OPERATIONAL DUST MONITORING & REMEDIAL ACTION PROGRAMME
VOYAGER II QUARRY, BGC PLANT CRUSHING & SCREENING
THE LAKES, WA
July 2018
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1 INTRODUCTION

The environmental factor assessed by the Environmental Protection Authority (EPA) relevant to this management plan is “dust”.

Management of dust is a key issue for all extractive industry operations. Whilst it is accepted that some dust generation is unavoidable during most types of ground disturbing activity, it is unacceptable for this dust to have health, environmental or significant amenity implications for the surrounding community.

The following quarry operations have the potential to cause dust lift-off:

- Drilling and blasting;
- Loading, hauling, conveyor movements;
- Crushing and screening involving primary, secondary and tertiary crushing with associated screening to various product specifications; and
- Trucking operations.

1.1 Legal Framework

Voyager Quarry was assessed under Part IV of the Environmental Protection Act 1986 (see below). In addition to the updated Ministerial approval of the project (Statement 934 of April 2013), the proponent will need to comply with a range of statutory and policy requirements as outlined in Table 1 below.

The project, which was initially described within BGC’s Public Environmental Review (PER) (URS 2003), was referred to the EPA on 19 December 2001 by the Commissioner for Soil and Land Conservation.
Table 1. Statutory, policy and other guideline requirements

<table>
<thead>
<tr>
<th>Agency</th>
<th>Statute/Guideline</th>
<th>Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office of Environmental Protection Authority</td>
<td>Environmental Protection Act 1986</td>
<td>Ministerial Statement 706 followed by additions in Statement 872 and 934 (of April 2013) was issued under Part IV of the Act. Condition 706:M12 provides conditions to be met prior to clearing operations.</td>
</tr>
<tr>
<td>Department of Mines and Petroleum</td>
<td>Mines Safety and Inspections Act, 1994</td>
<td>Occupation and safety measures required in regard to worker safety and health have relevance to the aspect of dust.</td>
</tr>
</tbody>
</table>
The quarry is at Lot 14 (Figure 1), Horton Road, The Lakes, Shire of Northam that is owned by BGC. In December 2001, the EPA determined the level of assessment for the proposal at PER, and this level of assessment was subject to a two week appeals process. A number of appeals against the level of assessment were considered by the Minister for the Environment and dismissed on 1 May 2002. The subsequent PER document was released for public review for a period of eight weeks from 6 January 2003, closing on 3 March 2003. An extension was then provided to allow for further public submissions until April 2003. Following a review of the submissions, BGC modified its proposal and incorporated details of additional monitoring activities and data within its Response to Submissions (URS 2004).
2 THE PROJECT

The Voyager Quarry II is located at Lots 11 and 14 Horton Road (Avon Location 1881), The Lakes, Shire of Northam (Figure 1 & 2 indicate the project boundary).

The Voyager II quarry is for the extraction of a resource which is an extension of a Key Extraction Area designated in the Western Australian Planning Commission’s Basic Raw Materials Planning Policy.

Ministerial Statement 706 set conditions on the construction and operation of a new quarry that was to replace the original Voyager Quarry, now nominated Voyager I. With expiry of the licence agreement between BGC and the landowner, the Operating Licence L5356 for crushing and screening at Voyager I was not renewed and was allowed to expire on 3rd October 2010. The new quarry, nominated Voyager II, was commissioned on 24th September 2010 under operating licence L8415.

Further to submission by BGC under Section 46 of the EP Act in October 2010, Statement 872 was issued in August 2011 replacing condition 706:M6.1 with new condition that extends the use of tertiary crushers to 19:00 hours on Saturdays. Further to this, under Section 46, Ministerial Statement 934 was issued in April 2013.

The development of the quarry will ultimately require the clearing of 91.5 ha of vegetation over the estimated 50 or more year life of the proposal. It is anticipated that the project’s development will occur in six stages, with Stage 1 and Stage 2 being initially developed to provide room for the new below ground level facilities and infrastructure. Subsequent stages 3 and 4 have now been completed as well. All infrastructure, crushing and screening plants will be housed below ground level, and the site is surrounded by a buffer of trees and other vegetation.

