

Southern Sydney Freight Line Operational Air Quality Management Plan

24 October 2012



Australian Rail Track Corporation

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Contents

	Page number
Glossary	iii
1. Background	1
1.1 Scope	1
1.2 Purpose and Objectives	1
1.3 Performance Targets and Indicators	1
2. Regulatory and Licensing Requirements	3
2.1 Approval and Licence Requirements	3
2.2 Regulatory Requirements	3
3. Operational Air Quality	5
3.1 Air Quality Assessment	5
3.1.1 Existing environment	5
3.1.2 Emission identification	5
3.1.3 Impact assessment	5
3.1.4 Air quality goals	6
3.2 Management Measures	7
3.2.1 Responsibilities	8
3.2.2 Assessment of NO ₂ concentrations	10
3.2.3 Air quality mitigation measures	10
3.2.4 Incidents and corrective actions	11
4. Air Quality Monitoring and Assessment	15
4.1 Sampling locations	15
5. Auditing and Reporting	17
5.1 Auditing	17
5.2 Reporting	17
5.2.1 Air Quality Incidents	17
5.2.2 Complaints Handling Protocol	17
5.3 Records	17
6. Community Consultation	19
6.1 Consultation during preparation of OAQMP	19
6.2 Consultation during SSFL operation	19

7. References

21

List of tables

		Page number
Table 2-1	Licences, permits and approvals required for project	3
Table 2-2	Relevant legislation	4
Table 3-1	NSW Government Air Quality Goals	7
Table 3-2	Responsibilities	8
Table 3-3	Key Control Measures	12
Table 4-1	Key Monitoring Aspects	15

Glossary

$\mu\text{g}/\text{m}^3$	Micrograms per cubic metre
μm	Micrometres
mg/m^3	Milligrams per cubic metre
ppm	Parts per million
ARTC	Australian Rail Track Corporation
BOM	Bureau of Meteorology
C_xH_x	Non-combustible hydrocarbons
CO	Carbon monoxide
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DA	Development Application
DECCW	Department of the Environment, Climate Change and Water (now the EPA)
DoPI	Department of Planning and Infrastructure
EA	Environmental Assessment
EPA	Environment Protection Authority
EPL	Environment Protection Licence
Fugitive dust	Dust derived from a mixture of sources (non-point source) or not easily defined sources. Examples of fugitive dust include dust from vehicular traffic on unpaved roads, materials transport and handling, and un-vegetated soils and surfaces
NEPM	National Environment Protection (Ambient Air Quality) Measure
NHMRC	National Health and Medical Research Council
NO_x	Oxides of nitrogen
NO	Nitrogen monoxide
NO_2	Nitrogen dioxide
OAQMP	Operational Air Quality Management Plan
OEMP	Operational Environmental Management Plan
PAH	Polyaromatic hydrocarbons
PM	Particulate Matter
$\text{PM}_{2.5}$	Particulate matter less than or equal to 2.5 μm in aerodynamic diameter
PM_{10}	Particulate matter less than or equal to 10 μm in aerodynamic diameter
$\text{PM}_{2.5}$	Particulate matter less than or equal to 2.5 μm in aerodynamic diameter
SO_x	Sulphides
SO_2	Sulfur dioxide
SSFL	Southern Sydney Freight Line
O_3	Ozone
TSP	Total Suspended Particulates

1. Background

This Operational Air Quality Management Plan (OAQMP) has been prepared by the Australian Rail Track Corporation (ARTC) for the operation of the 36 kilometres (km) of the Southern Sydney Freight Line (SSFL). This OAQMP forms part of the Operational Environmental Management Plan (OEMP) for the SSFL, which is integrated into ARTC's Environmental Management System (EMS).

The SSFL is to become operational in December 2012. In accordance with SSFL Project Conditions of Approval (CoA) No 14 and 76, an OEMP that includes an OAQMP must be submitted to the Director-General of the Department of Planning and Infrastructure (DoPI) for approval at least four weeks prior to commencement of operation.

This OAQMP builds on an earlier OAQMP (now superseded) for the operation of the first 5 km section of track (from Sefton Park Junction to Leightonfield and associated signalling from Enfield West) of the SSFL, which was prepared for ARTC by Parsons Brinckerhoff. This section of track became operational on 24 June 2012.

