

NEOEN Solar Farm Project

Air Quality

Management Plan

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Shaping a Better Life

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1 INTRODUCTION

1.1 Purpose

The purpose of this Air Quality Management Procedure is to provide a strategy to control air quality impacts during construction in the NEOEN Solar Farm Project.

This Air Quality Management Procedure shall be read in conjunction with the *PL-EV-01 Environmental Management Plan*.

1.2 Document Responsibilities

| Responsibility | Role |
|----------------|-----------------------|
| Development | Environmental Manager |
| Review | Project Manager |
| Approval | Project Director |

Any person may request updating of this Plan.

1.3 Document Amendment and Distribution

This document shall be reviewed as follows:

- As requested by Management Review
- When there is a change of method and/or technology that may affect the accuracy of this document; or
- When there has been a significant event to which this document was relevant; or
- As a result of a non-conformance resulting from an audit

Document amendments and distribution will be conducted as per detailed in the *PL-CO-01 Project Management Plan* and the *PL-QA-02 Records Management Plan*.

New and amended documentation issued after the initial approval and distribution of this plan to controlled copy holders shall be identified in the *FS-QA-RG-06 Document Control Register*. Revision details shall be recorded in the *Revision Status Section* of this plan.

All changes to documents shall be reviewed and approved by the same function that performed the original review and approval and as per the cover of this plan, unless specifically designated otherwise.

1.3.1 Revision Status

| Revision | Revision Date | Issued Date | Nature of modification |
|----------|---------------|-------------|-------------------------|
| 0 | 2017/01/11 | YYYY/MM/DD | Issued to Tender |
| 1 | YYYY/MM/DD | YYYY/MM/DD | Contract Award revision |
| 2 | | | |
| 3 | | | |
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2 DEFINITIONS

| | |
|-------------|--|
| AQMP | Air Quality Management Plan (PL-EV-05) |
| BYCA | Bouygues Construction Australia Pty Ltd |
| EMP | Environmental Management Plan (PL-EV-01) |

3 ORGANISATION

3.1 Responsibilities and Authorities

The Project Organisational chart and overall roles and responsibilities are outlined in the EMP. The key responsibilities for Air Quality Management are as follows:

3.1.1 Project Manager

- Ensuring appropriate resources are available for the implementation of the AQMP
- Obtaining client approval in accordance with Contract conditions

3.1.2 HSE Coordinator

- Responsible for providing assistance and advice to the Project Engineers and Environmental Coordinators to fulfil the requirements of this Plan, assessing data from inspections, monitoring and reporting, and providing project-wide advice to ensure consistent approach and outcomes are achieved
- Responsible for providing necessary training for project personnel to cover dust management
- The HSE Coordinator is also responsible for the review and update of this Plan

3.1.3 General Superintendent

- Analysing and treating the risks before commencing works each day and ensure that the appropriate controls are implemented and effective; thus controls may be increased or decreased as required
- Reviewing weather forecasts and current observations
- Ceasing works in the event of excessive dust generation due to extreme weather conditions or construction activities (e.g. high winds, surface dirt accumulation, etc.)
- Throughout the day, visually assessing the dust levels and the effectiveness of any dust controls implemented, making adjustments accordingly
- In the event that a dust complaint is received, the General Superintendent will conduct an investigation to determine the potential parameters of influence and assess that all control measures are effective

3.1.4 All Workers on Site

In relation to Air Quality management, all workers on site are required to:

- Implement and maintain all applicable control measures
- Report any potential and/or actual incidence that could affect the air quality

3.2 Legal Requirements

The following Acts, Regulations and Standards are applicable to this Project:

- *Protection of the Environment Operations Act 1997* (NSW)

3.3 Contractual Requirements

BYCA have identified the most critical Environmental Contractual requirements for the project, these are:

Parkes and Griffith:

Condition 17: The Applicant shall minimise dust generated by the development.

South Keswick:

Offensive noise as defined under the Protection of the Environment Operations Act 1997 shall not be emitted from the proposed development. Air impurities as defined under the Protection of the Environment Operations Act 1997 shall not be released or emitted into the atmosphere in a manner which is prejudicial to the health and safety of occupants, the surrounding inhabitants or the environment.

