the procedure described in Schedule 4 Condition 2 of the Development Consent.

9.5 Training

Teven AQMP

All employees and contractors working on site will undergo a site induction and training, which will cover issues relating to air quality management, including:

- The existence and requirements of this Plan;
- Dust control measures;
- Location of sensitive receivers;
- Internal speed limits; and
- Complaints reporting.

Further details regarding staff induction and training are outlined in the EMS.

10. Contingency Plan

In accordance with Schedule 5 Condition 3 of the Development Consent, Holcim will assess and manage air quality related risks to ensure compliance with the air quality criteria.

Table 8 outlines the TARP for this management plan with this prepared to meet Schedule 5 Condition 2 of the Development Consent. Potential changes to operations based on monitoring results are outlined in **Section 9.2**.

Table 8 Trigger Action Response Plan – Air Quality

Key Element	Trigger Response /	Condition Green	Condition Amber	Condition Red
Visual dust and high winds	Trigger	Wind Speeds below 15kph.	Wind Speeds between 15 and 30kph.	Wind Speeds > 30kph.
	Response	Continue AQMP implementation.	Quarry Manager reviews effectiveness of control measures. Implement additional remedial measures, which may include: <ul style="list-style-type: none"> • Deployment of additional water cart / water sprays; • Relocation or modification of dust-generating sources; and • Temporary halting of dust generating activities. 	Inspection of site by Production and Quarry Managers to determine if there is a need to halt dust generating activities. <ul style="list-style-type: none"> • Halted activities do not recommence until remedial measures or additional remedial measures are in place or wind speeds drop to acceptable levels; and • Record as a non – compliance in the incident report.
Crusher plant dust	Trigger	No dust is seen coming from crusher or site plant.	A moderate amount of dust is seen coming from the crusher or site plant.	Excessive dust is seen coming from the crusher and other site plant.
	Response	Continue AQMP implementation.	<ul style="list-style-type: none"> • Increase sprinklers; • Monitor weather conditions; • Review the adequacy of screening; and • Review the operational settings of the crusher plant. 	<ul style="list-style-type: none"> • Stop crushing; • Increase sprinklers; • Monitor weather conditions; • Review the adequacy of screening; • Review the operational settings of the crusher plant; and • Only recommence activities if mitigation measures have been reviewed and are effective.
In pit dust	Trigger	No dust is seen coming from quarrying (in pit) activities	A moderate amount of dust is being generated from quarrying (in pit) activities. Dust is not leaving the pit.	Excessive dust is being generated from quarrying (in pit) activities. Dust is leaving the pit / site

Teven AQMP

Key Element	Trigger / Response	Condition Green	Condition Amber	Condition Red
	Response	Continue AQMP implementation.	<ul style="list-style-type: none"> • Additional water carts / water sprays; • Monitor weather conditions; and • Review operational activities. • Additional use of dust suppression agents 	<ul style="list-style-type: none"> • Stop quarrying; • Additional water carts; • Monitor weather conditions; • Review operational activities; and • Only recommence activities if mitigation measures have been reviewed and are effective.
Haul road dust	Trigger	No dust is seen coming from transport along haul roads.	A moderate amount of dust is seen coming from haul roads.	Excessive dust is seen coming from transport along haul roads. Dust is leaving site.
	Response	Continue AQMP implementation.	<ul style="list-style-type: none"> • Additional water carts / water sprays; • Monitor weather conditions; • Review operational activities. • Additional use of dust suppression agents 	<ul style="list-style-type: none"> • Stop haulage; • Additional water carts; • Monitor weather conditions; • Review operational activities; and • Only recommence activities if mitigation measures have been reviewed and are effective.

11. Review and Improvement

Ongoing monitoring and review on the performance and implementation of this AQMP will be undertaken in accordance with the Teven Quarry EMS.

In accordance with Schedule 5 Condition 5, Holcim will review, and if necessary revise, the strategies, plans, and programs required under the Development Consent to the satisfaction of the Secretary, within three months of the submission of an:

- Annual review under Condition 4;
- Incident report under Condition 7;
- Audit report under Condition 9; and
- Any modifications to this consent.