1.1 Scope

The scope of this OAQMP is the SSFL as described in Section 2 of the OEMP. The scope excludes all other sections of the rail network that ARTC operates and maintains.

As required by CoA 76, this OAQMP identifies:

- emission criteria, including long term emission standards;
- strategies and management measures to minimise air quality impacts, including the identification of options for preventing any exceedance of NO₂ criteria;
- monitoring and assessment procedures;
- auditing and reporting requirements;
- community consultation.

1.2 Purpose and Objectives

The purpose of this OAQMP is to detail management measures to be implemented by ARTC and its contractors during the operation of the SSFL.

The objective of the OAQMP is to minimise emissions from SSFL operations activities.

The OAQMP has been prepared as a standalone document to improve its usefulness as it can be more easily reviewed and updated with regard to changing environmental conditions and requirements.

1.3 Performance Targets and Indicators

The air quality and other environmental performance targets and indicators for SSFL operations are detailed in Table 1-1 of the OEMP.

2. Regulatory and Licensing Requirements

2.1 Approval and Licence Requirements

In accordance with the SSFL Project's CoAs, operational air quality must be addressed through an OAQMP. The CoA and EPL requirements relating to air quality management during operation of the SSFL are detailed in Table 2-1.

ARTC holds Environment Protection Licence (EPL) No 3142 for its operations in NSW. Condition O4.1 of the EPL requires that significant dust generating activities on the premises must be managed in a proper and efficient manner to minimise dust emissions from the premises.

Table 2-1 Licences, permits and approvals required for project

Licence, permits and approvals required	Reporting and/or administering authority	Timeframe	Requirement	Implementer
OEMP and sub plans, including the OAQMP, submitted for approval	Director – General, DoPI	At least 4 weeks prior to commencement of Operation.	CoA 14	ARTC Project to draft. ARTC's Corridor representative and Environment staff to implement
Prepare OAQMP	Director – General, DoPI	Prepare as part of OEMP	CoA 76	ARTC Project to draft. ARTC's Corridor representative and Environment staff to implement
Environmental Protection Licence (EPL 12971) ¹	EPA	Construction	Clause 33 of Schedule 1 of the POEO Act.	ARTC Project
Environmental Protection Licence (EPL 3142) ¹	EPA	Operation	Clause 33 of Schedule 1 of the POEO Act.	ARTC Environment staff

Note 1: EPL 3142 is applicable during the operation of trains on the SSFL track (the subject of this OAQMP).

Following the operation of the track, EPL 12971 would still be applicable due to construction works being undertaken including to complete the landscaping.

2.2 Regulatory Requirements

Relevant National and NSW ambient air quality goals are applicable to this project. Air quality reporting standards and regional goals are established to protect the health of local communities and minimise potential annoyance.

The key regulatory requirements relating to air quality include those presented in Table 2-2.

Table 2-2 Relevant legislation

Relevant legislation (Administering Authority)	Summary of legislation requirements	Relevance for SSFL operations
<i>Environmental Planning and Assessment Act, 1979</i> (DoPI)	Establishes a framework to control development in NSW by prohibiting, permitting, or placing conditions on activities. The legislation also details the process by which approval can be gained, and the relevant authority.	Project Approval, under Section 75J of the EP&A Act, was granted on 21 December 2006 and five modifications have since been granted. An environmental assessment will be undertaken for operational activities that constitute development for the purposes of rail infrastructure. As per clause 277(b) of the EP&A Regulation, ARTC is a determining authority within the meaning of Part 5 of the EP&A Act.
<i>Protection of the Environment Operations Act, 1997</i> (EPA)	This Act controls how activities should be undertaken in consideration of environmental protection on all aspects, including air and noise pollution, and waste. Scheduled activities are required to obtain an Environmental Protection Licence (EPL) from the EPA to operate.	ARTC holds EPL 3142 (SSFL operations) and EPL 12971 (SSFL construction) for the scheduled activity of Railway Systems Activities. The EPA is the regulatory authority for ARTC's EPL. All operational activities will comply with EPL 3142. In the event that scheduled activities are required to be undertaken outside the SSFL corridor, a variation to EPL 3142 will be required. ARTC will also notify the EPA of any pollution incidents resulting in material harm in accordance with this Act.
<i>Protection of Environmental Operations (Clean Air) Regulation, 2010</i> (EPA)	This regulation sets maximum limits on emissions from activities or plant for air impurities emanating from various substances such as solid particles, smoke, and sulphur.	The EPA is the regulatory authority for this regulation. All operational activities will comply this regulation.
<i>The National Environmental Protection (Ambient Air Quality) Measure</i>	Prepared by the National Environment Protection Council (NEPC). National Environment Protection Measures are broad framework-setting statutory instruments defined under the <i>National Environment Protection Council (New South Wales) Act 1995</i> . They outline agreed national objectives for protecting or managing particular aspects of the environment. NEPMs are similar to environmental protection policies and may consist of any combination of goals, standards, protocols, and guidelines.	The NEPM goals are long-term reporting descriptors.

