ENVIRONMENTAL MANAGEMENT PLAN (EMP)

DRILLING ACTIVITY

PSC TL-OT-17-09

TR-HSE-PLN-015

REVISION HISTORY

REVISION	DATE	DESCRIPTION
Rev 1	04/06/21	Issued for use

MANAGEMENT APPROVAL

POSITION TITLE	NAME	SIGNATURE	DATE
Chief Executive Officer	Suellen Osborne		04/06/21
Group General Manager	Robin O'Leary		04/06/21

DISTRUBUTION LIST

AUTHORITY/COMPANY'S NAME	DATE	REVISION
Autoridade Nacional do Petróleo e Minerais	04/06/21	Rev 1

TABLE OF CONTENTS

Note that Appendices are issued as separate documents and are available on ANPM FTP site

TABLES

FIGURES

ABBREVIATIONS

AAQ	Ambient Air Quality
AASHTO	American Association of State Highway and Transportation Officials
AKO	Adjustable Kick Off
ANPM	Autoridade Nacional do Petróleo e Minerais
API	American Petroleum Institute
AQG	Air Quality Guidelines
ASTM	American Society for Testing and Materials
AWS	Automated Weather Station
BAS	Business Activity Survey
BHA	Bottom Hole |Assembly
BOE/d	Barrels of Oil Equivalent per day
BOP	Blowout Preventer
CBL	Cement Bond Log
CFC	ChlorofluoroCarbon
CMC	Carboxy-methylcellulose
CO	Carbon Monoxide
CR	Critically Endangered
CSR	Corporate Social Responsibility
dBA	A-weighted decibels
DEM	Digital Elevation Model
DHS	Demographic and Health Survey
DNAS	Direcção Nacional das Aguas e Saneamento
DNMG	Direcção Nacional de Meteorologia e Geofisica
DST	Drill Stem Test
DTM	Digital Terrain Model
EBC	Escola Basico Central
EBF	Escola Basico Filial
EBS	Environmental Baseline Survey
ECD	Equivalent Circulating Density
ED	Eastern Drilling

EDTL	Eletricidade de Timor Leste
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMoP	Environmental Monitoring Plan
EMP	Environmental Management Plan
EMW	Equivalent Mud Weight
EN	Endangered
ENSO	El Nino Southern Oscillation
ERP	Emergency Response Plan
GDP	Gross Domestic Product
GDS	General Directorate of Statistics Timor Leste
GERTil	Grupo de Estudos de Reconstrução de Timor-Leste
GHG	Greenhouse Gases
HC	Hydrocarbon
HDPE	High-Density Polyethylene
HIV/AIDS	Human Immunodeficiency Virus Infection and Acquired Immune Deficiency Syndrome
HSE-MS	Health Safety Environment Management System
IFC	International Finance Corporation
ILO	International Labour Organization
IMCI	Integrated Management Child Illnesses
IOD	Indian Ocean Dipole
IOGP	International Association of Oil & Gas Producers
IPCC	International Panel for Climate Change
IPIECA	International Petroleum Industry Environmental conservation Association
ISO	International Standard for Organization
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
KCl	Potassium Chloride
KPI	Key Performance Indicator
LCM	Lost Circulation Material
Leq	Equivalent Continuous Sound Level

Lmax	Maximum Continuous Sound Level
LNG	Liquid Natural Gas
LOC	Loss of Containment
LOT	Leak off Test
MAE	Municipio Administração Estatal
MAFF	Ministry of Agriculture, Forestry & Fisheries
MDG	Millennium Developments Goal
MJO	Maden-Julian Oscillation
MoF	Ministry of Finance
MSL	Mean Sea Level
MW	Mud Weight
MWD	Measured While Drilling
NADF	Non-Aqueous Drilling Fluid
NAPA	National Adaption Plan and Action
NOC-TL	Nacional Oil Company of Timor Leste
NORMS	Naturally Occurring Radioactive Materials
NOx	Nitrogen Oxide
NPHC	National Population and Housing Census
NT	Near Threatened
NTU	Nephelometric Turbidity Unit
OCHA	Office for the Coordination of Humanitarian Affairs
OECD	Organization for Economic Cooperation and Development
OMS	Operating Managements System
OPS	Oficiais Policia Comunitaria
OSCP	Oil Spill Contingency Plan
P&A	Plug and Abandonment
PACCSAP	Pacific-Australia Climate Change Science and Adaptation Planning
PDCA	Plan-Do-Check-Act
PDM	Positive Displacement Motor
PHPA	Partially Hydrolysed polyacrylamide
PM	Particulate Matters

PPE	Personal Protective Equipment
PSC	Production Sharing Contract
PSL	Product Specification Level
RPM	Rotation Per Minute
rr	Restricted Range
SEIS	Simplified Environmental Impact Statement
SEPFOPE	Secretaria de Estado para a Política de Formação Profissional e Emprego
SISCA	Servisu Integradu Saúde Comunitária
SLM	Sound Level Meter
SME	Small and Medium-sized Enterprises
SO_2	Sulphur Dioxide
SOx	Sulphur Oxide
SOP	Standard Operating Procedure
SRTM	Shuttle Radar Topography Mission
SSB	Suai Supply Base
TD	Total Depth
TDS	Total dissolve Solid
ToR	Terms of Reference
TR	Timor Resources
TSS	Total suspended Solid
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nation for Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework for Climate Change Convention
URTI	Upper Respiratory Tract Infection
USGS	The United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound
VU	Vulnerable
WB	World Bank

WFP	World Food Program
WHO	World Health Organization
WHT	Withholding Tax
WMP	Waste Management Plan
WOC	Wait on Cement

1 EXECUTIVE SUMMARY

Timor Resources, a company registered in Timor-Leste under TIN 2003092, and Timor Gap the National Oil Company of Timor-Leste entered into Production Sharing Contract PSC TL-OT-17-09 for petroleum operations on the 7th of April 2017. The Contract made under the Law No.13/2005 enables exploration activities to be carried out for the purpose of development and exploitation of Petroleum in the Contract Area. Timor Resources (TR) is the Project Proponent and Operator who on behalf of the Contractor group seeks to drill a single exploration drilling in good oil field practice. The Contract Area defined by PSC TL-OT-17-09 is an area that covers 1,291 km^2, including 1,002.4 km^2 onshore extending along the coastline for approximately 52 km and up to 30 km inland, and 288.6 km^2 of the near offshore for an average distance of 6 km from the coastline This EMP includes summary descriptions of the project activities and potential impacts. For a complete description of these factors please refer to the *Environmental Impact Statement – Drilling Activity* (Doc. No. TR-HSE-EIA-00-000-002).

The purpose of this Environmental Management Plan (EMP) document is to detail Timor Resources, Contractor and Subcontractor responsibilities for environmental management of the drilling activities and to ensure that all activities are carried out in accordance with appropriate environmental performance objectives and standards. This requires (among other things) that appropriate measurement criteria for demonstrating that the objectives and standards have been met be defined within the EMP.

Establishing environmental performance objectives and standards is a process of taking into account legal requirements (Section 5) and the significant environmental aspects and considering available control options. Table 1-1 presents a summary of the drilling activities, residual impact significance rankings after mitigation measures and the environmental aspects affected (refer to Section 9 of the EIS for full description).

The measures to be taken in the management and monitoring of these impacts are summarized in Table 1-2 . The summary of monitoring measures is provided in Table 1-3 .

Table 1-1 - Summary of the Activities, Risk Ratings and Environmental Aspects affected.