In terms of Schedule 5 Condition 5 sub clause a), the requirement to review and update management plans will be assessed during the preparation of each Annual Review. The Annual Review will state which management plans require updating and which management plans do not require updating. Details on the requirements to prepare Annual Reviews are outlined in the Environmental Management Strategy.

Updated versions of management plans will be put on the website.

12. Definitions

The terminology utilized within this AQMP is defined in **Table 9** below.

Table 9 Definitions

Term	Definition
Dust Deposition	Dust particles that settle out from the air – measured in grams per square per unit time (g/m ² /month).
DG	Dust Deposition Gauge
PM1	High Volume Air Sampler.
Non-Compliance	Occurs when environmental monitoring results do not comply with Development Consent Criteria.
PM ₁₀	Particulate matter less than 10 micrometres (µm) in size.
PM _{2.5}	Particulate matter less than 2.5 micrometres (µm) in size.
TSP	Total Suspended Particulate (µg/m ³). The nominal size of this fraction has particles with a diameter of up to 50 micrometres (µm).
µg/m ³	Micrograms per cubic metre.

13. Roles and responsibilities

Relevant roles and responsibilities associated with this AQMP are presented in **Table 10** below.

Table 10 Roles and responsibilities

Personnel	Responsibilities
General Manager and Operations Manger	<ul style="list-style-type: none"> • Approve appropriate resources for the effective implementation of this plan • Provide that sufficient resources are allocated for the implementation of this Plan.
Quarry Manager	<ul style="list-style-type: none"> • Provide that sufficient resources are allocated for the implementation of this Plan. • Coordinate the implementation of management controls and strategies in accordance with this Plan. • Coordinate the review of this plan in accordance with the requirements of the Development Consent. • Coordinate the monitoring requirements of this plan, and evaluate and report monitoring results as required. • Undertake an annual review of this AQMP. • Review effectiveness of control measures. • Implement additional remedial measures.
Environmental Manager	<ul style="list-style-type: none"> • Coordinate the air quality monitoring requirements of this plan. • Evaluate and report monitoring results as required. • Coordinate air quality related incident investigations and reporting as required by legislation and internal standards and guidelines. • Undertake an annual review of this AQMP.
All employees and contractors	<ul style="list-style-type: none"> • Comply with all requirements of this AQMP. • Report all potential environmental incidents to the Quarry Manager immediately. • Seek approval from the Quarry Manager prior to making changes to infrastructure/processes which may result in increased air quality emissions.

14. References

Umwelt (Australia) Pty Limited 2014, *Teven Quarry Project Environmental Impact Statement*, Report prepared for Holcim (Australia) Pty Limited

Department of Environment and Conservation 2005, *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*, NSW Gazette 17 August 2001 p. 6109

Department of Environment and Conservation 2007, *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*

15. Change Information

Version	Date	Change Summary
1	May 2016	Update
2	August 2020	Review of the template for all Teven management plans; <ul style="list-style-type: none"> • General structure updates; • Section 2- Consultation; • Section 3 – Statutory requirements – separate section; • Section 4 – update to baseline information; • Section 5 – Addition of potential impacts section; • Section 7 – inclusion of responsibilities and timing for controls. Additional controls added. • Section 8 – Update to monitoring information including figure; • Section 10 – addition of adaptive management information; and • Section 15 – inclusion of change information.
3	April 2021	See Appendix A for changes in response to DPIE’s review.
4	March 2022	See Appendix A for changes in response to DPIE’s review.
5	May 2022	Remove reference to “that causes material harm” from Section 9 so that the ‘incident’ is as defined in the previous paragraph in accordance with DPIE’s correspondence.

Appendix A
Consultation

Dear Evan Smith,

The Department is requesting that you provide additional information in relation to the Teven Quarry – Teven Quarry Air Quality Management Plan.

Please access your profile for details of this request and to upload your response. You are requested to provide this response by 6/11/2020 .

If you have any enquiries, please contact Mark Davis at Mark.Davis@planning.nsw.gov.au .

To sign in to your account click [here](#) or visit the [Major Projects Website](#).

Please do not reply to this email.