3. Operational Air Quality

3.1 Air Quality Assessment

This section provides an overview of the process through which air quality-related environmental hazards were assessed in order to determine key operational risk management requirements as a result of potential air emissions. The purpose was to develop operating procedures as part of environmental strategies to keep risk levels As Low as Reasonably Practicable (ALARP) during the operations phase of SSFL.

This risk-based OAQMP is based on the principles of AS/NZS 4360: Risk Management and Section 3.2 of EP 06 (Environmental Management Plan for Operators on the ARTC Network) which stipulates the conditions for which operators must complete an environmental risk assessment in line with ISO 31000: 2009-Risk Management Principles and Guidelines.

3.1.1 Existing environment

The SSFL is located in the south-western suburbs of the Sydney metropolitan area, stretching for 36 km from Sefton Park Junction to Macarthur. It provides a third track in the rail corridor dedicated for freight services, allowing passenger and freight services to operate independently.

The SSFL passes through four local government areas with a total population of around 700,000 residents and with existing air quality issues. The SSFL's operational emissions are expected to provide a relatively small contribution to air quality, and be relatively localised given the linear nature of the rail corridor.

3.1.2 Emission identification

Emission sources during SSFL operations that may impact air quality include:

- Diesel freight train locomotives; locomotive emissions would result from the combustion of diesel fuel and petroleum;
- Emissions generated by rail maintenance activities including tamping and ballasting. Emissions would result from the use of equipment and machinery, and dust from ground disturbance.

Emissions would include carbon monoxide (CO), carbon dioxide (CO₂), oxides of nitrogen (NO_x), oxides of sulphur (SO_x), particulate matter (PM) and trace amounts of non-combustible hydrocarbons (C_xH_x).

3.1.3 Impact assessment

The key sources of air emissions during the operation of the SSFL have been identified by ARTC as:

- Dust from maintenance and any future construction activities;
- Train brake dust generation;
- Faulty or ill-fitting emission control equipment for maintenance plant equipment and machinery;
- Some maintenance practices, such as rail grinding;
- Emissions (combustion of diesel fuel and petroleum) generated by diesel freight train locomotives;
- Odours from sumps and spills;
- Smoke from fire emergencies.

The volume and duration of all these emissions is likely to be a function of existing meteorological conditions, primarily through regional meteorological conditions (such as gradient wind flow regimes) and local meteorological conditions (such as those resulting from local topographical features in the form of drainage flows). These factors would contribute to the potential dispersion of air pollutants.

Potential air quality impacts from rail operations may include:

- Nuisance, most of which is related to dust events and smoke;
- Reduced amenity from the impact on visual character, since the natural environment is a key attribute of the area and could potentially be impaired by some of the above factors.

The management of the above sources will provide an indication of the effectiveness of the OAQMP.

3.1.4 Air quality goals

Air quality reporting standards and regional air quality goals for combustion engines as set out by the NSW Government are presented in Table 3-1. The NEPM standards are designed primarily to protect human health and are therefore more applicable to sensitive receivers (e.g. hospitals and schools) where people tend to congregate. Emissions of NO_x are harder to manage directly. The emissions of NO_x from diesel combustion contribute to ambient concentrations of ozone. Because ozone is formed in the atmosphere (not directly emitted) it is harder to manage directly.