2.1 Receiving Environment

The receiving environment relating to the aspect of dust is the amenity and health of nearby residents that could potentially be impacted by the proposed operations. Figure 2 indicates the nearest residential locations that are potentially at risk from dust emissions.

The nearest residence to the proposed quarry site is a privately owned property in the Shire of Mundaring, which will be approximately 560 m to the west of the operational area. Other settlements are located to the north and east of the proposed quarry site (Figure 2).

2.2 Potential Environmental Impacts of the Project

Concerns were originally raised by residents about dust from all operational aspects of the project. The potential for unacceptable off-site impacts from dust is most affected by the prevailing wind direction during dry summer conditions when east to south easterly winds prevail.
A large number of submissions were received on this particular issue during the publication of the project in 2002. The majority of these pertained to the perception that the proponent’s old Voyager I operations was performing poorly with respect to management of dust. Concerns were also raised with respect to future operation of Voyager II and the potential impacts of dust on nearby residents’ health, well-being and amenity.

3 PRINCIPAL ENVIRONMENTAL OBJECTIVES

3.1 BGC Objectives for Dust Management

The objective of the programme is to minimise and manage dust emissions that are directly emanating from and leaving the site associated with all operations including land clearing, excavations, blasting, stockpiles and general operational activities such as screening, crushing and transport.

3.2 Proponent Commitments

The proponent provided the following objectives for the dust management plan. The objectives are to ensure that:

- Nuisance dust levels are not experienced by neighbours and do not cause any health problems;
- Dust generated during the operational phases of the quarry expansion does not significantly impact on amenity;

The operational layout for the proposed quarry expansion will minimise dust and particulate emissions from the quarry.

4 DUST CONTROL STRATEGIES IMPLEMENTED TO DATE

The quarry operator will have had considerable experience over more than 20 years in managing dust issues in the old quarry; this experience has been applied and improvements made, where required, at the relocated quarry. Consequently, this previous experience is outlined below.

4.1 Potential Dust Sources in the Quarry Operations

The following quarry operations have the potential to cause dust emissions:

- Drilling and blasting;
- Materials movement – loading and unloading, conveyor transfer points;
• Materials processing – crushing and screening;
• Vehicle movement over unsealed ground;
• Vehicles leaving the premises with dust on chassis; and
• Vehicles leaving the premises without loads properly secured.

In the Voyager II quarry operation, BGC has modified its blasting practices to minimise the potential for blast dust to reach residences and obtains a Monday To Friday (weekly) wind direction prediction and quarry management set blasting for when wind conditions are favourable.

It should be noted, however, that direct observations of wind conditions (for example the wind sock which is installed for that purpose) on the day of blasting and at the time of blasting, will over-ride the decisions based on predicted wind direction. This will be the case for both, unfavorable wind conditions (southeasterlies) and favourable wind conditions. Final decisions on whether to blast or not will be taken at the time when blasting is imminent.

Also, because regulations forbid explosives being left unattended in the ground when the quarry is closed, they must be detonated on Friday afternoons regardless of wind conditions if it has not been possible to detonate them earlier in the week.

This also is the case during storm events where lightning may be present, any explosives which are in the ground are required to be detonated, by law. It is expected that such circumstances may arise only on a few occasions each year.

When BGC responded to public submissions during the EIA process in 2002/03, the proponent identified that a number of actions have been undertaken over the last few years to improve dust management and other environmental issues at the old quarry. These improvements which included the use of improved capital equipment, facilities and procedures are outlined in Table 2.