Kind regards

Department of Planning, Industry and Environment



Subscribe to our [newsletter](#)



Mr Evan Smith
Environmental Manager
Teven Quarry
By email: evan.smith@lafargeholcim.com

07/10/2020

Dear Mr. Smith

**Teven Quarry (SSD-6422)
Request for Additional Information**

I refer to your submission of the revised Air Quality Management Plan (AQMP), dated August 2020, in accordance with condition 14 of Schedule 3 of the Teven Quarry development consent (SSD-6422).

The Department has carefully considered the revised AQMP and requests that you provide additional information as detailed in **Attachment A**.

You are requested to provide the revised AQMP to the Department by Friday 6 November 2020. If you are unable to meet this deadline, you are required to provide an updated timeframe for the provision of this information.

If you have any questions, please contact Mark Davis at 8275 1518.

Yours sincerely

A handwritten signature in black ink that reads 'Colin Phillips'.

Colin Phillips
Team Leader
Resource Assessments (Coal & Quarries)

Attachment A
Teven Quarry
Air Quality Management Plan Review – Oct 2020

Air Quality Management Plan (AQMP), Schedule 3, Condition 14	Satisfactory (Yes/No)	Comment	Action Required	Holcim Response
<p>The Applicant shall prepare and implement an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be submitted to the Secretary for approval within 6 months of the date of this consent, unless otherwise agree by the Secretary;</p>	Yes	<ul style="list-style-type: none"> Initial AQMP submitted in 2015. 	<p>Holcim must update this plan to address the DPIEs comments.</p>	
<p>(b) describe the measures that would be implemented to ensure:</p> <ul style="list-style-type: none"> compliance with the relevant conditions of this consent; best practice management is being employed; and the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events; 	Partial	<ul style="list-style-type: none"> Section 5 (S.5) – identifies AQ sources but what are the risks/impacts as these have not been clearly identified. Table 6 (T.6) identifies measures used to control dust emissions. T.8 contains a Trigger Action Response Plan (TARP), which identifies measures, with set wind speed triggers, which should be implemented to minimise dust impacts. S.7 T.6 – AQM11 – Internal road speed limit has not been included. S.8.2 states a meteorological weather station is on-site, but the AQMP does not describe how this information may be used 	<ul style="list-style-type: none"> Include specific risks / impacts associated with each of the air quality sources and link these with the management measures in Table 6 and the TARP in Table 8. Include the internal haul road speed limit for all vehicles. (30km/hr/). Please describe how AQ impacts are minimised during adverse meteorological conditions. Note: Specific weather conditions should be obtained from the AWS to determine site conditions not just visual observations. This is also 	<ul style="list-style-type: none"> A paragraph has been set up associated with each dust/ fume generating activity which discusses potential impacts and links to mitigation measures in Table 6 and Table 8 (TARP). Speed limit added to AQM11. This is described in the TARP. Text has been added in Section 8 which links to the TARP. Adverse meteorological conditions and extraordinary events have been described in Section 8.2.