For SSFL operations, air quality as measured through TSP goals (highlighted in **bold font**) is the baseline that ARTC will adopt in the event that air quality monitoring is undertaken. However, given that the SSFL will not be the only contributor to TSP in the Sydney metropolitan area, it may be difficult to assess compliance with this baseline. The TSP goals are used to develop the control measures and implementation strategies in Table 3-3.

Table 3-1 NSW Government Air Quality Goals

(from Reference 1)

Pollutants	Averaging Period	Goal	Source
Nitrogen dioxide	1 hour maximum	246 µg/m ³	NEPC, NEPM
	1 hour maximum	200 µg/m ³	DEC long-term reporting goal
	annual mean	62 µg/m ³	NEPC
Carbon monoxide	15 minute maximum	100 mg/m ³	WHO
	1 hour maximum	30 mg/m ³	WHO
	8 hour maximum	10 mg/m ³	NEPC
Sulphur dioxide	10 minute maximum	712 µg/m ³	NHMRC
	1 hour maximum	570 µg/m ³	NEPC, NEPM
	24 hour	228 µg/m ³	NEPC, NEPM
	annual mean	60 µg/m ³	NEPC, NEPM
TSP	annual TSP Concentration	90 µg/m ³	NHMRC
	annual TSP Deposition¹	2 g/m² /month	NERDDC
	annual TSP Deposition²	4 g/m² /month	NERDDC
PM ₁₀	24 hr PM ₁₀ Concentration	50 µg/m ³	NEPC, NEPM
PM ₁₀	annual PM ₁₀ Concentration	30 µg/m ³	NSW EPA
Lead [†]	annual mean	0.5 µg/m ³	NEPC, NEPM
Ozone [†]	1 hour maximum	214 µg/m ³	NEPC, NEPM
	4 hour maximum	171 µg/m ³	NEPC, NEPM
	1 hour maximum	150 µg/m ³	DEC long-term
	4 hour average	120 µg/m ³	reporting goal
PM _{2.5} [†]	annual PM _{2.5} Concentration	8 µg/m ³	NEPM advisory standard
	24 hr PM _{2.5} Concentration	25 µg/m ³	
Odour [†]	annual average - 99 th %ile	2 - 7 OU/m ³	DEC

[†] - provided for informative purposes only. Assessment of indicated pollutants not carried out as part of this study

1 - maximum increase in deposited dust levels

2 - maximum total deposited dust level

3.2 Management Measures

The management measures to be implemented by ARTC during SSFL operation to address air quality requirements comprise:

- Relevant personnel to be aware of their responsibilities in relation to managing air quality, as described in Section 3.2.1;
- Assessment of NO₂ concentrations, as described in Section 3.2.2;
- Air quality mitigation measures, as described in Section 3.2.3;
- Incidents and corrective actions, as described in Section 3.2.4.

3.2.1 Responsibilities

Table 3-2 lists key personnel with responsibilities for air quality and other environmental management, as identified in ARTC's Environmental management System (EMS). Section 3.2 of the OEMP provides more detail on overarching operational environmental responsibilities including those of the Chief Executive Officer, the Executive Committee and the Safety and Environment Committee.

Table 3-2 Responsibilities

Position	Key Environmental Responsibilities
Executive General Manager- Technical Services/General Manager Technical Standards and Environment	<ul style="list-style-type: none"> Provide advice to the Safety and Environment Committee to enable the objectives of the Committee to be fulfilled. Oversee the impact and responses to legislative and policy developments in the environmental field, which may have material impact on ARTC. Manage the development and annual review of the EMS. Report breaches and non-conformances of the EMS to the Executive. Ensure that ARTC's purchasing and contract management policies and procedures, where applicable, are in accordance with the Environmental Management System and incorporate appropriate environmental clauses.
Operations, Safety & Environment Review Group	<ul style="list-style-type: none"> Review and recommend changes and approve amendments to EMS Operational Procedures and associated documents. Review environmental incidents, breaches and issues. Advise the Executive Safety and Environment Committee on any significant environmental issues that may impact upon ARTC's environmental performance.
Executive General Managers/General Managers	<ul style="list-style-type: none"> Initiate any preventative measures to mitigate, rectify or prevent environmental harm arising from activities, incidents, breaches or audits. Implement the EMS to the extent that it impacts on their Division. Ensure that alliance partners and contractors who are engaged to undertake activities on property managed by ARTC warrant to have the systems in place to meet the requirements of the Environmental Management System. Ensure that the environmental aspects of projects are assessed and managed in accordance with ARTC's requirements. Ensure that ARTC policies and procedures include appropriate environmental provisions.
GM – Strategy and Growth	<ul style="list-style-type: none"> Ensure that all rail operators are aware of the ARTC EMS and that they comply with the system, when and where appropriate in accordance with EP-06 Environmental Management Plan for Operators on the ARTC Network. Ensure that all appropriate environmental references are contained in the Access Agreements.
General Counsel	<ul style="list-style-type: none"> Oversee and coordinate responses to statutory notices. Advise with respect to serious breaches and corrective actions.