	ACTIVITY (EIS cross reference)	Residual Impact Significance	Ecological Aspects						Socio-Economic Aspects			
			Flora	Protected species	Birds	Small vertebrates	Ground water	Landform (erosion)	Agriculture	Disturbance	Greenhouse Gas	Dust
1	**Land Use (9.3.2.1)**											
	Land clearing and occupation	Negligible	X	X	X				X	X		
2	**Traffic (9.3.2.2)**											
	Routine drilling operations	Minor		X	X	X						
	Support vehicle operations			X	X	X						
3	**Activities Impacting Soil (9.3.2.3)**											
	Site clearing (9.3.2.1)	Minor	X	X	X	X	X					
	Road construction and traffic (9.3.2.2)		X	X		X	X					
4	**Atmospheric Emissions (9.3.3)**											
	Construction operations (9.3.3.1)	Minor									X	X
	Routine operations (power generation) (9.3.3.2)	Minor									X	X
	Waste incineration (9.3.3.2)										X	X
	Decommissioning (9.3.3.3)	Minor									X	X
5	**Activities Impacting Water (9.3.4)**											
	Surface water (9.3.4.1)	Negligible	X			X	X	X	X			
	Groundwater (9.3.4.2)	Negligible	X				X		X			
	Operational leaks and spills (9.3.4.3)	Negligible	X				X		X		X	
	Water supply (9.3.4.5)	Negligible							X			
	Sewerage and grey water (9.3.6.1)	Minor					X					
6	**Activities Impacting Lighting (9.3.8.2)**											
	Drill site lighting	Negligible		X	X	X				X		
	Support vehicles lighting	Negligible		X	X	X				X		
7	**Noise and vibration**											

	ACTIVITY (EIS cross reference)	Residual Impact Significance	Ecological Aspects						Socio-Economic Aspects			
			Flora	Protected species	Birds	Small vertebrates	Ground water	Landform (erosion)	Agriculture	Disturbance	Greenhouse Gas	Dust
	Construction (9.3.7.1)	Minor		X	X	X				X		
	Operational activities (9.3.7.2)	Minor		X	X	X				X		
	Decommissioning (9.3.7.3)	Minor		X	X	X				X		
8	**Drilling fluids and cuttings**											
	Drill cutting (9.3.6.2)	Minor					X	X				
	Drilling fluids (9.3.6.1)	Minor					X					
9	**Liquid wastes** (9.3.6.1)											
10	**Solid wastes (9.3.6.2)**											
	Non-hazardous and hazardous waste	Minor			X							
11	**Oil spill**											
	Operational leaks and spills (9.3.4.3)	Negligible	X		X		X					
	Worst case oil spill (9.3.4.4)	Moderate	X	X	X	X	X		X	X	X	

Table 1-2 - Summary of Proposed Management Measures

IMPACT	PROPOSED MANAGEMENT MEASURES
Land Use All Phases	• Contact local stakeholders early in the process to identify sensitive land areas, land uses, issues, and local plans and any local regulations. • Site the project on previously disturbed land whenever possible. • Depending on the individual site, consider steps to minimise the amount of vehicular traffic and human activity. • Provide adequate public notice of planned activities. • Establish a rehabilitation plan that addresses both interim and final rehabilitation requirements and agree after-use if applicable. Ensure that interim rehabilitation of disturbed areas is conducted as soon as possible. • Compensate farmers for crop damage and restore compacted soils.
Traffic All Phases	• Plan to use existing roads to the maximum extent possible. • Prepare an access road siting study and management plan to guide road design and maintenance standards, coordinate closely with Municipality and national government authorities responsible for maintaining roadways and bridges. Compare the number, size, and weight of loads to service projects to the existing road infrastructure to determine if roads and bridges are adequate to support intended loads. • Implement strict traffic management procedures in association with the Municipality. • Route project traffic to minimise impacts on local communities. • Issue notices/advisories of pending traffic inconveniences and conduct briefing meetings with local authorities, schools and residents before the commencement of works. • Flagmen should be employed to control traffic and assist all vehicles as they enter and exit. • Maintain on site a record of incidents and accidents. • Ensuring that all drivers for the project understand and comply with speed limits. • Ensure all vehicles and machinery used for the project are in good working condition both legally and are fit for purpose. • Control dust along un-surfaced roads, especially near residences, schools and fields. • Limit all traffic movement through villages in particular school opening and closing times.
Soil All Phases	**Construction** • Restricting removal of vegetation and soil cover to those areas necessary for the project. • Remove all topsoil and store off site. • Manage storm and flood flash water effectively to avoid movement of loss soils. • The disturbed areas should be rehabilitated with indigenous vegetation as soon as possible to prevent soil erosion if it was necessary.

IMPACT	PROPOSED MANAGEMENT MEASURES
	• Work areas should be clearly defined and demarcated, where necessary to avoid unnecessary disturbance on areas outside the project footprint. • Preventing pollution of ground from servicing of vehicles and wastes by having specific sites for collection, sorting and transport of wastes. • Construction vehicles should remain on designated roads and should avoid off-site driving. • Compacting area with loose soils. **Decommissioning** • Soil originally removed in the construction phase and stored will be returned upon restoration of the drill site and access road if necessary. • Drains will be installed, and drainage patterns will be re-established to prevent erosion. • The well site and road is either left to an agreed after-use or rehabilitated following drilling. If the well is successful, the area will be reduced to the minimum size necessary in discussion with the authorities and the landowner. • During restoration and rehabilitation of the well site and road, the site will be ripped before returning of the stockpiled topsoil. • Soil profile and contours will be reinstated upon completions of decommissioning phase.
Air Quality 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 the access road and 40 km/hr blacktop. • 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 pad and access road 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.
Air Quality Operations	• Sprinkling water on the access road to reduce dust. • Use of low sulphur fossil fuel.

IMPACT	PROPOSED MANAGEMENT MEASURES
	• Speed limit on access road 20 km/hr on access roads and 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 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.
Air Quality 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.
Surface Water All Phases	• Minimise the planned amount of land to be disturbed as much as possible by use of existing roads. • Identify and avoid unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure). • Construct drainage ditches only where necessary. Use appropriate structures at culvert outlets to prevent erosion. • Refuel in a designated fuelling area that includes a temporary berm to limit the spread of any spill. • Refuel in a designated fuelling area that includes a temporary berm to limit the spread of any spill. • Closely monitor construction near aquifer recharge areas to reduce potential contamination of the aquifer; • Any discharge of grey water should be treated first to avoid contaminating water sources. • Upon completion of the decommissioning phase, disturbed areas will be contoured and vegetated to minimise the potential for soil erosion and water quality related impacts. • Temporary sediment and erosion control measures such as sediment fences installed where necessary especially in areas in close proximity to drains or surface water features to avoid runoff to water source. • Any area artificially elevated via pad or access track construction will be lowered to original ground level by removal of paving material unless