Air Quality Management Plan (AQMP), Schedule 3, Condition 14	Satisfactory (Yes/No)	Comment	Action Required	Holcim Response
		to minimise AQ impacts during adverse weather conditions.	relevant when determining and recording adverse 'weather' conditions.	
c) describe the proposed air quality management system;	No	<ul style="list-style-type: none"> Where is the AQM System? 		<ul style="list-style-type: none"> The AQM system is described in Section 7. Table 6 outlines all the management actions associated with avoiding air quality impacts.
(d) include an air quality monitoring program that: <ul style="list-style-type: none"> is capable of evaluating the performance of the development; includes a protocol for determining any exceedances of the relevant conditions of consent; effectively supports the air quality management system; and evaluates and reports on the adequacy of the air quality management system. 	No	<ul style="list-style-type: none"> DPIE does not consider the proposed monitoring program would be capable of determining whether the quarry is compliant with the relevant AQ criteria at privately owned residences – unless the values at site PM1 are at, or below, the relevant AQ criteria. 	Provide a means for determining compliance with AQ criteria at privately owned residences e.g. a Protocol for running the AQ Model for the quarry site should values at PM1 approach or exceed relevant AQ criteria OR install high volume sampler/s at additional sites OR some other Protocol proposed by Teven Quarry.	<ul style="list-style-type: none"> Wording added in Section 9.2. Teven will undertake an investigation if air quality criteria is exceeded. The investigation will be very similar to the investigation described in Section 9.5.1 and Teven will add another HVAS sampler at nearby residential address.
Other Comments				
<p>Figure 1 should include the current Pacific Highway route.</p> <p>S.2.2 How does Teven Quarry engage with surrounding landowners in respect of AQ?</p> <p>T.7 What is the basis for calculating TSP from PM10? What ratio is used?</p> <p>T.2 Schedule 3 Condition 11 & 12 particular matter should be <i>particulate</i> matter.</p> <p>T.2 Schedule 3 Condition 14b should have three-dot points instead of two.</p> <p>T.3 Statement of Commitments: The word <i>relevant</i> is missing from the last dot-point and the table finishes with where?</p> <p>T.6: All AQ & GHGE control measures are delegated to the Quarry Manager; however, the 2019 Independent Environmental Audit did not check how the manager fulfils their responsibilities.</p> <p>S.9.2 Dot-point 1: word missing after <i>high</i>. What is INX?</p> <p>S.9.2 Dot-point 3: DPIE does not support this approach as being capable of determining compliance with AQ criteria.</p> <p>S.9.2 Dot-point 4: Corrective Actions need to refer to S.10 T.8. S.10 needs to identify T.8 TARP as the quarry's Contingency Plan.</p> <p>S.12 T.9 PM1 Should the Low-Volume Air Sampler be a High-Volume Air Sampler?</p> <p>S.13 T.10 Why is the Support Services Supervisor included in T.8 TARP, not included in T.10?</p>				<ul style="list-style-type: none"> Figure 1 has not been changed rather the wording describing Figure 1 indicates it was drafted for the EIS. Teven engage with surrounding landowners through the site's community webpage as described in Section 6.3.2 of the

Air Quality Management Plan (AQMP), Schedule 3, Condition 14	Satisfactory (Yes/No)	Comment	Action Required	Holcim Response
				<p>Environmental Management Strategy. Note the website also allows for community feedback.</p> <ul style="list-style-type: none"> • Ratio has been included. • Addressed. • Addressed. • Addressed. • Quarry Manager fulfils all responsibilities. • The word high has been replaced with exceedance. • INX is expanded. • The reference to the site being unoccupied has been removed. The new paragraph in Section 9.2 provides a process to determine whether criteria is being met. • Text has been added to reference Table 8. • 'Low' has been replaced with 'High'. • Site Quarry Manger is responsible for Support Services Supervisor function. Responsibilities have been updated in Table 10.



Mr. Evan Smith
Environmental Manager
Teven Quarry
18 Little Cribb Street
Milton, QLD 4064

15/09/2021

Dear Mr. Smith

**Teven Quarry (SSD-6422)
Air Quality Management Plan - request for additional information**

I refer to the revised Air Quality Management Plan (AQMP), dated April 2021, submitted in accordance with condition 14 of Schedule 3 of the Teven Quarry development consent (SSD-6422).

The Department has carefully considered the revised AQMP and requests that you provide additional information as detailed in **Attachment A**.

You are requested to provide a revised AQMP to the Department by Friday 1 October 2021. If this timeframe is not achievable, please provide and commit to an alternative timeframe for providing this information.

If you have any questions, please contact Emily Pemberton on 8275 1783 or at emily.pemberton@dpi.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read 'J McDonough'.

James McDonough
Team Leader
Resource Assessments (Coal & Quarries)

Attachment A
Teven Quarry (SSD-6422) – Post Approval
Air Quality Management Plan Review – July 2021

Air Quality Management Plan (AQMP), Schedule 3, condition 14	Satisfactory (Yes/No) 2020	2020 Comments	2020 Action Required	Holcim Response	Satisfactory (Yes/No) 2021	2021 Comments	2021 Action Required	Holcim Response
<p>The Applicant shall prepare and implement an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be submitted to the Secretary for approval within 6 months of the date of this consent, unless otherwise agree by the Secretary;</p>	Yes	<ul style="list-style-type: none"> Initial AQMP submitted in 2015. 	<p>Holcim must update this plan to address the DPIEs comments.</p>		Yes	<p>Consent was granted in July 2015. The Initial AQMP was submitted in 2015 and approved in January 2016</p>	<p>Nil</p>	
<p>(b) describe the measures that would be implemented to ensure:</p> <ul style="list-style-type: none"> compliance with the relevant conditions of this consent; 	Partial	<ul style="list-style-type: none"> Section 5 (S.5) – identifies AQ sources but what are the risks/impacts as these have not been clearly 	<ul style="list-style-type: none"> Include specific risks / impacts associated with each of the air quality sources and link these with the 	<ul style="list-style-type: none"> A paragraph has been set up associated with each dust/ fume generating activity which discusses potential 	Yes	<p>Section 5, Table 8 of Section 10 and Table 6 of Section 7 describe measures for condition 14(b) of Schedule 3.</p>	<p>Nil</p>	

