



Timor
Resources

**Operating Management System
Environmental Management Plan - Drilling Activity
PSC TL-OT-17-08
Appendix J - Air Quality Plan
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**ENVIRONMENTAL MANAGEMENT PLAN (EMP)
DRILLING ACTIVITY
PSC TL-OT-17-08**

APPENDIX J - AIR QUALITY PLAN



TR-HSE-PLN-014



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POSITION TITLE	NAME	SIGNATURE	DATE
Chief Executive Officer	Suellen Osborne		29/12/20
GM Exploration	Jan Hulse		29/12/20

DISTRUBUTION LIST

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ACRONYMS

EIS	Environmental Impact Statement
EMP	Environmental Management Plan
HSE	Health Safety Environment
IFC	International Finance Corporation
TR	Timor Resources
WHO	World Health Organisation



1 INTRODUCTION

1.1 CONTEXT

Timor Resources Pty Ltd (TR) acquired onshore PSC No.: TL-OT-17-08 in Suai Municipality on 7 April 2017. The licence covers 1445.2 km², comprising 1,057.8 km² onshore and 387.4 km² in the near offshore to an average distance of 7km from the coastline, which is 64km long, and up to 34.5 km inland.

1.2 PURPOSE

This project was determined to require a Category A Licence under Decree Law No. 5/2011.

The TR Air Quality Plan fulfils a requirement under the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP). The EIA identified potential impacts from the project and various plans have been developed to supplement the EIA and EMP. The Plan presented here details monitoring activities and actions aimed to measure and mitigate potential air quality impacts from operational activities, as well as assigning responsibilities to ensure the Plan is implemented.

This document is an appendix to the EMP – Appendix J.

1.3 SCOPE

This document will address air quality monitoring for the PSC: TL-OT-17-08 drilling programme.

1.4 LEGAL REQUIREMENTS

Timor Leste does not have relevant national laws for air quality management, therefore the International Finance Corporation (IFC) Environmental Health and Safety General Guidelines (2007) - Air Emission and Ambient Air Quality are used to assist in the development of this plan.

Air emissions are not to result in pollutant concentration that reach or exceed ambient quality guidelines and standards, such as those determined by the World Health Organisation (WHO) refer to Table 1



Table 1 - WHO Ambient Air Quality Guidelines 2005

	AVERAGING PERIOD	GUIDELINE VALUE µg/m³
Sulphur dioxide (SO₂)	24-hour mean 10-minute mean	20 (guideline) 500 (guideline)
Nitrogen dioxide (NO₂)	Annual mean 1-hour mean	40 (guideline) 200 (guideline)
Particulate Matter PM₁₀	Annual mean 24-hour mean	20 (guideline) 50 (guideline)
Particulate Matter PM_{2.5}	Annual mean 24-hour	10 (guideline) 25 (guideline)
Ozone	8-hour mean	100 (guideline)

2 POTENTIAL IMPACTS

Construction and decommissioning activities may generate dust caused by a combination of on-site excavation and movement of earth materials, contact of construction machinery with bare soil, and exposure of bare soil and soil piles to wind. Vehicle movements along gravel access roads, where present, may raise dust during the operations phase. These activities are likely to generate air quality impacts related to dust and can be monitored as Particulate Matter (PM), see Section 5.

Engine emissions arise from construction equipment, transport trucks, personal vehicles, power saws, and generators.

There will be limited source of dust during operations arising from vehicle traffic on gravel access roads. The main air quality emission source during operations is the burning of diesel in the rig generators and service vehicles.

Emissions generated by activities during the decommissioning phase include vehicular engine combustion emissions; diesel emissions from equipment and generators; and dust from source such as land clearing, structure demolition, cement removal, backfilling, dumping, and truck movements. Similarly, reclamation of disturbed areas through grading, seeding, and planting may also emit limited dust levels.



The following descriptions regarding receptors is taken from the EIA:

Karau-1: The area within 750m of the well site is sparsely populated, however, the Suai Prison lies 151m to the west of the perimeter fence See **Error! Reference source not found.**).

Kumbili-1: No infrastructure exists within 1km of the location so air quality impacts will be negligible.