IMPACT	PROPOSED MANAGEMENT MEASURES
	otherwise instructed by the landowners. • Original drainage patterns will be restored.
Groundwater All Phases	• The freshwater aquifer at approximately 84m is cased off immediately after passing through before drilling continues • Mud chemicals are non-toxic with the exception of biocide, but this is used in low quantities.
Operational Leaks and Spills All Phases	• Rig design incorporates leak minimisation and drainage containment systems to ensure that spillages do not enter the environment. • All chemicals and fuel on site will be stored in bunded impermeable areas with adequate shading. • Correct storage, handling, use and transportation of chemicals will be followed according to manufacturer's specifications, material safety data sheets and regulations. • Provide a Hazardous Substance SOP for chemicals management in compliance with company rules and national standards. • No disposal of unused chemicals, all excess materials will be quantified and recorded and returned to the vendors. • Prepare spill contingency plans.
Worst Case Oil Spill Operations	• Detailed well design aimed at prevention of any loss of control during drilling. • Preventative measures and equipment integral in well design, including drilling fluids (mud) and blow-out preventer, well control procedures. See Project Safety Case. • Prepare oil spill contingency plan.
Water Supply All Phases	• Procure adequate water for the operations with a high yield. • Ensure no water use competition with the local community.
Flora, Fauna and Habitat. Biodiversity All Phases	• Education on the importance of flora and fauna in the areas, including the appropriate regulatory requirements • Rapid regeneration of plant cover must be encouraged by setting aside topsoil during earthmoving and replacing onto areas where the reestablishment of plant cover is desirable to prevent erosion as necessary. • Implement a tree planting program to offset loss of trees due to the construction phase • Clearing vegetation only in construction areas and demarcating areas where no clearing will happen. • Vehicles coming into the site must use designated roads. • Apply spill prevention practices and response actions in refuelling and vehicle-use areas to minimize accidental contamination of habitats. • Address spills immediately per the appropriate spill management plan, and initiate soil clean up and soil removal if needed.

IMPACT	PROPOSED MANAGEMENT MEASURES
	• Turn off all unnecessary lighting at night to avoid disturbing wildlife and migratory birds. • Ensure protection of important resources by establishing protective buffers to exclude unintentional disturbance. • Schedule decommissioning activities to avoid disturbance of resources during critical periods, for example night, or year, for example breeding, nesting seasons. • Rehabilitate all the areas of disturbed soil using weed free native grasses and shrubs. • Undertake rehabilitation activities as early as possible on disturbed areas in consultation with the relevant authorities, e.g. Forestry Department.
Liquid Effluents All Phases	• Open drains on the rig floor will collect any oily residues and discharge to the mud pit. • Rainwater is routed via the perimeter drain to an interceptor where oil is separated. • Sewage will be collected and treated in a standard field septic system and the effluent discharged to the ground through a trickle feed weeping tile. • The drilling rig will have a test separator to process any produced fluid from well testing operations. Any produced liquids will be stored in tanks and transported to existing facilities for processing. • Compliance with Municipality on waste matters. • Employing a waste management plan.
Solid Waste All Phases	• Work in concert with the Municipality to develop and implement a fit for purpose waste management plan. • Assess and create opportunities for Reducing, Reusing, and Recycling of waste generated. • Municipality making available suitable facilities for the collection, segregation, storage and safe disposal of the wastes. • Create waste collection areas for segregation of waste with clearly marked facilities such as colour-coded bins. The bins to be coded according to biodegradable and non-biodegradable, reuse, recycling and reduce.
Noise Construction	• Restrict construction activities to normal working hours 0800hrs to1700hrs • Inform local residents beforehand, via notices and advisories, of pending noisy periods and solicit their tolerance well before the commencement of demolition works. • Machinery should be maintained regularly to reduce noise resulting from friction during operations. • Drivers to adhere to speed limits within the project site access road and vicinity • A grievance procedure will be established whereby noise complaints by neighbours are recorded and responded to.

IMPACT	PROPOSED MANAGEMENT MEASURES
	• Restrict hooting of vehicular horns. • Locate all stationary construction equipment (i.e., compressors and generators) as far as practicable from any nearby sensitive receptors. • Shielding the area to reduce noise propagation as necessary.
Noise Operations	• Machinery should be maintained regularly to reduce noise resulting from friction during operations. • A grievance procedure will be established whereby noise complaints by neighbours are recorded and responded to. • Muffle and maintain all construction equipment used. • Using modern machinery equipment with noise suppressing technologies in order to reduce the noise-rating as much as possible.
Noise Decommissioning	• Restrict decommissioning activities to normal working hours 0800hrs to1700hrs • Inform local residents beforehand, via notices and advisories, of pending noisy periods and solicit their tolerance well before the commencement of demolition works. • Machinery should be maintained regularly to reduce noise resulting from friction during operations. • Drivers to adhere to speed limits within the project site access road and vicinity • A grievance procedure will be established whereby noise complaints by neighbours are recorded and responded to. • Restrict hooting of vehicular horns. • Locate all stationary construction equipment (i.e., compressors and generators) as far as practicable from any nearby sensitive receptors. • Limit pick-up trucks and other small equipment to an idling time, observe a common-sense approach to vehicle use, and encourage workers to shut off vehicle engines whenever possible. • Shielding the area to reduce noise propagation as necessary.
Light, Heat and Odours	• The site occupies a small area will be in place temporarily. • Any important sensitivity in the project areas (e.g. infrastructures, areas of significant vegetation cover, sensitive cultivations, important sites for cultural heritage, etc.) will be identified and avoided as appropriate. • Use a lower level of lighting i.e. sufficient to enhance the night-time visibility required for safety and security • Use specifically designed lighting equipment that minimises the upward spread of light near to and above the horizontal. • Shading floodlights to only shine inside the site perimeter • Turn off all unnecessary lighting at night to avoid disturbing wildlife and migratory birds.
Community All Phases	• Consultation with the Municipality and liaison with community during the planning phase.

IMPACT	PROPOSED MANAGEMENT MEASURES
	• Establish a robust, open, two way Complaints/Grievance Mechanism. • Establishing emergency procedures and ensuring the community are aware and educated on following them and commensurate to the magnitude and type of risk. • The work site(s) will be fenced off to protect the general public from dangers associated with the drilling operations, including security in and around the site to control the movement of people. • Placing visible and readable warning signs around the work site and access road where there are exposures. • Compliance with Timor Resource's local content policy that reflects the requirement to hire locally, including a transparent and accessible application and short-listing process of workers. • Where possible, look into vocational training programs for the local workforce to promote development of skills required by the oil and gas industry.
Visual	• The site occupies a small area and the drilling facilities will be in place temporarily. • The project is limited spatially to the one-hectare drilling location and its immediate surrounds and is short term and transient in nature. • Any important sensitivity in the project areas (e.g. infrastructure, areas of significant vegetation cover, sensitive cultivations, important sites for cultural heritage, etc.) will be identified and avoided as appropriate.

Table 1-3 - Summary of Monitoring Measures

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
Land Use All Phases	Grievance/ Complaints records	Community Affairs Officer	Continuous	TR Grievance mechanism International Best Practice: IOGP (E&P Forum) and UNEP (1997). Environmental Management in Oil &Gas Exploration and Production 1997. IOGP Report No. 254
Traffic All Phases	Adherence to Traffic Management Procedure Journey Management Speed Monitoring Engine and generator service records Driver training Defensive driving	Operations Manager	Daily Daily Daily Monthly Induction	TR Traffic Management Plan Grievance mechanism **International Best practice:** IOGP Land Transportation Safety Recommended Practice 365 November 2016 Issue relevant Reports and Standard Operating Procedures Accident and Incident Reports
Soil All Phases	Regular Inspection of road culverts and rig drainage system Adherence to Site Civils Construction Procedure	Operations Manager Civils Construction Engineer	Weekly Monthly	International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a)
Air Quality Construction	Dust management Particulates Monitoring Fuel Consumption Engine and generator service records	Civils contractor for construction Civils Contractor for construction Transport Contractor for service vehicles Transport Contractor	Daily Monthly Daily Monthly	TR Air Quality Management Plan World Health Organisation (2005). WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide. Global update 2005 - Summary of Risk Assessment. World Health Organisation (2018). WHO Fact Sheet Ambient (outdoor) air pollution. 2 May 2018. International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IFC Performance Standard 1 (PS 1) - Assessment and Management of Environmental and Social Risks (IFC 2012).