Reports of inspections performed by the Department of Mining and Petroleum (DMP) at the time for worker occupational health and safety purposes, note that dust management at the site particularly that associated with material processing activities, was of a high standard.
4.2 Dust Control Measures Implemented To Date

The following dust control measures apply to BGC operations:

**Table 2 below includes those dust control measures implemented to date.**

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Details of Improvement</th>
<th>Location of Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealing access road</td>
<td>The access road was sealed with bitumen.</td>
<td>Access road</td>
</tr>
<tr>
<td>Revised blasting procedures</td>
<td>BGC issued an internal memo regarding blasting procedures. It included the following instructions:</td>
<td>Pit</td>
</tr>
<tr>
<td>(reduction in dust emissions)</td>
<td>delay blasting on days when wind strength and direction is likely to cause dust emissions;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plan blasting according to weekly wind predictions;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delay blasting as late as possible until conditions (winds) are favourable;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delay blasting if wind conditions are not favourable, however charges cannot be left in the ground over a weekend and cannot be delayed beyond Friday or if electrical storms are likely.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BGC issued an internal memo for the revised blasting instructions, including:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If wind directions are between east and south of south east, then the blast must be delayed until wind conditions are more favourable. This should be checked (confirmed) by the observation of the wind sock, installed at the site for this purpose prior to blasting.</td>
<td></td>
</tr>
<tr>
<td>Pit and surrounds</td>
<td>• Road sweeper on sealed roads</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Water ground at pit floor prior and</td>
<td></td>
</tr>
<tr>
<td>Improvement</td>
<td>Details of Improvement</td>
<td>Location of Implementation</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>During blasting.</td>
<td>- Water sprays trialled on blasts.</td>
<td></td>
</tr>
</tbody>
</table>
| Reduced dust emissions         | - Total enclosure of the primary crusher to reduce noise and dust emissions.  
                                  |  - A Fogger system installed in the Primary Crusher building.  
                                  |  - Front end of primary crusher enclosed.  
                                  |  - ROM bin enclosure with conveyor belting  
                                  |  - Foam trials in tertiary plant                                                                                                                                                                                      | Primary crusher            |
| A new sprinkler system is      | The sprinkler system is more efficient as it waters areas and stockpiles when wind direction and speed are at a set level.  
                                  |  - Chutes enclosed on all stackers with water sprays.  
                                  |  - Wash down bay installed at the plant.  
                                  |  - Extra dam built to capture more storm water  
                                  |  - Wheel wash  
                                  | The pump now fills up the water truck five times quicker than the previous pump enabling more frequent watering.                                                                                                       | Stockpile areas            |
| Revised procedures for trucking movements | BGC issued an internal memo requiring mandatory use of tarpaulins on every departing load.                                                                                                                              | Overall                     |
5 DUST CONTROL STRATEGIES EMPLOYED AT THE QUARRY

5.1 Strategies Required

There are two separate quarry operations to be considered when planning dust management strategies. These are:

- Overburden removal: These are carried out close to surface wind conditions; special precautions and planning are required for these operations.

- Quarrying operations that include those activities listed in Section 4.1 and dust management strategies are required for each type of operation. However, the risk of dust emissions crossing the proponent’s boundaries are less likely due to the depth of the quarry operations being well below ambient wind conditions.

The above are further detailed in the sections below.

5.2 Overburden Removal

5.2.1 Proponent commitments

The following commitments have been previously provided by the proponent in regard to dust management during overburden removal:

- Develop the quarry in a staged process so that possible impacts from overburden removal are limited to five separate occasions over the life of the quarry.
- Undertake overburden removal only under favourable weather conditions – principally during the wetter months or during north westerly winds.
- Establish a phone link to the quarry manager for nearby residents.
- Keep residents informed of when activities are likely to occur.
- Control any large bare expanses of soil and overburden are left exposed over the dry summer period.
- Ensure that dust control mechanisms (spray and tanker trucks) are implemented where and when required.
- Undertake visual monitoring of dust at the boundary during these activities and stop work if unfavourable wind conditions cause dust to lift-off in the direction of residences.