Teven AQMP

Air Quality Management Plan (AQMP), Schedule 3, condition 14	Satisfactory (Yes/No) 2020	2020 Comments	2020 Action Required	Holcim Response	Satisfactory (Yes/No) 2021	2021 Comments	2021 Action Required	Holcim Response
<ul style="list-style-type: none"> • best practice management is being employed; and 		identified. <ul style="list-style-type: none"> • Table 6 (T.6) identifies measures used to control dust emissions. • T.8 contains a Trigger Action Response 	management measures in Table 6 and the TARP in Table 8. <ul style="list-style-type: none"> • Include the internal haul road speed limit for all vehicles. (30km/hr). 	impacts and links to mitigation measures in Table 6 and Table 8 (TARP). <ul style="list-style-type: none"> • Speed limit added to AQM11. 	Yes	Section 10, Table 8 (TARP) and Section 7, Table 6 outline management for the site.	Nil	

Air Quality Management Plan (AQMP), Schedule 3, condition 14	Satisfactory (Yes/No) 2020	2020 Comments	2020 Action Required	Holcim Response	Satisfactory (Yes/No) 2021	2021 Comments	2021 Action Required	Holcim Response
		<p>Plan (TARP), which identifies measures, with set wind speed triggers, which should be implemented to minimise dust impacts.</p> <ul style="list-style-type: none"> • S.7 T.6 – AQM11 – Internal road speed limit has not been included. • S.8.2 states a meteorological weather station is on-site, but the AQMP does not describe how this information may be used to minimise AQ impacts during adverse weather conditions 	<ul style="list-style-type: none"> • Please describe how AQ impacts are minimised during adverse meteorological conditions. Note: Specific weather conditions should be obtained from the AWS to determine site conditions not just visual observations. This is also relevant when determining and recording adverse “weather” conditions. 	<ul style="list-style-type: none"> • This is described in the TARP. Text has been added in Section 8 which links to the TARP. Adverse meteorological conditions and extraordinary events have been described in Section 8.2. 				

Teven AQMP

Air Quality Management Plan (AQMP), Schedule 3, condition 14	Satisfactory (Yes/No) 2020	2020 Comments	2020 Action Required	Holcim Response	Satisfactory (Yes/No) 2021	2021 Comments	2021 Action Required	Holcim Response
<ul style="list-style-type: none"> the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events; 					Yes	The air quality TARP in Table 8 includes a series of measures to be implemented in response to adverse weather conditions.	Nil	
(c) describe the proposed air quality management system;	No	<ul style="list-style-type: none"> Where is the AQM System? 		The AQM system is described in Section 7. Table 6 outlines all the management actions associated with avoiding air quality impacts.	Yes	The Air Quality Management System is described in sections 7 through 12.	Nil	
(d) include an air quality monitoring program that: <ul style="list-style-type: none"> is capable of evaluating the performance of the development; 	No	DPIE does not consider the proposed monitoring program would be capable of determining whether the quarry is compliant with the relevant AQ criteria at privately owned residences – unless the values at site PM1 are at, or below, the relevant AQ criteria.	Providing a means for determining compliance with AQ criteria at privately owned residences e.g. a Protocol for running the AQ Model for the quarry site should values at PM1 approach or exceed relevant AQ criteria OR install high volume sampler/s at additional sites OR some other Protocol proposed by Teven Quarry.		No	The proposed revision to the monitoring program does not provide for the evaluation of compliance at all privately owned residence. E.g. The proposed monitoring program does not provide for monitoring of the quarry’s air quality impacts on sensitive receivers to the south or east of the site.	Update the air quality monitoring program to provide a means for determining compliance with the air quality criteria at all privately owned residences.	Depositional dust monitors will be added to the northeast and south of the operations as described in Section 8. The monitoring network will be able to effectively monitor dust generated from the operation in all directions and manage dust to avoid impacts to residential receivers.