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
Air Quality Operations	Dust management Generator fuel consumption Particulates Monitoring Fuel Consumption Engine and generator service records	Drilling contractor Drilling Contractor for rig emissions/ Transport contractor for service vehicles Transport Contractor Drilling contractor	Daily Daily Monthly Daily Monthly	TR Air Quality Management Plan World Health Organisation (2005). WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide. Global update 2005 - Summary of Risk Assessment. World Health Organisation (2018). WHO Fact Sheet Ambient (outdoor) air pollution International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IFC Performance Standard 1 (PS 1) - Assessment and Management of Environmental and Social Risks (IFC 2012).
Air Quality Decommissioning	Dust management Particulates Monitoring Engine and generator service records	Civils contractor Civils contractor Transport contractor for service vehicles	Daily Monthly Monthly	TR Air Quality Management Plan World Health Organisation (2005). WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide. Global update 2005 - Summary of Risk Assessment. World Health Organisation (2018). WHO Fact Sheet Ambient (outdoor) air pollution International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IFC Performance Standard 1 (PS 1) - Assessment and Management of Environmental and Social Risks (IFC 2012).
Surface Water All Phases	Inspection of sewage system Perimeter Drain Oil Trap Regular checking and cleaning of oil, fuel and waste spills Inspection of	Drilling Contractor/ Camp Boss Drilling Contractor Drilling Contractor Operations	Monthly Each Tour (12 hourly) Each Tour (12 hourly) Weekly	World Health Organisation (2011). WHO Guidelines for Drinking-water Quality, 2011 International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
	perimeter drain and road culverts	Manager		
Groundwater All Phases	Inspection of sewage system Perimeter drain oil trap Regular checking and cleaning of oil, fuel and waste spills Inspection of perimeter drain and road culverts	Drilling Contractor/ Camp Boss Drilling Contractor Drilling Contractor Operations Manager	Monthly Each Tour (12 hourly) Each Tour (12 hourly) Weekly	World Health Organisation (2011). WHO Guidelines for Drinking-water Quality, 2011 International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Operational Leaks and Spills All Phases	OSCP Regular checking and cleaning of oil, fuel and waste spills Inspection of perimeter drain and road culverts OSCP drill	HSE Officer Drilling Contractor Operations Manager HSE Officer	Continuous Each Tour (12 hourly) Weekly Pre spud	TR Oil/Chemical Spill Contingency Plan (OSCP) International Best Practice: - IPIECA (2016). Oil spills: inland response good practice guidelines for incident management and emergency response personnel - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Worst Case Oil Spill Operations	CMP / IMP SERP Maintenance of CMP/IMP CMP/IMP/ SERP Drill	General Manager Exploration Drilling Contractor HSE Officer HSE Officer	Continuous Continuous Continuous Pre spud	TR Crisis Management Plan (CMP) / Incident Management Plan (IMP) Site Emergency Response Plan (SERP) International Best Practice: - IPIECA (2015). Oil spills: inland response good practice guidelines for incident management and emergency response personnel No 514 2015. - IPIECA (2014). Incident Management System No 517 Nov 2014. - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Water Supply All Phases	Monitor water usage Monthly water management report	Drilling Contractor Operations Manager	Daily Monthly	TR Grievance mechanism International Best Practice: IOGP (E&P Forum) and UNEP (1997). Environmental Management in Oil &Gas Exploration and Production 1997. IOGP Report No. 254

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
Biodiversity, flora, fauna and habitat All Phases	Grievance/ Complaints records	Community Liaison Officer/HSE Officer	Continuous	TR Grievance mechanism IUCN (2020). *The IUCN Red List of Threatened Species. Version 2020-2*.
Liquid Effluents All Phases	Inspection of sewage system Perimeter drain oil trap	Drilling Contractor/ Camp Boss Drilling Contractor	Monthly Each Tour (12 hourly)	TR Waste Management Plan TR Grievance mechanism International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IOGP (2009). Guidelines for waste management with special focus on areas with limited infrastructure Report No. 413, rev1.1 September 2008 (updated March 2009)
Solid Waste All Phases	Cuttings volumes recorded Rig wastes recorded, manifested and tracked Camp wastes recorded, manifested, tracked All wastes: Monthly Summary report	Drilling Contractor Drilling Contractor Camp Boss Operations Manager	Daily Daily Daily Monthly	TR Waste Management Plan TR Grievance mechanism International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IOGP (2009). Guidelines for waste management with special focus on areas with limited infrastructure Report No. 413, rev1.1 September 2008 (updated March 2009)
Noise Construction	Noise monitoring at fence and sensitive receptors	Operations Manager	Monthly	TR Noise Management Plan TR Grievance mechanism World Health Organisation (2015). WHO noise quality standard – WHO, 2015. International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Noise Operations	Noise monitoring at fence and sensitive receptors	Operations Manager	Monthly	TR Noise Management Plan TR Grievance mechanism World Health Organisation (2015). WHO noise quality standard – WHO, 2015. International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a)

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
				- EHS General Guidelines (IFC 2007b)
Noise Decommissioning	Noise monitoring at fence and sensitive receptors	Operations Manager	Monthly	TR Noise Management Plan TR Grievance Mechanism World Health Organisation (2015). WHO noise quality standard – WHO, 2015. International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Light All Phases	Grievance/ Complaints records	Community Affairs Officer	Continuous	Grievance mechanism International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Odours All Phases	Grievance/ Complaints records	Community Affairs Officer	Continuous	Grievance mechanism International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Community All Phases	Grievance/ Complaints records Local Recruitment Program New recruit Training and Induction Local Community Education and Awareness Program	Community Affairs Officer Country Manager Community Affairs Officer Community Affairs Officer	Continuous Pre-project Continuous Continuous	Grievance mechanism National Labour Code and SEPFOPE Regulation International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)

2 DETAILS OF THE PROJECT PROPONENT

2.1 CONTACT DETAILS

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TR organisation chart is presented in Figure 2-1 below.