Position	Key Environmental Responsibilities
Environmental Manager	<ul style="list-style-type: none"> ▪ Maintain high level liaison with GM- Technical Standards and Environment to ensure the necessary environmental compliance. ▪ Ensure all Property leases and licenses include appropriate environmental clauses. ▪ Ensure appropriate risks and environmental matters are assessed and maintained in the ARTC Risk Register. ▪ Keep the GM – Technical Standards and Environment (and others as appropriate) up to date on all material environmental matters and any significant environmental incidents. ▪ Manage, review, and recommend amendments as necessary, to ARTC's Environmental Management System and all supporting documents. ▪ Liaise with regulatory authorities, industry bodies and GM – Technical Standards and Environment as required and ensuring compliance with all laws and regulations as appropriate. ▪ Promptly advise EGM – Technical Services upon receipt of any statutory notice and take appropriate action in support of responding to that notice. ▪ Oversee the preparation of environmental reports to Operational Safety and Environment Review Group and Safety and Environment Committee.
Environmental Officers	<ul style="list-style-type: none"> ▪ Develop and promote the Environmental Management System. Monitor and report on the environmental performance of ARTC. ▪ Promptly report all reportable environmental incidents, as defined in EP-02, to the Environmental Manager. ▪ Maintain records in accordance with the Environmental Management System and HP TRIM. ▪ Prepare an Executive level report for submission to the Operational Safety and Environment Review Group or Safety and Environment Committee. ▪ Ensure that the environmental accidents, incidents and complaints within ARTC are reported, investigated and corrective actions are managed (and monitored) and implemented, by the respective ARTC division or business unit. ▪ Provide technical expertise, advice and appropriate training in environmental management matters to enable ARTC employees to satisfactorily comply with the Environmental Management System. ▪ Liaison with Environmental Protection Authorities as required and ensuring licensing conditions are appropriate and informing parties of their responsibilities.
Managers	<ul style="list-style-type: none"> ▪ Ensure that new employees, alliance partners and contractors inducted to their place of work are aware of their responsibilities as outlined in the Environmental Management System and specific to their position and training. ▪ Ensure that employees with environmental responsibilities have appropriate training as identified in their personal development plans. ▪ Ensure systems are in place and/or followed and functioning to comply with relevant legislation.
Employees	<ul style="list-style-type: none"> ▪ Adhering to procedures developed by ARTC as detailed in this Environmental Management System and maintaining awareness of the policy. ▪ Identifying, assessing and avoiding or mitigating any adverse

Position	Key Environmental Responsibilities
	<p>environmental impact that may result from carrying out activities including the construction and maintenance of ARTC infrastructure.</p> <ul style="list-style-type: none"> ▪ Reporting any environmental incident or breach to the appropriate Environmental Officer and respective Corridor Manager and providing any support necessary to facilitate the investigation and reporting of any environmental incident or breach.
Alliance Partners or Contractors	<ul style="list-style-type: none"> ▪ Prepare and submit an Environmental Management Plan specific to the scope of works and contract. ▪ Comply with all applicable environmental legislation. ▪ Report promptly to ARTC any environmental incident or complaint. ▪ Ensure their employees, contractors and sub-contractors comply with applicable legislation and align with ARTC's Environmental Management System. ▪ Be duly diligent in environmental management of all activities.