Teven AQMP

Air Quality Management Plan (AQMP), Schedule 3, condition 14	Satisfactory (Yes/No) 2020	2020 Comments	2020 Action Required	Holcim Response	Satisfactory (Yes/No) 2021	2021 Comments	2021 Action Required	Holcim Response
<ul style="list-style-type: none"> • includes a protocol for determining any exceedances of the relevant conditions of consent; 	Yes				Yes	A protocol for determining exceedances of the relevant conditions of consent is provided in Section 9.	Nil	
<ul style="list-style-type: none"> • effectively supports the air quality management system; and 	Yes				Yes	Notwithstanding the above comments in relation to evaluating compliance at all, the air quality monitoring program (Section 8) is used to evaluate	Nil	
						compliance and identify the need for further monitoring, reporting, or other response actions. The contingency plan set out in Section 10, which is based on monitoring of adverse weather conditions and visual observations, also forms a key part of the air quality management system.		

Air Quality Management Plan (AQMP), Schedule 3, condition 14	Satisfactory (Yes/No) 2020	2020 Comments	2020 Action Required	Holcim Response	Satisfactory (Yes/No) 2021	2021 Comments	2021 Action Required	Holcim Response
<ul style="list-style-type: none"> • aluates and reportson the adequacy of their quality management system. 	<p>Partial</p>				<p>Partial</p>	<p>The plan does not include a protocol for air quality incident reporting. An incident is defined in the conditions of consent as:</p> <p><i>A set of circumstances that:</i></p> <ul style="list-style-type: none"> • <i>causes or threatens to cause material harm to the environment; and/or</i> • <i>breaches or exceeds the limits or performance measures/criteria in this consent.</i> <p>Condition 7 of Schedule 5 requires the following:</p> <p><i>The Applicant shall immediately notify the Secretary and any other relevant agencies of any incident. Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such</i></p>	<p>Please update the plan to include a protocol for air quality incident reporting consistent with the requirements of the conditions of consent</p>	<p>Wording has been added to Section 9 that outlines the protocol for air quality incident reporting consistent with the requirements of the conditions of consent.</p>

Teven AQMP

Air Quality Management Plan (AQMP), Schedule 3, condition 14	Satisfactory (Yes/No) 2020	2020 Comments	2020 Action Required	Holcim Response	Satisfactory (Yes/No) 2021	2021 Comments	2021 Action Required	Holcim Response
						<i>further reports as may be requested.</i>		
Other Comments								
<p>Section 6, Table 5 – duplication of deposited dust criterion. Please revise Table 5 of Section 6. Table 2 of the AQMP does not coincide with exact text within the Development Consent.</p> <p>Table 6 delegates control measures to be the responsibility of the Quarry Manager, however the 2019 Independent Environmental Audit did not demonstrate how the manager fulfils their responsibilities.</p>								

Appendix B
Audit Action Plan Requirements

APPENDIX A – Teven IEA – Air Quality Actions

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
Summary of Non - Compliances - SSD- 6422								
Condition 11, Schedule 3	<p>According to the Annual Review, the PM10 annual average was below the annual average criteria but the PM10 24 hour criteria was exceeded on 5 occasions during 2018 (11 August, 6 September, 6 November, 10 November and 4 December). The results ranged from 58µg/m³ to 68µg/m³ compared against a criteria of 50 µg/m³.</p> <p>The Annual Review explains there was an issue with the sampling methodology which has since been rectified. The depositional dust results in the Annual</p>	<p>It is noted that no exceedance / non-compliance of the approval limits occurred. It is noted that the approval limits only apply to residential location. It is noted that the high dust levels were not detected at dust sensitive residential locations. The high results were as a result of surround agricultural land use. The high levels were proactively reported to DPIE. DPIE visited the site on the 9.03.2020. It was agreed that the Air Quality management Plan will be updated.</p>	Corrective action 04	Review the dust monitoring program to ensure it provides representative results that can be used to confirm compliance with the relevant criteria and update the Air Quality Management Plan accordingly.	<p>If a incident is detected (i.e a dust result above air quality criteria in the Development Consent at any residence on privately-owned land.) this will be reported to DPIE within 7 days.</p> <p>It is noted that Holcim proactively notified the local residents regarding the recent high levels detected in the surrounding agricultural locations. Holcim will continue to notified the landowners as required as soon as practicable.</p> <p>Holcim will update</p>	Accepted	SS /ES /GS	December 2020.