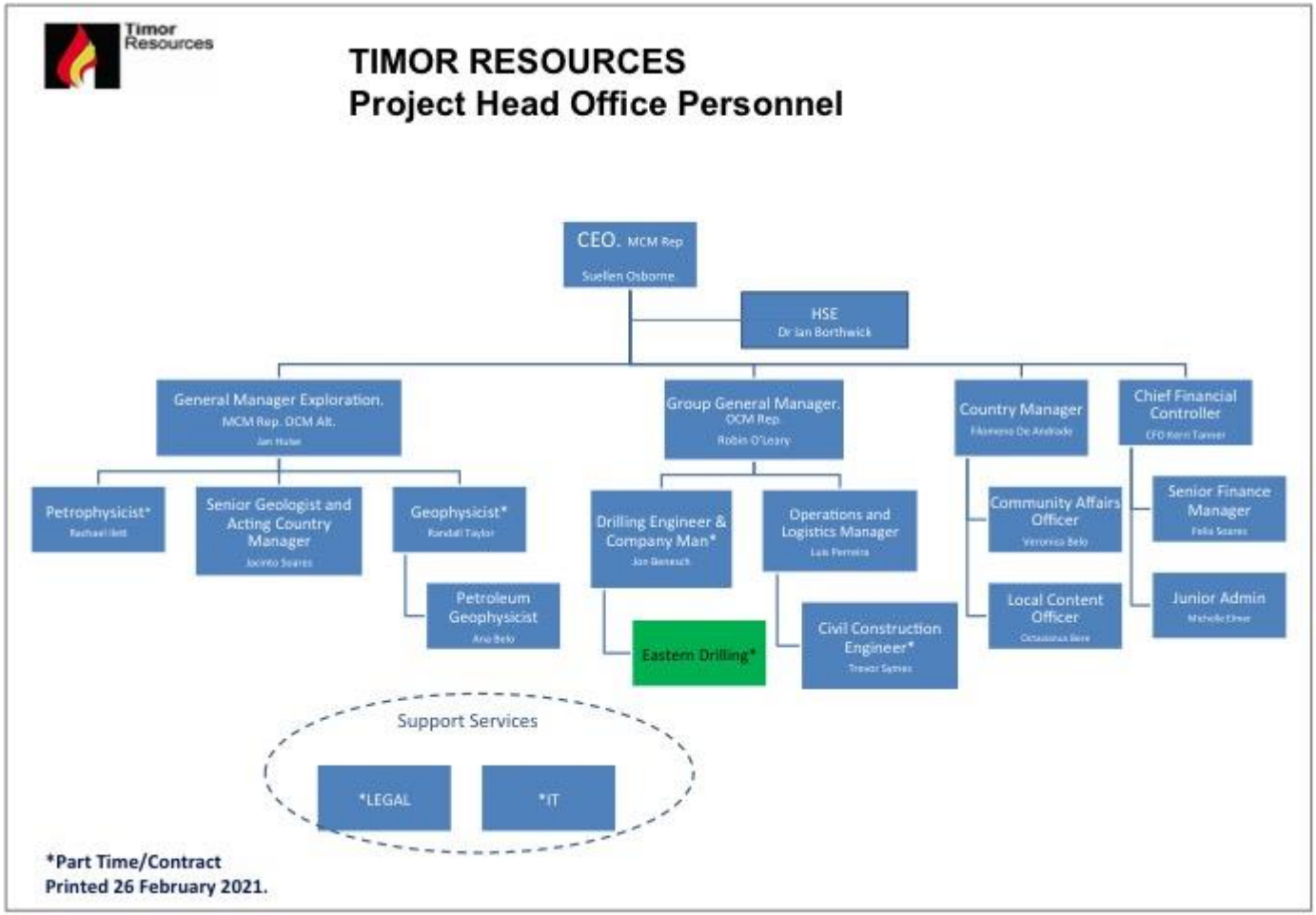

Figure 2-1 - Timor Resources Organization Structure

2.2 TIMOR RESOURCES HEALTH SAFETY AND ENVIRONMENT POLICY

Timor Resources

Health, Safety & Environment Policy

Timor Resources is committed to achieving incident free operations through the provision of effective Health, Safety and Environmental (HSE) Management across all of its operations and worksites for the benefit of employees, contractors and the community. The Company is committed to:

- Promoting HSE objectives, leadership, responsibilities and behaviour as an integral part of the duties of management and all employees;
- Complying with applicable laws and other obligations and requirements that the company subscribes to, and where adequate laws do not exist, adopting and applying standards that reflect Timor Resources commitment to HSE outlined in this policy;
- Reporting and evaluating risks, threats, hazards and impacts to company operations that have the potential to adversely affect the environment or the health and safety of employees, contractors or the community;
- Implementing appropriate control and contingency measures to prevent pollution and minimise and manage these risks, threats, hazards and impacts to an acceptable level;
- Establishing and ensuring that standards are followed, and effective practices promoted to ensure that the environment, people, property and information are protected from harm;
- Selecting and engaging contractors whose management systems are acceptable to Timor Resources and whose commitment to this policy is clearly and continuously demonstrated;
- Providing competent human resources to manage relevant aspects of health, safety or environment;
- Communicating openly with all stakeholders on HSE related issues;
- Providing training, instruction and supervision to personnel to enable them to attain the knowledge and skill levels necessary to perform their work incident free;
- Maintaining appropriate contingency arrangements;
- Continually monitoring, reviewing and improving HSE performance and associated management systems so that our activities can continue without interruption;
- Ensuring that oversight of accident, incident and near miss investigations is assumed by the appropriate executive manager and that those investigations are conducted to a level of detail that is appropriate to the event's actual and potential severity, and;
- Ensuring a consistent and equitable approach to the management of the health of the employees and the communities.

Every employee and contractor working for the Company has a responsibility to promote a culture whereby their actions and those of their colleagues are consistent with this Policy.

Suellen Osborne
Chief Executive Officer
2nd April 2020

HSE Policy TR-GEN-POL-00-000-001 Updated 2nd April 2020

3 DETAILS OF THE CONSULTANTS OR PERSONS WHO PREPARED THIS ENVIRONMENTAL MANANAGEMENT PLAN

3.1 GROENA CIRCOAL

Timor Resources has engaged with Groena Circoal, a Timor-Leste registered national consulting company to carry out the EIA study to produce the EIS and EMP for the proposed project. Groena Circoal has been providing services to several other domestic projects. Groena Circoal's have a number of key and highly qualified personnel. The following is the list of the proposed key personnel to be involved in this project:

Maria do Ceu Rosales is a graduate from the University of Western Australia majoring in Environmental Science and Business Law. She is an Environmental Scientist with more than 5 years' experience predominantly in the area of environmental assessment, management and public procurement.

She has led environmental studies on variety of environmental assessments and feasibility studies specifically for water resources management and has worked on a variety of projects from small-scale to large projects such as from established more than five water and sanitation projects to the rural communities and successfully completed marine environmental monitoring project for Tibar Port mega project. Maria has also involved extensively in drafting, review the laws and policy related to the procurement. She has more than 3 years of working experience in public procurement and preparation of contract and documents relating to Prequalification (PQ) of Bidders, Request for Quotation (RFQ) and Bidding Documents for the procurement of Goods and Works for ICB and NCB Contracts.

Reflecting on the consultant's experiences and expertise in the area, Timor Resources deems that the consultant is suitable, qualified, and competent to carry out the EIA study for the proposed project. The details of the consultant carrying out the EIA study will be also be covered in the structure/content of the EIA and EMP in the next phase of the study according to the Ministerial Diploma No.46/2017 of 2nd August 2017, Annex IV and VI regarding the minimum requirements for EIA and EMP. Hence, any additional information required regarding this section can be covered in the EIA and EMP.

3.2 DR IAN BORTHWICK

Dr Ian Borthwick (PhD) is a marine biologist and oceanographer by training. He has worked in the Health, Safety and Environment fields for more than thirty years. In this time he has provided support to industry, government, financial and non-government organisations. He has broad ranging knowledge of the oil and gas industry, both upstream and downstream, having held senior environmental posts with the Canadian Federal Government, BP International, Sun Oil and Timor Resources.

Dr Borthwick's areas of speciality are in environmental, corporate social responsibility and HSE management procedures, risk, sensitivity and impact assessment, audit and review, particularly of systems and operations. He has completed the development and implementation of HSE Management Systems in nine international operators including certification from ERM and Lloyds Register. In the last 22 years he has completed over 70 environmental assessments and 30 oil spill assignments from Angola to Yemen, Long Beach to the Mekong Delta, Alaska to Timor Leste. He is a Chartered Member of both the Institute of Environmental Management and Assessment and Royal Society of Biology.

3.3 PETER FARRELL

Peter Farrell has Masters qualifications in both science, and environmental law. He has over 20 years' experience in environmental project management. His professional experience has been predominantly within the oil and gas sector, which includes ports dredging, infrastructure construction and government policy development. He has proven ability to negotiate projects with industry groups, government departments, state corporations, community and indigenous groups.