Action to be taken for the above commitments and additional dust control and management measures are outlined in Tables 3, 4 and 7.
Table 3. Strategies and control measures to minimise dust emissions during vegetation & overburden removal phase

<table>
<thead>
<tr>
<th>Activity</th>
<th>Strategy or Control Measure</th>
<th>How</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overburden removal</td>
<td>Favourable weather conditions</td>
<td>Should be undertaken immediately after vegetation removal to prevent leaving an open, cleared area.</td>
</tr>
<tr>
<td>Monitoring: overburden removal</td>
<td>Conduct continual visual monitoring for dust lift off.</td>
<td>If dust emissions threaten to cross the boundary of Lots 11 and 14 – stop work immediately and do not resume until optimum weather conditions return or until water sprays have been applied.</td>
</tr>
<tr>
<td></td>
<td>Maintain dust monitoring equipment and automatic weather station.</td>
<td>As required by Section 6.</td>
</tr>
</tbody>
</table>
5.3 Quarrying Operations

5.3.1 Proponent commitments

The following actions have been implemented by the proponent in regard to dust management for quarrying operations.

- Certain haul roads sealed with asphalt.
- Watering the haul roads.
- Watering of benches and pit floors.
- Watering of stockpiles.
- Watering of shot-rock in the pit before it is loaded and hauled to the crushing plant.
- Using wet drilling practices for the quarrying operations.
- Using water sprays throughout the plant and at transfer points.
- Watering and covering loads when transporting material off-site.
- Road sweeper on sealed roads
- Implementing speed restrictions within the quarry.
- Enclosure of the primary crusher.
- Fogger system installed in primary crusher.
- Sprinkler system.

Quarry operational and dust management strategies, and improvements already implemented, have been carried forward into the new operations.

Table 4 below includes those strategies required to ensure that dust emissions are minimised during operational activities.
Table 4. Strategies and control measures to minimise dust emissions during quarry operations phase

<table>
<thead>
<tr>
<th>Activity</th>
<th>Strategy or Control Measure</th>
<th>When</th>
<th>How</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffers</td>
<td>Maintain vegetation buffers between the boundary of the operational area and adjacent land holdings.</td>
<td>Commence tree planting spring ‘07</td>
<td>Undertake tree planting as required.</td>
</tr>
<tr>
<td>Blasting</td>
<td>BGC blast procedures include the following instructions:</td>
<td>All actions to be carried out for the life of the quarry.</td>
<td>Automatic weather station with data-logger on-line to operations area. Review five-day weather forecasts.</td>
</tr>
<tr>
<td></td>
<td>Use wet drilling techniques.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avoid blasting when wind direction is unfavourable in regard to dust dispersion. Confirm by observation of wind stock.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delay blasting until conditions (winds) are favourable.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delay blasting until the next day if conditions are not favourable, however charges cannot be left in the ground over a weekend or if electrical storms are anticipated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Areas set for blasting to have water sprayed beforehand.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(The complaints register indicates changes to blasting procedures have substantially reduced dust emission impacts.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials Movement</td>
<td>Water down blasted rock before transfer to primary crusher.</td>
<td>All actions to be carried out for the life of the proposal</td>
<td>For stock piles use sprinkler systems at short regular intervals to maximise dust control and efficient water use.</td>
</tr>
<tr>
<td></td>
<td>Use water sprays for loading and unloading of raw materials and product as required.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water sprays to conveyors and transfer points.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials Processing</td>
<td>Water spray to rock-feed hoppers</td>
<td>Primary crusher enclosed.</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Strategy or Control Measure</td>
<td>When</td>
<td>How</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Fugitive dust</td>
<td>Sprinkler systems to be installed for dust control. A water truck is available as required.</td>
<td>Sprinkler system has been installed</td>
<td>As required – sprinklers and water truck.</td>
</tr>
<tr>
<td>Trucking</td>
<td>Access roadways to be sealed and subject to water spray as required.</td>
<td>Seal road prior to start of operations. All actions to be carried out for the life of the quarry.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Certain haul roads have been sealed with asphalt.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Departing trucks to be covered by tarpaulin.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wheel wash</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trucks to depart in clean condition.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Truck to obey speed restrictions on quarry approach; road outside of weighbridge and obey speed limits within the quarry as required by safety considerations.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6 WEATHER INFORMATION REQUIRED

Information required to ensure the best possible outcomes for dust management includes:

- Maintaining an automatic weather station for monitoring wind data;
- Reviewing modelled wind forecasts for current and five-day (Monday to Friday) long-term weather information;
- Maintaining ambient dust monitoring equipment, in two locations at boundaries adjacent to nearby residents, most likely to provide upwind and downwind suspended dust comparisons and live weather information;
- Visual monitoring of dust emissions. Observations of the wind direction via the wind sock will take precedence over predicted (computer modelled) wind direction prediction.