3.2.2 Assessment of NO₂ concentrations

The Environmental Assessment identified that modelling of NO₂ concentrations from the SSFL indicated the potential for exceedance of the mean annual goal of 62 micrograms per square metre 10 years after the commencement of operation of the SSFL. All other emission parameters are expected to be within air quality goals at the nearest receptors. Furthermore, there are regional air quality benefits due to the reduction in greenhouse gas emissions as a result of the mode shift from road to rail.

ARTC will review the air quality assessment to confirm NO₂ impacts of the SSFL as part of its working with rail operators on their improving emission controls for diesel locomotives. NO₂ audits are planned at 5 and 10 years after the commencement of operation of the SSFL, as per the modelling and assessment methodology used in Chapter 13 of the Environmental Assessment. ARTC will notify the Director-General of the results of these audits within seven days.

Should an NO₂ audit find substantial exceedance of the mean annual goal, ARTC will work with operators to identify Reasonable and Feasible mitigation measures, and notify the Director-General of their implementation.

3.2.3 Air quality mitigation measures

Section 3.7.3 of EP 06 (Environmental Management Plan for Operators on the ARTC Network) sets out the overall framework under which dust emissions will be controlled by operators on the ARTC network.

These include the requirement for operators to ensure that significant dust-generating activities on the network are managed in a proper and efficient manner, and the requirement for operators to seek opportunities to improve the management of air quality and reduce fugitive emissions through adoption of best practice technologies and/or procedures.

Additionally, potential locomotive air quality impacts can be addressed through specific strategies such as:

- In-service inspections to ensure vehicle mufflers/exhaust systems are well maintained;
- Progressive reduction of vehicle air emission standards;
- The integration of transportation and land use planning.

To properly address the mitigation of potential air quality impacts for the SSFL, the hierarchy of control principles will be followed as practicably as possible by the operators. This includes the following actions:

- Eliminate the source of the emissions;
- Engineer solutions that reduce impact;
- Implement administrative procedures to control activity;
- Remediation measures to mitigate impacts after an event.

Management measures were developed to meet the objectives of the OEMP as set out in Section 1.2 of this report. Table 3.3 presents the management objectives, control measures, responsibilities, timing, and monitoring/recording related to air quality for the SSFL. These mitigation measures will be implemented by ARTC, its contractors and operators during SSFL operation to assist in preventing or mitigating air quality impacts. They are aligned to the air quality goals set out in Section 3-1.

3.2.4 Incidents and corrective actions

ARTC aims to work constructively with operators to reduce emissions from locomotives.

The following events will be viewed as incidents or non-compliances with regard to this OAQMP:

- Reasonable complaint(s) about fugitive emissions from neighbouring sensitive receptors;
- Excessive dust levels visibly observed due to SSFL activities as per Condition O4.1 of EPL 3142.

These events will be investigated further by ARTC, where ARTC is responsible, and by the operators, where the operators are responsible, and the responsible party will implement follow up actions including:

- Require ARTC's Corridor representative to determine the source of these emissions and investigate options to minimise them by implementing changes to processes or materials where reasonably possible and reinforcing existing controls;
- Complainant(s) will be properly notified of the ARTC response to the relevant incident and results thereafter.

Section 5.1.3 in the OEMP provides additional detailed information on ARTC's management of environmental incidents and responses.

Table 3-3 Key Control Measures

Management Objective	Control Measure	Responsibility	Timing	Monitoring/Recording
Minimise air pollution impacts on humans and surrounding environment during operation of SSFL	Dust emission controls will be the responsibility of the contractor. Controls to be implemented will include: <ul style="list-style-type: none"> Revegetation of cleared land where possible; Application of water sprays where applicable; Appropriate maintenance of vehicles and equipment. 	ARTC's Corridor representative Contractor	As required during operational activities	<ul style="list-style-type: none"> Visual inspections
	<ul style="list-style-type: none"> Importance of fugitive emissions and dust emissions to be included in site induction for new workers. 	ARTC's Corridor representative Contractor	Prior to works commencing	<ul style="list-style-type: none"> Training Record Register or project documentation
	Community consultation procedure in place to receive and handle complaints.	ARTC's Corridor representative	Prior to operational commencement	<ul style="list-style-type: none"> Complaints Register
Minimise emissions from engines of rolling stock and from SSFL operations activities	Includes fugitive emissions from operational areas that contain sumps, operations equipment, pumps and valves (e.g. Sefton Dive pump station). Ensure operational controls are implemented that include: <ul style="list-style-type: none"> Regular inspection of sumps; Hydrocarbon spills within bunds to be cleaned using spill absorbent material rather than washing down Dissolved Air Flotation unit for treatment. Ensure operational controls are implemented that include: <ul style="list-style-type: none"> Regular inspections of operator areas; Scheduled plant maintenance and inspection. 	ARTC's Corridor representative Contractor	As required during operational activities	<ul style="list-style-type: none"> Inspection results Operational checks to verify stated controls Routine odour checks at site boundaries or sensitive receptor locations
	Advise contractors and operators to ensure regular maintenance of combustion engines to ensure parts like vehicle mufflers/exhaust systems are well maintained to ensure emissions are minimised.	ARTC's Corridor representative Contractor Operator	As required during operational activities	<ul style="list-style-type: none"> Visual inspections