Peter is a member of the Project Management Institute with Project Management Professional© certification. Peter is a recognised HSE expert with expertise in impact assessment, project management, risk identification and planning.

4 PROJECT DESCRIPTION

The planned drilling activity has the potential to have environmental impact, thus the drilling activity was defined as Category 'A' according to Article 4, 1a and Annex I of the Decree Law No. 5/2011 of Environmental Licensing. Therefore, Timor Resources is required to submit a Terms of Reference (ToR), Environmental Impact Statement (EIS) and Environmental Management Plan (EMP) seeking Environmental Authority approval in order to gain an Environmental Licence to allow for drilling to commence.

The methods used by Timor Resources for the identification and assessment of potential impacts associated with the project meet Timor Leste legislative requirements, as defined under Environmental Licensing Decree Law 5/2011 and supporting Ministerial Diploma 46, to identify the project impacts, in particular for each project phase: construction, operation and decommissioning. Further it is noted that under Decree Law No 27/2020 dated 19 June Organic Law of VIII Constitutional, Article 33 (c) the Minister of Petroleum and Minerals is responsible to conduct the respective environmental licensing procedures and approve the corresponding environmental licenses in that sector.

A summary of the principal legislation and regulations applicable to the project (including relevant International and Industry Guidance is presented Chapter 5 of the EIS document.

4.1 SUMMARY OF ACTIVITIES

The project activities are broken down into three phases with regard to impact assessment:

- Pre-drilling/Construction,
- Drilling operations,
- Decommissioning.

Project activities are summarised as follows:

Geotechnical, Geochemical and Topographic surveys - Surveys are conducted to gain understanding of the topography and soil characteristics of the well site and road access to undertake site design planning and subsequent civil works.

Land clearance for road access and site construction - The arable topsoil and vegetation is stockpiled on the side of the lease within the fence line or in the case of access corridors, to the side of the road. The topsoil will be used to rehabilitate the site once drilling is completed in areas that are no longer required. The access road will be 6m wide with 10 - 20m of clearance for wide loads.

Road and bridge surveys plan - Surveys have been conducted on existing roads, bridges, and highways and mapped for the rig moves (Symes 2020). All options have been reviewed for transportation. Loads will be managed within the appropriate allowable road load capacity.

Establish water supply - Daily water needs for drilling are estimated to be up to 60,000 litres per day. Water will be sourced from local contractors. Water storage tanks on site will be filled and a mud system mixed prior to spud of the well. The level of offtake from the water source will be such that it is not detrimental to the supply for other users.

Well Site - The base layout design for Eastern Drilling (ED) Rig#1 is 100m x 100m and has been adjusted to the orientation and restrictions of each location. Two 3m deep mud pits with approximate dimensions of 18 x 20m and 14 x 30m will be prepared for mud handling and circulation. Pit design will be approved by a Civil Engineer, competent in the field of geotechnical engineering and constructed in accordance with recognised best practise, including the following methods:

- Geotechnical investigation at the mud pit location to determine the soil properties for design
- If pit walls need to be constructed from fill materials, the earthwork procedure will require controlled compaction of good quality fill material to ensure slope stability.
- Pits will be large enough to contain forecast volumes plus a suitable safety margin under all conditions (including rainwater runoff).
- A 500 mm deep freeboard is included in the pit capacity to prevent overtopping in the event of any surface wave action.
- Pits will be lined internally with seam welded High Density Polyethylene (HPDE) membrane to prevent liquid entering the surrounding ground that could destabilise the pit slopes due to increased moisture content or cause local ground pollutions.

The supply of the membrane for the drilling fluid pit linings is in accordance with the **"Geosynthetics Institute - HDPE Membrane Specification - gm13"** which references eighteen ASTM standards for the material quality.

The HDPE liner thickness design is related to the subsurface deformation that the liner may experience during its service life.

The Timor Resources drilling fluid pits are excavated in a firm clay sub-grade that provide very even support under the HDPE liner with low risk of deformation, as the weight of the excavated earth material is generally less than the future pressure from the pit contents. There are no trenches dug beneath the HDPE liner.

The design thickness calculated in accordance with the procedure in "Designing with Geosynthetics - 5th Edition Robert M. Koerner 2006. ISBN: 9780131454156" is 0.67 mm for 3.5 m deep pits.

The minimum design thickness in accordance with ASTM D 1593 for sub-grade support similar to the firm clay is 0.75 mm.

The design thickness supplied for the Timor Resources drilling fluid pits is 1.00 mm, which has also proved to be successful on previous projects.

Drilling Operations - a single well will be drilled, with the well design based on interpreted geological and geophysical data. The Drilling operation will be conducted as per the well specific drilling program as approved by ANPM. The procedures employed will be standard onshore oilfield best practice. Drilling operations will be conducted around the clock. The time taken to drill a borehole depends on the depth of the hydrocarbon bearing formation and the geological conditions and is expected to be in the order of 30-40 days.

Well Testing - Where a hydrocarbon formation is found, initial well tests, lasting up to a month, may be conducted to establish flow rates and formation pressure. These tests may generate oil, gas and formation water, each of which will be managed on site.

Rig Move - Rig moves from one location to the next have been planned and routes assessed including review of road width, intersections, bridges, community and public infrastructure.

Decommissioning - If the well does not contain commercial quantities of hydrocarbon, the site is decommissioned to a safe and stable condition and restored to its original state or to a state as agreed with landowners and approved by the appropriate authorities. Open rock formations are sealed with cement plugs to prevent upward migration of wellbore fluids.

Rehabilitation - Rehabilitation of the well site will be carried out in a progressive manner, following the completion of drilling works in each well site. Where access tracks or construction areas can be reduced, rehabilitation will be undertaken where and as possible, this will ensure that land is stabilised as soon as possible after disturbance to reduce the occurrence of erosion, sedimentation, loss of topsoil and weed invasion.

4.2 ALTERNATIVES

The following alternatives were assessed as part of the project:

- **"No Project"** - A "No Project" alternative was rejected.
- **Well location** - The area surrounding the optimal well location was analysed to assess the impact on the environment, community, and cost of the various alternatives. These considerations are not mutually exclusive so have been considered in terms of a risk

assessment based on the location of alternatives within the viable proximity of the optimal location.

- **Project design (vertical v directional drilling)** - Discussions on Vertical versus Directional Drilling were considered during the project design and preparation and that vertical, straight hole option was selected and approved by the authorities, however, for completeness a short description of vertical v directional drilling is provided.
- **Water source** - Water supply will be met by local suppliers since the level of offtake is such that it is not detrimental to the supply for other users. A water well is available at Betano camp.
- **Power supply** - There is no immediate source of mains power supply at the Rusa-1 well location, thus, power for the rig will be provided from diesel generators on site to ensure consistent supply, the Betano camp will utilise mains supply with a backup generator as required.
- **Cuttings disposal** - Cuttings will be buried in an impermeable liner on site after dewatering.
- **Drilling fluids** - Water based drilling fluids will be utilised throughout the project.

5 LEGAL REQUIREMENTS

Table 5-1 provides a summary of the principal legislation and regulations applicable to the project, in addition, the table includes relevant International and Industry Guidance that has been consulted in the course of the study.

Section 8 of this document presents Timor Resources' planned activities for management and prevention of environmental impact. Where a specific legal requirement has been identified this is noted and a criteria for ensuring compliance is stated. A summary of TR's approach to compliance is summarised in Table 5-2 below.