6.1 Weather monitoring requirements

Where there is the potential for dust lift-off, in order of importance, dust impacts on amenity are primarily influenced by:

- wind strength;
- wind direction; and
- ground level moisture.

As ground-level moisture is to be artificially controlled by spraying, the key parameters for managing the effectiveness of dust suppression and management are wind strength and wind direction.

For quarry planning purposes long-range weather forecasts are obtained on a weekly basis to ensure that adequate planning is in place for conditions likely to cause dust emissions. This information is followed up on a daily basis by monitoring real-time data available from the dedicated weather station and direct observations of the wind sock.

The Quarry Operator must be aware when hot, dry and windy conditions are likely to occur and appropriate action should be taken in deploying water sprays on the day, before such conditions arise so as to prevent dust emissions or to avoid operations that would be most likely to cause excessive dust emissions.

6.1.1 Wind Direction and strength

The York Weather Station is located approximately 45 km east of the project area. Table 5 below provides Bureau of Meteorology average dominant 9 am and 3 pm wind directions.
derived from Bureau of Meteorology weather station at York collected between 1957 and 2014.

Wind roses were downloaded from:


Table 5. Dominant wind directions for York Weather Station derived from BoM seasonal wind roses.

<table>
<thead>
<tr>
<th>Season</th>
<th>9am</th>
<th>3pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>West to North</td>
<td>West to North</td>
</tr>
<tr>
<td>Spring</td>
<td>East to South</td>
<td>South West to North West</td>
</tr>
<tr>
<td>Summer</td>
<td>South East</td>
<td>East to South East and West</td>
</tr>
<tr>
<td>Autumn</td>
<td>East to South</td>
<td>West and East (more variable)</td>
</tr>
</tbody>
</table>

The information in Table 5 suggests that placing dust monitoring equipment on a north-west/south-east axis would enable both upwind and downwind dust data to be obtained under the most common weather conditions, especially during summer when the risk of dust emissions is highest due to strong desiccating east to south easterly winds.

6.1.2 Weather forecasting information

Modelled wind directions are obtained from Stass Environmental for The Lakes locality (Quarry location). The modelled data is site specific for The Lakes region, with a resolution of 8 km. This information is obtained every Monday morning; and provides a table of wind data for the following 5 days.

The best possible wind strength and wind direction forecasts can be obtained for at least five days ahead using the Stass Environmental modelling. On the basis of this information, blasting is not conducted when wind conditions are south easterly and gusting. Note that blasting has to be undertaken, regardless of wind direction and speed, at times when an electrical storm is forecast, or on Friday afternoons (explosives cannot be left in the ground over the weekend).

7 DUST MONITORING REQUIREMENTS

The monitoring requirements are derived from using conditions imposed by the DWER on similar activities in the near Perth area (Heavy Industrial) and the DWER licence conditions. Heavy Industrial EPA Policy and Regulations have been relied on from the Kwinana Environmental Protection Policy (EPP) Area A of 1999 and 2005.

The following monitoring requirements are required:
BGC undertakes a dust monitoring programme for the purpose of determining off-site dust impact from the operation. The programme incorporates the following:

i. TEOM and BAM dust monitors shall be installed in accordance with the Australian Standard 3580;

ii. The dust monitors, referred to above (i) are installed at the locations as depicted in Figure 2;

iii. PM10 is monitored using the dust monitors referred to above as per Australian Standard 3580;

iv. PM10 is measured and recorded for the purpose of obtaining a 24 hour average; and

v. Monitors are installed to ensure wind direction, wind speed and temperature is measured and recorded as per Australian Standard 2923.

vi. Wind sock for visual operational management.

