Timor Resources - Internal/ External
Air Quality Management Plan

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Acronyms

EIS	Environmental Impact Statement
EMP	Environmental Management Plan
IFC	International Finance Corporation
PPE	Personal Protective Equipment
TR	Timor Resources
WHO	World Health Organisation

1 INTRODUCTION

1.1 Context

Timor Resources (TR) is a privately owned Australian oil and gas company that is joint venture with TIMOR GAP, a national oil company of the Timor – Leste Government. On 7 April 2017, TR signed an agreement with the Timor – Leste Government (Onshore PSC TL OT-17-08) allowing the company, with its partners, to commence the process of exploration, development and exploitation of petroleum resources in the contract area. TR will run a regional drilling campaign in the southern area of the country, Block A and Block C (Figure 1), that will build upon seismic data collected in 1969 and 2994.

1.2 Purpose

The project was determined to require a Category A Licence under Decree Law No.5 – 2011. TR were then required to submit an Environmental Impact Statement (EIS) and Environmental Management Plan (EMP). A risk assessment determined the potential impacts from the project and various management plans have been developed to supplement the EIS and EMP. Air emissions is recognised as potential negative impact from drilling works, and present management and monitoring strategies to limit these impacts, as well as assigning responsibilities to ensure these strategies are implemented.

This report will form an appendix to the EMP – Appendix J

1.3 SCOPE

This report will address air emission impacts for Block A and C drilling project

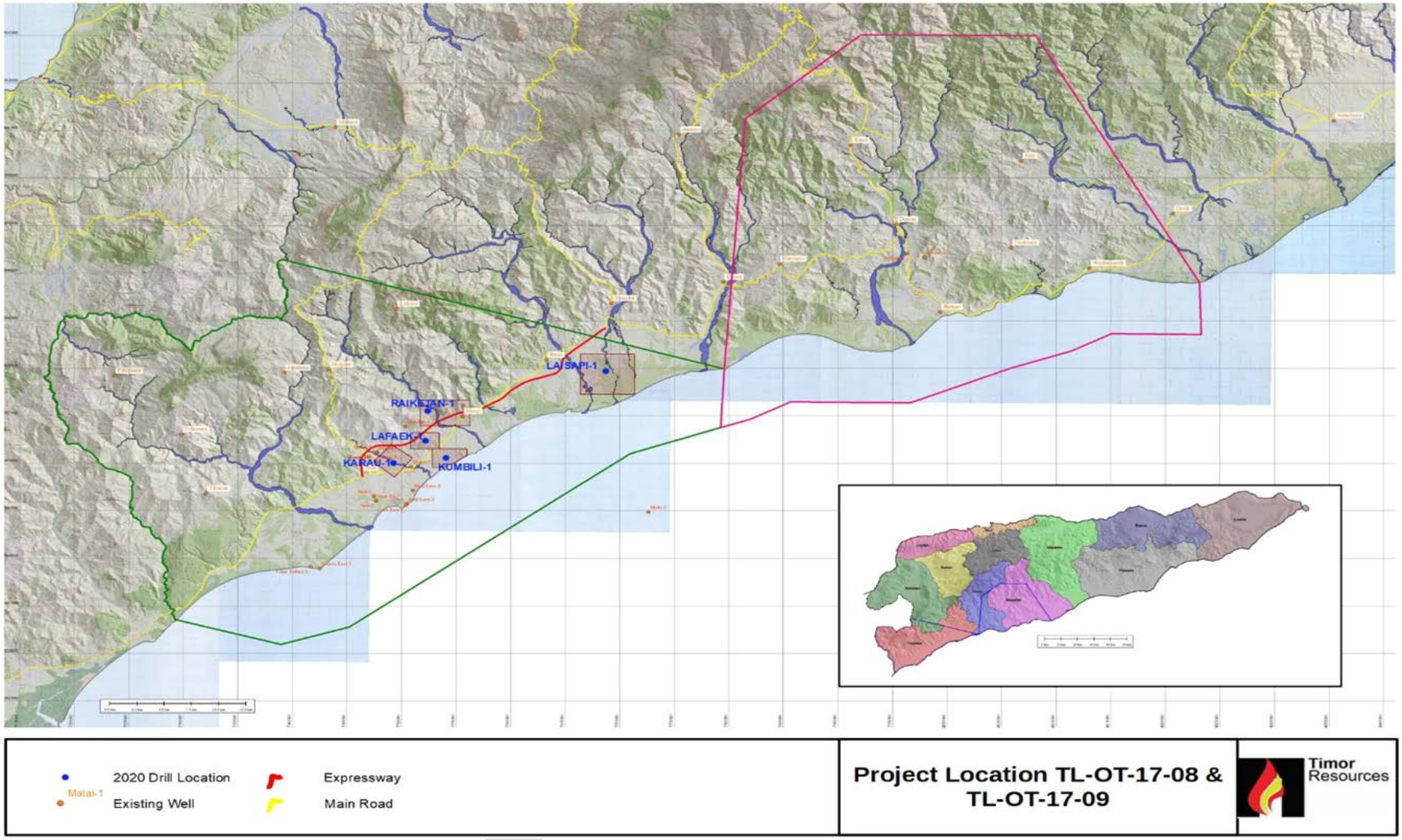

Figure 1 Map of Project Location Block A and C (Source: Timor Resources, 2020)