Table 5-1 - National Legislation and International and Industry Guidance Documents

TITLE	DESCRIPTION	RELEVANCY TO THE PROJECT
Timor-Leste National Legislation and Regulation		
Constitutions of the Republic Democratic of Timor-Leste Article 61 (Environment)	The article specifies provisions for state including the proponent shall undertake to defend, and safeguard the environment recognizes the right of all citizens to a humane, health and ecologically balances environment while also specifying the duty of everyone to preserve and protect the environment for the benefit of future generation	Provide the basis for environmental protection and safeguarding in the Country
Environmental (Licensing) Decree Law No.5/2011	The procedure for directing the environmental assessment, the review of application for environmental license, issuance and renewal of license. • Categorization of the project category according to severity of the environmental impacts. • Procedures and information requirement for Category A project • Organization and composition of the review committee and its duties and responsibilities. • Specific provisions for public consultation and the protection of the traditional customs and cultural practices. • The issuance of the decision by the Environment Authority on the review of the application and the rights of the project owner to appeal the decision.	Provides the Environmental Licensing procedure to regulate actions to encourage and protect the nature as an important instrument for sustainable development of economy of Timor-Leste
Decree Law No. 5/2016 – National System of Protected Areas (Annex 1 – List of Timor-Leste Protected Areas)	This Decree Law defines the norms and principles for the creation of the national system of terrestrial and marine protected areas, for the classification of protected areas and for the approval of the applicable management instruments, according to the international best practices, in the matter, duly adapted the national reality, without forgetting the important role of community authorities and existing customs.	Provide the basis for the protection of the terrestrial and marine protected areas without putting aside the important role communities, authorities and existing customs.
Decree Law No.	The Decree Law identifies the protection of the	Communicate to the

TITLE	DESCRIPTION	RELEVANCY TO THE PROJECT
26/2012 on Basic Environmental Law	environmental life and wildlife protection, including the basic principles for the conservation, preservation and sustainable use of natural resources in order to improve the quality of life of the local populations.	communities by providing information on the basis for the protection of environment and wildlife protection and sustainable use of natural resources through public consultation.
Diploma Ministerial No.44/2017 – Impact Benefit Agreement	The article specifies the process for the agreement between the project proponent and the local community regarding the advantages and disadvantages of the project	As this is a category A project, the IBA will be implemented if it proposed by a member of community to ensure local or community's interest is considered and agreed proposal shall be implemented
Diploma Ministerial No.45/2017 – Rules and Procedures of the Evaluation Committee for Project with Category A	The article specifies the importance of establishing rules and procedures for the evaluation committee for the management of the environmental evaluation process for projects in category A	Establishment of a committee in order to review the project that categorise into category A.
Diploma Ministerial No.46/2017 – Detail requirements of Classification, Initial Assessment and Terms of Reference, Environmental Impact Statement and Environmental Management Plan	The article specifies the necessary of establishing a regulation to regulate projects that may have significant impacts on the environment, while also specifying the procedures and requirements to select projects that classified into category A, B and C.	Provides the environmental licensing and classification of the project into category A.
Diploma Ministerial No.47/2017 – Public Consultation Procedure and	This Diploma Ministerial specifies the procedures and requirement of involvement of public and communities into different stages of the environmental assessment process through public consultation.	Provides information and communicate to the communities by providing information on the basis for the protection of environment and wildlife

TITLE	DESCRIPTION	RELEVANCY TO THE PROJECT
Requirement during Environmental Baseline Process		protection and sustainable use of natural resources through public consultation
Decree Law No 27/2020 dated 19 June Organic Law of VIII	Constitutional Article 33 (c) (Minister of Petroleum and Minerals) responsibilities item (o) Considering the complexity and technical expertise of the oil and mineral resources sector, conduct the respective environmental licensing procedures and approve the corresponding environmental licenses in that sector	Provides a description of legal framework that empowers Ministry of Petroleum and Minerals to issue environmental license.
Decree-Law No.18/2020 Onshore Petroleum Operations	Applies to Onshore Petroleum Operations including transportation, processing and storage of Crude Oil and Natural Gas with direct impact on any reservoir. In addition covers a broader scope of issues related with onshore activities, notably a legal statute that also addresses environmental and technical aspects related with the carrying out of onshore Petroleum Operations, such as rights of way through, on or over the land destined for Petroleum Operations, installation of pipelines, rules on geological, geophysical or geochemical surveys, environment. This Decree-Law No.18/2020 of 13 May also stipulated on matters pertaining to means and ways of intervention, expropriation, nationalization and privatization of means of production and land on grounds of public interest, as well as criteria for the establishment of compensations in such cases, including the appeal to the Government in case of any land dispute occurred.	Provides the fundamental legal framework for all oil and gas operations onshore Timor Leste.
Forestry, Aquaculture and Fishing Legislation: Law No. 14/2017 – General Regime of Forestry	The article outlines the basic principles and standards for the management, protection, conservation and sustainable use of forestry and river basin resources. Moreover, it describes the importance of communities that utilise the forests to their need and prosperity and promoting sustainable development	Provide legal framework of the fundamental norm of the environmental protection and preserving the natural resources existence in the forests for sustainability of the economic development.
Labour Legislation Law No. 4/2012 – Timor Leste Labour Code	This law describes the rights between employers and workers in regard to the working hours, leaves, remunerations, compensations and health and safety welfares.	Provide basis for the project proponent to set up a working condition and contracts between employer and employee.

TITLE	DESCRIPTION	RELEVANCY TO THE PROJECT
Land legislation Law No. 13/2017 - Especial Regime for the Definition of Land and Property	This law provides legal jurisdiction of the owners of lands and the individual rights of their private properties according to the Article 54 (1) of the RDTL Constitution.	As the legal basis for the project proponent to identify, access and compensate for any land used during the project activities
Waste Management Decree Law No.33/2008 – Hygiene and Public Order Decree Law No. 2/2007 – Urban Residual Waste Management	This law provides legal framework to manage the urban solid waste and ensure promoting the hygiene in the workplace.	As the legal basis for the project proponent to manage solid waste are produced during any project phase. This to be set as the minimum criteria for the TR to establish its own waste management system.
Cultural Heritage Legislation: Government Resolution No.25/2011 – Protection of Cultural Heritage (Annex 4)	This Government Resolution is used to protect and preserve Timor Leste's cultural heritage until the Cultural Heritage National Law is made available. The resolution defines the type of the cultural heritages; archaeological heritage, architectural heritage, ethnographic and traditional heritage and intangible heritage.	The resolution provides scope or boundary of the cultural heritage that has to be considered by project proponent.
International and Industry Guidance Documents		
Western Australian Department of Mines and Petroleum "Guidelines for the Development of an Onshore Oil Spill Contingency Plan 2016"	Provide Guidelines for the development onshore OSCP Provide mitigation measures to oil impacts sourced from the drilling activity.	Provide Guidelines for the development onshore OSCP Provide mitigation measures to oil impacts sourced from the drilling activity.
International Finance Corporation Environmental, Health and Safety Guidelines for	The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice. The guidelines are industry specific for onshore oil and gas and designed to be used together with the General EHS Guidelines	Provide guidance on the application of good environmental practice.