BGC ensures that the dust monitors and wind data monitors referred to in the above section (i), are maintained and calibrated in accordance with the manufacturer's specifications and Australian Standard 3580.

8 RELEVANT STANDARDS

The following relevant standards apply to the measurement of atmospheric particulates are summarised in Table 6 below.

Table 6: Relevant standards applying to measurement of atmospheric particulates

<table>
<thead>
<tr>
<th>Standard</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS 3580.9.8-2001</td>
<td>Method for sampling and analysis of ambient air - Determination of suspended particulate matter - PM(sub)10(/sub) continuous direct mass method using a tapered element oscillating microbalance analyser</td>
</tr>
<tr>
<td>AS 3580.9.11-2008</td>
<td></td>
</tr>
<tr>
<td>AS 3580.1.1-2007</td>
<td>Ambient air – guide for the sighting of sampling units</td>
</tr>
<tr>
<td>KEPP Area A (1999) and (2005)</td>
<td>Criteria for PM10 levels</td>
</tr>
</tbody>
</table>
8.1 Performance criteria

The following are indicators for tracking the progress in managing and controlling dust emissions.

8.1.1 Visual monitoring

Visual monitoring of dust emissions will be the first line of action for dust management, particularly during overburden removal. Actions may be instigated without delay at the observed source of dust emission. In the case of overburden removal this would include ceasing the offending operation, application of water sprays and only restarting operation at a low intensity and slowly increased to ensure dust emissions are minimised. In the case of quarry operations, the application of corrective water sprays at the offending operation would be appropriate.

8.1.2 Short-term corrective monitoring

A short-term “corrective action” dust concentration target is recommended to assist in maintaining ambient standards. Should the target concentration of PM$_{10}$ particulates be exceeded, this would initiate management procedures as for Section 9 to ensure that ambient dust standards are met. The dust monitors are configured to send an email message to the appointed staff, notifying of the exceedance.

8.1.3 Complaints register

A complaints register will be maintained to verify that operating parameters are effective. The complaints register will track any problems that are likely to occur in regard to visual amenity.

When completing the Annual Report, the Quarry Manager will indicate any remedial action that has been taken in regard to complaints received.

8.2 Ongoing Monitoring

Table 7 below provides all dust monitoring activities required to minimise the risk of dust emissions crossing the boundaries of Lot 11 and 14.
Table 7. Ongoing dust monitoring activities

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Location</th>
<th>Parameter/Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual dust monitoring.</td>
<td>All quarry locations.</td>
<td>Opportunistic observation of visual dust lift-off or emission.</td>
</tr>
<tr>
<td>Short-term Continuous Dust Monitoring. Emails</td>
<td>On NW/SE axis of operational area on boundaries of Lots 11 and 14.</td>
<td>PM10 of 50-250 µg per 15min. Set by BGC staff and will be adjusted accordingly.</td>
</tr>
<tr>
<td>Wind direction and strength.</td>
<td>Locate weather station in accordance with appropriate standards/guidelines</td>
<td>Wind strength and Direction.</td>
</tr>
<tr>
<td>Complaints Register.</td>
<td>All quarry operations.</td>
<td>Log complaint as required by register.</td>
</tr>
</tbody>
</table>
9 CONTINGENCIES AND REMEDIAL ACTION

Table 8 below provides actions to be taken in the event that certain contingencies arise which are likely to cause dust emissions beyond the boundaries of Lots 11 and 14.

Table 8. Monitoring contingencies and management actions

<table>
<thead>
<tr>
<th>Monitoring</th>
<th>Trigger</th>
<th>Management Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual dust monitoring.</td>
<td>Observations of dust lift off or dust emission.</td>
<td>Operational personnel to report observation to EO/QM who will log report and require remedial action to be taken: either to cease the reported activity or immediately apply water sprays. Activity should only be restarted at low intensity and gradually increased to observe if dust suppression measure has been successful.</td>
</tr>
<tr>
<td>Short-term Dust monitoring.</td>
<td>Assigned target level</td>
<td>Notify operations personnel to take corrective action as for visual dust monitoring.</td>
</tr>
<tr>
<td>Complaints Register.</td>
<td>Dust Complaint.</td>
<td>Compare Dust and Wind data to verify complaint. If complaint verified, take remedial action and notify complainant of outcome.</td>
</tr>
</tbody>
</table>