Lafaek-1: no infrastructure is present within 2km of the location apart from the Suai Expressway.

Laisapi-1: approximately 1km from the township of Kuluan, but with no existing infrastructure within 750m.

Raiketani-1: several dwellings are situated within the 200m radius of the location. If this well is drilled, then it is possible that the occupants may be relocated temporarily during operations. As discussed in Section 4.4, due to technical reasons, it is unlikely that Raiketani will be drilled in the first phase of the programme.

Haemanu Camp: emissions from the camp will be low, the main contributions being from a small generator to provide camp power if the EDTL supply is interrupted. There will be no dust arising from the camp or warehouse area as all are on hardstanding.

3 MANAGEMENT OF IMPACT

Air quality impacts will be mitigated throughout the project phases by implementing the following mitigation strategies:

Construction

- Sprinkling water on soil before excavation and periodically when operations are under way to prevent raising of dust.
- Use of low sulphur fossil fuel.
- Controlling the speed and operation of construction vehicles; drivers should adhere to the speed limit of 20 km/hr on access roads and 40 km/hr on blacktop roads.
- Regular maintenance and services of machines and engines.
- In order to control exhaust, educate and raise awareness of construction workers on emission reduction and on emissions that are likely to occur during the construction of the well pads and access roads leading to the sites, the following measures shall be implemented during construction:
 - Vehicle idling time shall be minimised
 - Equipment shall be properly tuned and maintained.
- To minimise air pollution due to dust emission or transport of waste materials during construction, the waste materials must be transported in covered vehicles especially if the route is through frequently used roads.



- Workers in dusty areas on the site need to be issued with PPE such as, dust masks and safety goggles during dry and windy conditions.
- Sensitise truck drivers to avoid unnecessary racing of machinery engines at loading, offloading sites, and parking areas and encourage them to keep the vehicle engines off at these points.

Operations

- Sprinkling water on access roads to reduce dust.
- Use of low sulphur fossil fuel.
- Speed limit on access road 20 km/hr, 40 km/hr blacktop.
- Regular maintenance and services of machines and engines.
- In order to control exhaust, educate and raise awareness of drivers on emission reduction and on emissions that are likely to occur during the operations, the following measures shall be implemented during construction:
 - Vehicle idling time shall be minimised
 - Equipment shall be properly tuned and maintained
- Sensitise truck drivers to avoid unnecessary racing of machinery engines at loading, offloading sites, and parking areas and encourage them to keep the vehicle engines off at these points.

Decommissioning

- Covering of all haulage vehicles carrying debris for dumping at approved sites.
- Stockpiles of fine materials should be wetted or covered with tarpaulin during windy conditions.
- Workers in dusty areas on the site should be issued with dust masks and safety goggles.
- Using well maintained equipment and machines with efficient engines meaning low emissions.
- Using dust screens.



4 MONITORING

Air quality monitoring will be conducted as shown in Table 2.

Table 2 - Air Quality Monitoring Regime

Timing and Frequency	Monitoring/ Performance Indicator	Responsible Person / Function
Daily	Dust management - Sprinkling water on access roads	Civils contractor for construction / decommissioning Drilling Contractor
	Fuel Consumption	Transport Contractor Drilling Contractor
Monthly	Engine and generator service records	Operations Manager
	Particulates Monitoring	Civils Construction Engineer Drilling Contractor for rig emissions/ Transport contractor for service vehicles

5 RESPONSIBILITIES

5.1 TIMOR RESOURCES

Timor Resources is to guarantee the availability of the economic, human and technical resources needed to manage the mitigation measures as described in this document. It is Timor Resources' responsibility to:

- Ensure that the requirements of this Noise Management Plan are satisfied.
- Ensure that all contractors and sub-contractors are aware of their responsibilities to undertake their activities in accordance with this Plan.

5.2 CONTRACTORS

- Understand their responsibilities as per this Plan, and ensure they have the capacity to carry out those responsibilities and that all personnel under their care are made aware of responsibilities and requirements.
- Recommend changes to this Plan if appropriate and in discussion with TR personnel.
- Ensure appropriate records are kept and maintained on-site.
- Verifying any specific training/awareness sessions to employees involved in operations that may impact on the noise environment.