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
	Review also indicate some exceedances of the approval criteria, however, it explains the exceedances were due to sugar farming operations that surround the monitoring locations. Holcim are in discussion with DPIE and EPA regarding the relocation of the dust deposition gauges.				<p>the site's air quality management plan to only undertake dust deposition monitoring at sensitive receptors in the event of a complaint. Proactive due diligence monitoring will continue on site at a non dust sensitive receptors for internal business management purpose.</p> <p>It is noted that the timeframe will be dependant on the departments approval of the revised management plan.</p>			
Condition 15, Schedule 3	The Annual Review reported a non-compliance with this condition due to a faulty weather station. However, a meteorological station was observed, which	Ramboll fixed the weather station in Feb 2020.	Corrective action 05	Regularly maintain and monitor the weather station to ensure it is working.	The weather station will be upgraded to 3G capabilities to allow data to be remotely downloaded	No further action	ES	Closed

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
	Holcim advised was installed by VGT. Although considered a non-compliance, the issue has since been addressed.							
Condition 1, Schedule 4	Exceedances of the air quality criteria were recorded but Holcim advised landowners were not notified. It was claimed that the air quality exceedances were not due to Holcim activities but there is nothing in the condition indicating it is only quarry related exceedance that are to be notified.	It is noted that no exceedance / non-compliance of the approval limits occurred. It is noted that the approval limits only apply to residential location. It is noted that the high dust levels were not detected at dust sensitive residential locations. The high results were as a result of surround agricultural land use. The high levels were proactively reported to DPIE. DPIE visited the site on the 9.03.2020. It was agreed that the Air Quality management Plan will be updated.	Corrective action 11	Notify affected landowners when monitoring results indicate an exceedance of the relevant criteria with justification why the exceedance was not associated with Holcim activities, if applicable.	It is noted that Holcim proactively notified the local residents regarding the recent high levels detected in the surrounding agricultural locations. Holcim will continue to notified the landowners as required as soon as practicable. Holcim will update the site's air quality management plan to only undertake dust deposition monitoring at sensitive receptors in the event of a complaint. Proactive due diligence monitoring will continue on site	Ongoing	See Corrective action 04	See Corrective action 04

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
					<p>at a non dust sensitive receptors for internal business management purpose.</p> <p>It is noted that the timeframe will be dependant on the departments approval of the revised management plan.</p>			
Condition 2, Schedule 5	<p>The management plans all provide:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Baseline data (except the Water Management Plan) <input type="checkbox"/> A description of the relevant statutory requirements, performance measures/criteria and indicators <input type="checkbox"/> Management 		Corrective action 12	Update the management plans required under the consent to include a contingency plan to manage unpredicted impacts.	Environmental Management Strategy included contingency plans.	No further action required	-	-

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
	<p>measures</p> <p>Monitoring program</p> <ul style="list-style-type: none"> <input type="checkbox"/> Protocols for managing and reporting on incidents, complaints, non-compliances and exceedances <input type="checkbox"/> Review and improvement protocol <p>None of the plans included a contingency plan to manage unpredicted impacts.</p>							
Condition 3, Schedule 5	<p>5 Exceedances of the air quality criteria were recorded but Holcim advised that the Secretary was not notified. It was claimed that the air quality exceedances were not due to Holcim activities but there is nothing in the condition indicating it is only quarry related exceedance that are to be notified.</p>	<p>It is noted that no exceedance / non-compliance of the approval limits occurred. It is noted that the approval limits only apply to residential location. It is noted that the high dust levels were not detected at dust sensitive residential locations. The high results were as a result of surround agricultural land use. The high levels were</p>	Corrective action 13	<p>Notify the Secretary, in accordance with Condition 3, Schedule 5, when monitoring results indicate an exceedance of the relevant criteria and, when relevant, document justification why the exceedance was not associated with Holcim activities.</p>	<p>If a incident is detected (i.e a dust result above air quality criteria in the Development Consent at any residence on privately-owned land.) this will be reported to DPIE within 7 days.</p> <p>It is noted that Holcim proactively notified the local residents regarding the recent high levels detected in the surrounding</p>	Ongoing	See Corrective action 04	See Corrective action 04