4 COMPETENCE, TRAINING AND AWARENESS

As stated in the EMP all project personnel, subcontractors and consultants will receive training in the group and personal environmental obligations during the *Site Inductions* and *Toolbox Talks*. From time-to-time staff may also attend specific training sessions, when necessary, by the Environmental Manager.

Examples of topics that will be covered during project induction and toolboxes include:

- Dust control
- Removal of Asbestos
- Odour Complaints

5 AIR QUALITY MANAGEMENT

5.1 Objectives

The air quality management objectives are:

- Protection of air quality
- Management of the ambient air in the vicinity of the construction works, noting the protection of site workers will be addressed as part of a the Safety Management Plan (SMP)
- All reasonable and practicable measures to minimise airborne dust and greenhouse gas emissions are to be used

5.2 Potential Environmental Impacts

The potential impacts during construction to air quality include:

- An increase in particulate matter, carbon monoxide and nitrogen oxide emissions to the environment due to the combustion of fuel and resulting exhaust emissions
- An increase in airborne dust to the environment due to:
 - construction operations

- building material handling activities
- onsite vehicle movements on unsealed roads and
- clearing of flora and vegetation exposing dust
- Uncontrolled ground gas emissions and migration due to the disturbance of landfill material in-situ during construction works
- Dust emissions may be generated as a result of earthwork activities, particularly during dry and windy conditions. Excessive dust generation may be detrimental to human health, reduce visual amenity as well as smother vegetation and impact fauna
- Vapours or odours generated from dewatered contaminated groundwater and excavations

5.3 Management and Contingency Mitigation Measures

The following Air Quality Management measures will be implemented:

- This AQMP will be implemented, revised and updated as required
- Report immediately to relevant authorities any incident that impacted the air quality, as per the *PR-CO-04 Incident Management Procedure*
- Regular inspection of the works to ensure procedures and precautions are in place to minimise risk to human health and the environment
- The development of a contingency response if monitoring indicates a risk to sensitive receptors or human health
- Reduce dust emissions by utilising water carts; spraying water to suppress dust
- Procurement of fuel-efficient vehicles and plant where practicable to reduce the use of machinery causing emissions of greenhouse gases
- Undertake appropriate and regular vehicle and plant maintenance to avoid excessive greenhouse gas and air emissions
- Daily monitoring of weather conditions to ensure unfavourable activities are managed to keep odours away from residents and other users of the surrounding area
- Provide training as part of the site induction process to educate all personnel of the importance of air quality management measures (and hygiene procedures i.e.: smoking in designated areas only)
- Development of an asbestos management procedure and provision of appropriate PPE as outlined in the Project Safety Management Plan

The success of management strategies will be reviewed on a regular basis to confirm its continued suitability for the site. Should the risk to the environment or to human health change during the construction period, management options will be reviewed.

6 IDENTIFY AND ASSESS

6.1 Environmental factors likely to influence dust generation

Environmental factors that need to be considered when evaluating the risk of dust generation include:

- wind direction - determines the direction in which dust and suspended particles may become and transported
- wind speed - governs the potential suspension and drift distance of particles
- rainfall or dew - governs the potential suspension and drift distance of particles
- soil structure - degradation of soil structure increases soil or dust erosion potential

- soil moisture - increased soil moisture reduces soil or dust erosion potential
- soil clay - increased clay content reduces soil or dust erosion potential

These factors will substantially influence the day-to-day risk of dust generation and suspension.

7 IMPLEMENT CONTROLS

7.1 Air Quality Management Control Measures

Project mitigation and management measures of air quality during construction are outlined in the table below:

Table 1 - Air Quality Mitigation Measures

| Source/Reference | | | |
|---|------------------------|------------------|---|
| Mitigation Measure | Responsibility | Timing | Records |
| Pre-Construction | | | |
| Incorporate discussion on dust sources, impacts and mitigation measures into Site Induction. | General Superintendent | Pre-Construction | Project Site Induction |
| General Construction | | | |
| Ensure construction activities are designed and operated to minimise the emission of smoke, dust, cement dust, and other substances into the atmosphere to comply with the requirements of the <i>Environmental Protection Act 1997</i> . | Environmental Manager | Ongoing | FS-EV-AT-01 Environmental Inspection |
| Undertake ongoing visual monitoring for dust (e.g. site inspections) to assess the effectiveness of mitigation measures. | General Superintendent | Ongoing | FS-EV-AT-01 Environmental Inspection |
| Water sprays and/or water carts to be used as required for dampening exposed surfaces to control dust generation. | General Superintendent | As required | FS-EV-AT-01 Environmental Inspection |
| Temporary spoil stockpiles to be dampened regularly or covered to prevent windblown dust nuisance. | General Superintendent | As required | FS-EV-AT-01 Environmental Inspection |
| Burning or incineration of timber or rubbish is not permitted at any of the construction worksite areas unless an approved permit is given by Council and/or Local Rural Fire Brigade | General Superintendent | At all times | Permit |
| Disturbed areas to be sealed or revegetated as soon as practicable after completion of construction works. | General Superintendent | As required | FS-EV-AT-01 Environmental Inspection |
| Silt accumulated in erosion control devices (e.g. silt fences) to be removed on a regular basis and managed to prevent dust generation. | General Superintendent | Ongoing | FS-EV-AT-01 Environmental Inspection |
| Vehicle and Transport Management | | | |
| Ensure that vehicles travel at speeds that do not generate excessive amounts of dust. The | General Superintendent | At all times | FS-EV-AT-01 Environmental |

| | | | |
|---|------------------------|--------------|---|
| maximum speed of vehicles on unsealed roads is specified at each site. | | | Inspection |
| Any unsealed access roads/temporary driveways to be regularly dampened to minimise the amount of dust that may be blown by the wind. | General Superintendent | At all times | FS-EV-AT-01 Environmental Inspection |
| Water sprays and/or water carts to be used to dampen stockpiled materials prior to loading into trucks. | General Superintendent | As required | FS-EV-AT-01 Environmental Inspection |
| Construction vehicles using public roads to be covered to prevent any loss of load, whether in the form of dust, liquid or soils. Tailgates of all trucks to be securely fixed prior to loading and immediately after unloading of materials. | General Superintendent | At all times | |
| Construction vehicles to be cleaned using off-Site wheel wash facilities and on-Site wash down areas at exit points of all unsealed construction sites/compounds to minimise tracking any mud, dirt or other material and onto the road. | General Superintendent | At all times | FS-EV-AT-01 Environmental Inspection |
| Any dirt tracked onto public roadways resulting from construction vehicles exiting the worksite(s), to be removed and appropriately disposed of within 24 hours. | General Superintendent | As required | FS-EV-AT-01 Environmental Inspection |
| Plant or equipment not to be parked with the motors running when not in use, to reduce the potential for impact on air quality. | General Superintendent | At all times | FS-EV-AT-01 Environmental Inspection |
| Exhaust systems of construction plant, vehicles and machinery to be maintained to minimise exhaust emissions to atmosphere. All equipment and vehicles are to be regularly maintained and records kept of maintenance. | General Superintendent | Ongoing | Maintenance Records |
| Construction plant, vehicles and machinery to be operated in a proper and efficient manner to minimise exhaust emissions to atmosphere. | General Superintendent | Ongoing | |

Extreme Weather Conditions

| | | | |
|--|------------------------|-------------|---|
| Activities are to cease in the event of excessive dust generation due to extreme weather conditions or construction activities (e.g. high winds, surface dirt accumulation etc.). Use of water sprays and/or cleaning of surface areas to be conducted to control dust generation from the site and/or activities. | General Superintendent | As required | FS-EV-AT-01 Environmental Inspection |
| Dust generating activities are to be assessed during periods of strong winds (40-50km/h) and rescheduled where control of dust generation cannot be achieved. No dust producing activities are to occur when winds exceed 50km/h. | General Superintendent | As required | FS-EV-AT-01 Environmental Inspection |

8 INSPECT AND TEST

8.1 *Monitoring, Inspection and Reporting*

Daily visual inspections of the construction site will be undertaken by the HSE Coordinator and construction personnel to identify any potential flora and fauna management issues. Any actions to be undertaken as a result of site inspections will be recorded in the *FS-QA-RG-02 Corrective & Preventative Actions Register*.

All inspections will be conducted as per the *PL-EV-01 Environmental Management Plan*.

9 RECORDS

A record shall be maintained as per *PR-QA-01 Document Control and Record Management Procedure*.