10 PERIODIC INTERNAL DOCUMENT REVIEW

BGC review site management documentation on an annual basis. Should the annual review indicate that the DMP can be improved or needs to be changed to reflect new operations, this will be attended to at that time.
11 LIMITATIONS

1. The conclusions presented in this report are relevant to the condition of the site and the state of legislation currently enacted as at the date of this report. We do not make any representation or warranty that the conclusions in this report will be applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

2. Stass Environmental has used a degree of skill and care ordinarily exercised by reputable members of our profession practicing in the same or similar locality. Conclusions are based on representative samples or locations at the site, the intensity of those samples being in accordance with the usual levels of testing carried out for this type of investigation. Due to the inherent variability in natural soils we cannot warrant that the whole overall condition of the site is identical or substantially similar to the representative samples.

3. This report has been prepared for BGC and for the specific purpose to which it refers. No responsibility is accepted to any third party and neither the whole of the report or any part or reference thereto may be published in any document, statement or circular nor in any communication with third parties without our prior written approval of the form and context in which it will appear.

4. This report and the information contained in it is the intellectual property of Stass Environmental. BGC is granted an exclusive licence for the use of the report for the purpose described in the report.
APPENDIX A

COLLATION OF COMMENTS AND RESPONSES
MINUTES OF THE MEETING OF THE
LAKES QUARRY COMMUNITY LIAISON GROUP (CLG)
VOYAGER QUARRY, THE LAKES
29th June, 2015 at 2 pm

Meeting Opened: No quorum was present at the nominated starting time of the meeting.

1. Present: Ulo Rumjantsev, Paul Berkhout and Peter Yates

2. Apologies: Craig Hollingsworth, Adrian Dyson

3. Minutes of the Previous Meeting:

4. Business Arising:
   Nil

5. Dust Management plan:
   No comments were received by any members of the CLG and those who were present had no issues with the plan

9. General business:
   (Of those who were present)
   No one was able to contact Bert Llewellyn regarding the meeting and no one from the Lakes Action Group turned up or sent any apologies for the meeting.
10. Next Meeting -
TBA

11. Meeting closed:

<table>
<thead>
<tr>
<th>Name</th>
<th>Telephone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bert Llewellyn</td>
<td>9573 6395</td>
<td><a href="mailto:llewb@westnet.com.au">llewb@westnet.com.au</a></td>
</tr>
<tr>
<td>Craig Hollingsworth</td>
<td>9442 2387</td>
<td><a href="mailto:cch@bgc.com.au">cch@bgc.com.au</a></td>
</tr>
<tr>
<td>Paul Berkhout</td>
<td>9572 6088</td>
<td><a href="mailto:pab@bgc.com.au">pab@bgc.com.au</a></td>
</tr>
<tr>
<td>Peter Yates</td>
<td>9572 6088</td>
<td><a href="mailto:psy@bgc.com.au">psy@bgc.com.au</a></td>
</tr>
<tr>
<td>EPA Compliance</td>
<td>6467 5155</td>
<td><a href="mailto:compliance@epa.wa.gov.au">compliance@epa.wa.gov.au</a></td>
</tr>
<tr>
<td>Michael Reeves</td>
<td>9572 6181</td>
<td><a href="mailto:valleyviewwines@optusnet.com.au">valleyviewwines@optusnet.com.au</a></td>
</tr>
<tr>
<td>Adrian Dyson</td>
<td>9290 6659</td>
<td><a href="mailto:adriandyson@mundaring.wa.gov.au">adriandyson@mundaring.wa.gov.au</a></td>
</tr>
<tr>
<td>Ulo Rumjantsev</td>
<td>9574 0086</td>
<td><a href="mailto:youanmi@aapt.net.au">youanmi@aapt.net.au</a></td>
</tr>
</tbody>
</table>