Management Objective	Control Measure	Responsibility	Timing	Monitoring/Recording
Prevention of exceedances of NO _x criteria in accordance with Project Approval Condition 76 (b).	<p>Ensure operational controls are implemented that include:</p> <ul style="list-style-type: none"> Positioning of plant and machinery away from boundaries or sensitive receptors where possible; Limit number of operating plant and machinery at any one time where possible; Use of engine size and classification fit for purpose to reduce excessive revving; Routine and regular inspections of combustion engines to ensure optimal operating performance (including pre-start checklists and periodic maintenance checks); Visual inspections of exhaust plumes from combustion engine exhausts; Repair and maintenance on combustion engines prior to operation in the event of inadequate pre start check or observed emissions; Implementation of routine service and maintenance regimes for all combustion engines with reference to manufacturer emission specifications. 	<p>ARTC's Corridor representative</p> <p>Contractor</p> <p>Operator</p>	<p>Daily pre start and visual checks</p> <p>Reactive repair / maintenance</p> <p>Periodic (proactive) service and maintenance</p>	<ul style="list-style-type: none"> Pre start checklists Visual inspections Routine service and maintenance schedules

4. Air Quality Monitoring and Assessment

4.1 Sampling locations

Two EPA air quality monitoring stations at Liverpool and Campbelltown will be used to provide NO₂ background concentrations for the audits to confirm NO₂ impacts of the SSFL as described in Section 3.2.2.

Should a regulatory request for air quality monitoring be made to ARTC, ARTC will liaise with the regulator to ensure an appropriate air quality monitoring and assessment program is developed and implemented.

ARTC also assessed the Operation of the SSFL and its impact on air quality to develop the monitoring and assessment program summarised in the following Table 4-1. Should any monitoring indicate substantial exceedance of identified emission criteria, then as per Condition 76, ARTC will implement Reasonable and Feasible mitigation measures.

Table 4-1 Key Monitoring Aspects

Impacts	Potential Monitoring Parameter	Responsibility
	Visual monitoring of dust.	ARTC's Corridor representative and Contractor personnel
<ul style="list-style-type: none"> Visual pollution Nuisance 	Monitor dust monitoring equipment when required as part of a regulatory request.	Environment Manager
	NO ₂ data from EPA air quality monitoring stations at Liverpool and Campbelltown.	Environment Manager
<ul style="list-style-type: none"> Visual pollution Nuisance 	Complaints handling protocol will involve recording details of: <ul style="list-style-type: none"> complainant; time/date of complaint; ambient environmental conditions at time of complaint (including meteorology and dust measurement from onsite monitoring); investigation of site activities underway at time; possible causes from site; possible causes external to site; corrective action taken; feedback to complainant. 	ARTC's Corridor representative Environment Manager Project Manager Operations Manager

5. Auditing and Reporting

5.1 Auditing

ARTC's internal and external auditing processes are outlined in Section 5.1.1 of the OEMP.

As described in Section 3.2.2, ARTC will conduct NO₂ audits at 5 and 10 years after the commencement of operation of the SSFL, as per the methodology used in the Environmental Assessment, and will notify the Director-General of the results of these audits within seven days.