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
		proactively reported to DPIE. DPIE visited the site on the 9.03.2020. It was agreed that the Air Quality management Plan will be updated.			<p>agricultural locations. Holcim will continue to notified the landowners as required as soon as practicable.</p> <p>Holcim will update the site's air quality management plan to only undertake dust deposition monitoring at sensitive receptors in the event of a complaint. Proactive due diligence monitoring will continue on site at a non dust sensitive receptors for internal business management purpose.</p> <p>It is noted that the timeframe will be dependant on the departments approval of the revised</p>			

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
					management plan.			
Condition 5, Schedule 5	Holcim was not able to provide any evidence there had been a review of the strategies, plans and programs required under this consent, following any of the triggers.	SLR was engaged in Q3 2019 to review and update the site management plans. Site has been awaiting the findings of the independent audit , before finalising the review and update of the management plans	Corrective action 14	Review the strategies, plans and programs following the annual review, incident report, audit report or modification and maintain evidence of the reviews.	SLR was engaged in Q3 2019 to review and update the site management plans. Site has been awaiting the findings of the independent audit, before finalising the review and update of the management plans. This will be completed once the department acceptance the findings of the independent audit.	Accepted	SS /ES /GS	December 2020.
Condition 7, Schedule 5	The Annual Review identifies two Incidents/Non compliances. Holcim advised that the Secretary was not notified other than inclusion in the Annual Review.	Duplicate finding. This is in relation to dust monitoring (corrective action 4 & 13) and weather station (corrective actions 5)	Corrective action 15	Notify the Secretary and any other relevant agencies of any incident, within 7 days of the date of the incident, in accordance with Condition 7, Schedule 5.	<u>Dust monitoring</u> If a incident is detected (i.e a dust result above air quality criteria in the Development Consent at any residence on privately-owned land.) this will be reported to DPIE within 7 days.	Ongoing	Duplicate finding. This is in relation to dust monitoring (corrective action 4 & 13) and weather station (corrective actions 5)	Duplicate finding. This is in relation to dust monitoring (corrective action 4 & 13) and weather station (corrective

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
					<p>It is noted that Holcim proactively notified the local residents regarding the recent high levels detected in the surrounding agricultural locations. Holcim will continue to notified the landowners as required as soon as practicable.</p> <p>Holcim will update the site's air quality management plan to only undertake dust deposition monitoring at sensitive receptors in the event of a complaint. Proactive due diligence monitoring will continue on site at a non dust sensitive receptors for internal business management purpose.</p>			actions 5)

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
					<p>It is noted that the timeframe will be dependant on the departments approval of the revised management plan.</p> <p><u>Weather Station</u> The weather station will be upgraded to 3G capabilities to allow data to be remotely downloaded</p>			
Air Quality Management Plan (AQMP)	Dust management was observed during the site visit, including an irrigation system on haulage roads and a sprinkler system on conveyor belts. The Annual Review indicates five exceedances of the PM10 24 hour criteria. A number of exceedances were also recorded for the depositional dust at DDG1 and DDG2, however, Holcim report	Refer to Corrective action 04	Refer to Corrective action 04	Review the dust monitoring program to ensure it provides representative results that can be used to confirm compliance with the relevant criteria and update the Air Quality Management Plan accordingly.	Refer to Corrective action 04	Refer to Corrective action 04	Refer to Corrective action 04	Refer to Corrective action 04

Condition	Observation	Holcim comments in relation to observation	Audit Reference	Auditors Recommended Action	Holcim comments	Status	Person Responsible	To be completed before
	<p>this was due to contamination and have therefore been removed from the annual average. The Annual Review mentions the depositional dust gauges are poorly located and Holcim are in discussions with DPIE and EPA regarding moving them and updating the AQMP accordingly</p>							