2 AIR QUALITY STANDARDS

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 (Source: IFC Guidelines, 2007)

WHO Ambient Air Quality Guidelines		
Parameters	Average Time	Concentration (µg/m3)
Nitrogen dioxide (NO2)	Annual	40
	1 Hour	200
Photochemical oxidants: Ozone (O3)	8-hour daily maximum	100
Particulate matter (PM10)	Annual	20
	24-hours	50
Particulate matter (PM2.5)	Annual	10
	24-hour	25
Sulfur dioxide (SO2)	24-hour	20
	10 minutes	500
Ozone	8-hour daily maximum	100

3 RELEVANT STANDARDS FOR PROPOSED PROJECT

The proposed has potential to produce the following air emissions and impacts, as determined by project specific risk assessment or impact assessment.

- Emissions during facility and road construction mainly related to dust – Particulate Matter.
- Some emissions from equipment burning diesel, but short terms and transient.

During an air quality assessment performed as part of the Suai Supply Base Environmental Impact Assessment (Worley Parsons, 2012), the assessment showed that most existing sources of air sources of air pollutants (dust particles such as PM2.5 and gases such as nitrogen dioxide, sulfur dioxide and carbon monoxide) originate from human activities such as dust from roads, vehicles exhaust, power generation exhausts, smoke from cooking stoves and the removal of vegetation.

The exposure of areas of soil (e.g vegetation clearing) accompanied by vehicular traffic, will cause localised increases in airborne dust particles (PM2.5 and PM10). During the construction, air emissions will mainly arise from combustion products resulting from diesel engine exhaust, both the rig and vehicles, occasional gas flaring during well testing, and aircraft exhaust if aircraft is used .These dust emissions will diminish and the emission of pollutant gases arising from fixed or mobile plant and equipment (power generation and vehicles) will take on a greater significance; however, these will still be relatively minor at a regional scale.

4 SOURCE OF AIR EMISSION

The project has the potential to produce the following air emissions and impact as determined by a project specific risk assessment.

Table 2 Source of Emissions (Source Timor Resources,2020)

Emission source	Purpose	Treatment	Point of Emission	Emission Gas
Diesel fuel	Engine for power production drilling rig, vehicles, aircraft	Combustion	Engine exhaust	CO2, NOX, CH4, CO, N2O
Well testing	Testing of wells	Combustion	Burner	CO2, NOX, CH4, CO, N2O
Other direct hydrocarbon emission	Drilling fluid Well clean-up Fugitives and leakages Produced water Storage tanks	None None None None None	Evaporative Vent stack/tanks BOP Vent stack Vent stack	VOC, CH4 VOC, CH4 VOC, CH4 VOC, CH4 VOC, CH4

5 MANAGEMENT

Based on construction sites in similar environments in Southeast Asia, it is believed that, with the application of appropriate dust mitigation and management measures, continued compliance with the air quality standards should be readily achievable during both construction and operation of the drilling project.

- Watering- dust suppression
- Limit the use of heavy vehicles on dusty roads and observe speed limits
- Vehicle movements restricted to sites and access roads
- Personnel to wear personal protective equipment (PPE) during drilling including mask and safety glasses
- Regular servicing of vehicles and machinery

6 MONITORING AIR QUALITY

Air emissions will not be routinely monitored during the proposed project as they are not considered to be significant, however, if several (more than three) complaints are received through the appropriate grievance mechanism, Timor Resources will take further action to reduce the air emissions e.g. increase dust suppression, and energy efficiency etc.

Table 3 Monitoring Air Quality(Source: IFC General Guidelines, 2007)

No	Parameters	Baseline Calculation	Type	Frequency	Location	Sampling and Analysis Methods
1	Particulate Matter ($PM_{2.5}$ and PM_{10})		Dust	Quarterly	Karau well site area Kumbili well site area Laipasi well site area Raiketan well sire area Lafaek well site area	Sampling is collected using Particle Counter (See attached)
2	GHG Emissions (CO2, NOX, CH4, CO, N2O VOC, CH4)	N/A	Diesel usage	Quarterly	Karau well site only Kumbili well site only Laipasi well site only Raiketan well site only Lafaek well site only	