5.2 Reporting

In addition to the reporting of the results of auditing of locomotive NO₂ emissions to the Director-General (Section 3.2.2), where the EPA expressly requests an Air Emissions Control report or Pollution Reduction Program, ARTC will provide a report concerning air control and management practices. This will include the results of the regular monitoring undertaken; details of any specific air-related incidents; details of complaints received from sensitive receptors; type and frequency of any control measures; meteorological information relevant to the specified time.

5.2.1 Air Quality Incidents

As per Condition R2 of EPL 3142 and POEO Act, where there has been an incident of actual or potential material harm to the environment, ARTC will notify the EPA by telephone as soon as practicable and in writing within seven days of becoming aware of the incident.

Additional detailed information on ARTC's management of environmental incidents and responses is provided in Section 5.1.3 of the OEMP.

5.2.2 Complaints Handling Protocol

Where reasonable complaints have been brought up, they will be handled as per the protocol detailed in Section 3.5 of the OEMP. All environmental complaints and enquiries are handled by ARTC's environmental community complaint email and Enviroline.

5.3 Records

All records required to be kept by the EPL will be in a legible form; will be kept for at least four years and; produced to any authorised officer of the EPA who asks to see them.

6. Community Consultation

6.1 Consultation during preparation of OAQMP

The Project Approval Condition 76 states that the OAQMP *is to be prepared in consultation with RailCorp, the DEC (now EPA), and other freight rail operators (as required) as part of the OEMP.*

In preparation of the earlier 2011 OAQMP (now superseded) for the operation of the first 5 km section of track (from Sefton Park Junction to Leightonfield and associated signalling from Enfield West) of the SSFL, ARTC consulted with DoPI, OEH and RailCorp.

The 2011 OAQMP addressed and exceeded what is required in ARTC's Environment Protection Licence 3142. The 2011 OAQMP was sent to RailCorp and OEH (now EPA) on 20 June 2011 for their comments. The covering email to these two organisations noted that: *a more comprehensive OEMP and OAQMP will be developed for the whole of the project area in consultation with RailCorp, OEH and other government agencies before the Final Stage Operations commence.* The 2011 OEMP and OAQMP are publicly available on the SSFL website.

In developing the final OAQMP, ARTC is consulting with the Project nominated agencies of DoPI, RailCorp, the EPA and Transport for NSW (TfNSW). When approved, the OEMP including this OAQMP will be made publicly available on the SSFL website.

6.2 Consultation during SSFL operation

The operation of the SSFL track may have air quality impacts on the community in various ways. ARTC will undertake specific measures to ensure that operations are supported by an open communications practice in terms of updates, and responses to incidents or complaints. These measures are addressed in Section 3.4 of the OEMP and are summarised below.

Community consultation regarding air quality is required by Condition 76 (e) of the Project Approval. External environmental communications consist of routine communications such as internet posts, community information packages and government liaison as well as the management of environmental complaints from the community and regulators. Issues surrounding air quality shall be included in these communications.

EPL 3142 specifies certain Conditions pertaining to recording pollution complaints (Condition M4) and the operation of a telephone complaints line (Condition M5).

All complaints relating to pollution arising from any activity associated with Operations shall be recorded and maintained for a period of at least four years. The complaint record shall:

- Be legible, include the date, time and method of which the complaint was made;
- Include the personal details of the complainant if provided, or comment on the lack of any such details;
- Include the nature of the complaint, follow up actions of the complaint and the environmental issue, or justification of any inaction.

The complaint record shall be made available to the EPA on request.

A telephone complaints line shall be advertised so the public is aware of the service and understands how to make a complaint. The telephone complaints line shall operate during ARTC's operating hours with the purpose of receiving any complaint.

7. References

Department of Environment and Conservation, 2005, Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW.

Environment Protection Authority, 2003, Quarterly Air Monitoring Reports.

National Energy Research Development and Demonstration Council (NERDDC), 1988, Air Pollution from Surface Coal Mining: Volume 2 Emission Factors and Model Refinement, prepared by Dames & Moore, 1988, for NERDDC, NERDDC Project Number 921.

National Environment Protection Council, 1998, National Environmental Protection (Ambient Air Quality) Measure.

National Environment Protection Council, 1999, National Environmental Protection (Assessment of Site Contamination) Measure.

National Environment Protection Council, 2004, National Environment Protection (Air Toxics) Measure.