TITLE	DESCRIPTION	RELEVANCY TO THE PROJECT
Onshore Oil and Gas Development; April 30th, 2007	document (see below), which provides guidance to users on common EHS issues potentially applicable to all industry sectors.	
International Finance Corporation Environmental, Health and Safety General Guidelines; April 30th, 2007	The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice.	Provide guidance on the application of good environmental practice.
United Nations Convention on Biological Diversity (UNCBD)	The Convention on Biological Diversity (CBD) entered into force on 29 December 1993. It has 3 main objectives: 1. The conservation of biological diversity 2. The sustainable use of the components of biological diversity 3. The fair and equitable sharing of the benefits arising out of the utilization of genetic resources	Timor Leste is rich of the biodiversity with significant ecosystem and endemic species. The country signed the convention in 2001. As the project could have impacts on the flora and fauna or risk to the loss of the biodiversity, it is fundamental principle for the project proponent to prevent or minimise the risk of biodiversity loss during the project implementation
United Nations Framework for Climate Change Convention (UNFCCC)	The United Nations Framework Convention on Climate Change (UNFCCC) provides a framework for intergovernmental efforts to reduce greenhouse gas emissions and adapt to the expected impacts of climate change. It also provides guidance to member states on developing and implementing national climate change strategies, incorporating both adaptation and mitigation actions. Timor-Leste became a signatory to the UNFCC in October 2006.	The project activities release GHG emissions that could be one of the contributing factors to the country's climate change issue. Minimisation climate change risks by reducing the GHG emissions are an essential part of the project environmental objective and target. This convention is the principle guidance for the project proponent to prevent the air pollutions and reduce the GHG emissions as much as possible.

TITLE	DESCRIPTION	RELEVANCY TO THE PROJECT
IOGP Guidelines	The International Association of Oil & Gas Producers (IOGP) is the voice of the global upstream industry. Oil and gas continue to provide a significant proportion of the world's energy to meet growing demands for heat, light and transport. IOGP Members produce 40% of the world's oil and gas. They operate in all producing regions: the Americas, Africa, Europe, the Middle East, the Caspian, Asia and Australia. IOGP serve industry regulators as a global partner for improving safety, environmental and social performance and act as a uniquely upstream forum in which Members identify and share knowledge and good practices to achieve improvements in health, safety, the environment, security and social responsibility.	Provide oil and gas industry specific guidance on the application of good environmental practice.
IPIECA Guideline	IPIECA is a not for profit association that provides a forum for encouraging continuous improvement in industry performance. IPIECA is the only global association involving both the upstream and downstream oil and gas industry. It is also the industry's principal channel of communication with the United Nations. IPIECA develops, shares and promotes good practice and knowledge to help the industry and improve its environmental and social performance. We do this with the understanding that the issues that dominate the sustainable development agenda – climate and energy, environmental and social issues – are too big for individual companies to tackle alone. The industry must work together to achieve improvements that have real impact. IPIECA helps to achieve this goal.	Provide oil and gas industry specific guidance on the application of good environmental practice.
Forestry, Aquaculture and Fishing Legislation: International Union for Convention of Nature (IUCN)	This international convention is and international organisation focus on the nature conservation and sustainable of utilising the natural resources. The IUCN works in the field to promote ecological conservation in order to ensure the sustainable development concepts.	Timor Leste is a signatory member of the IUCN convention that has responsibility to protect its ecological components to ensure the economic sustainable development. Therefore, a baseline survey is used to identify all species categories listed under the IUCN red list, which can be impacted by the project activities.
Cultural Heritage Legislation: UNESCO Convention on	The convention mandates each signatory party to identify, protect, conserve, transmit and present to the future generations of the cultural and natural heritage.	As the Timor Leste is a signatory member of this convention therefore this project activities ensure the protection and

TITLE	DESCRIPTION	RELEVANCY TO THE PROJECT
Natural and Cultural Heritage		conservation of any cultural and natural heritage around the project location
Noise and Vibration Standards and Regulation: WHO guideline for community noise	This WHO guideline is used to measure the noise level around the community areas and ensure the protection of people from discomfort environment and potential noise induce hearing loss.	This guidance is used to ensure the noise levels arising from the project activities are contained or maintained between the WHO set values to protect everyone at or near the project location are affected by unwanted sound caused by the project activities.
Air Quality Guidelines: WHO Air Quality Guidelines	WHO Air Quality Guidelines (AQG) offer guidance on threshold limits for key air pollutants that pose health risks and provide a reference for setting air pollution targets at regional and national levels to improve air quality. Air quality guidelines have been published by WHO in 1987 and they were revised in 1997. The 2005 update represents the most current assessment of air pollution health effects, based on an expert evaluation of the scientific evidence. The guidelines offer recommended exposure levels for particulate matter (PM10 and PM2.5), ozone, nitrogen dioxide and sulphur dioxide, as well as a set of interim targets to encourage a progressive improvement in air quality.	The air quality benchmark is used, as reference by the project proponent is the WHO air quality guidelines.
Climate Change Kyoto Protocols Government Resolution of National Action Plan for Climate Change	Kyoto Protocol is an international treaty that extends the UNFCCC parties commitment to reduce the green house gas according to the scientific consensus. The protocol implements the objective of reducing the global warming potential gas in the atmospheres. The government resolution of national action plan for climate change (NAPA) is the first national document that identifies urgent and immediate climate change adaptation needs of the most vulnerable groups. It provides a starting point from which climate change adaptation can be mainstreamed into development plans as a key strategy for attaining sustainable development and poverty reduction (DNMG, 2010).	Timor Leste is the signatory party of the Kyoto Protocol that shall ensure the implementation of the protocol in order to reduce the GHG emissions.

TITLE	DESCRIPTION	RELEVANCY TO THE PROJECT
Water Resources WHO 2008 Guideline for Drinking Water Quality	These guidelines is used as the reference for the Timor Leste to ensure drinking water quality according to the WHO drinking water quality standard	As the guidance for the project proponent to test and ensure water quality around the proposed project location before any drilling activities are taken place

Table 5-2 - How TR Manages Compliance OMS with Law 5/2011 and Law 18/2020

REFERENCE ARTICLE	COMPLIANCE ACHIEVED THROUGH OMS AND INDUSTRY BEST PRACTICE
Law 18/2020	
136 - Management System	Timor Resources Operating Management System (OMS) Operating Management System (OMS) Manual: TR-OMS-001 Policies, Expectations and Legal Requirements Standard: TR-GEN-STD-00-000-003 IOGP Operating Management System Framework Report 510 June 2014
138 - Risk Management	Risk Assessment and Control Standard: TR-GEN-STD-00-000-002 Objectives, Targets and Planning Standard: TR-GEN-STD-00-000-004 Chemicals - Transport Risk Assessment 20200717 Haemano Warehouse Temporary Chemical Storage Risk Assessment Rev21 20200701 Drilling Program - Schedule 2 - Drilling Contract - with Risk Assessment
139 - Environmental Part of Management System **141 - Environmental Assessment** **144 - Environmental Management Plan**	Health, Safety and Environmental Management Standard TR-GEN-STD-00-000-007_1 Risk Assessment and Control Standard: TR-GEN-STD-00-000-002 Objectives, Targets and Planning Standard: TR-GEN-STD-00-000-004 IOGP (E&P Forum) and UNEP (1997). Environmental Management in Oil &Gas Exploration and Production 1997. IOGP Report No. 254 IFC. (2007a). Environmental Health and Safety (EHS) General Guidelines. Washington DC: International Finance Corporation. IFC. (2007b). Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development. Washington DC: International Finance Corporation.

REFERENCE ARTICLE	COMPLIANCE ACHIEVED THROUGH OMS AND INDUSTRY BEST PRACTICE
	EIS TL-OT-17-09 TR-HSE-EIA-002 EMP TL-OT-17-09 TR-HSE-PLN-015
145 - Environmental Monitoring Programme	Inspection and Audit Standard: TR-GEN-STD-00-000-010_1 Performance and Compliance Standard: TR-GEN-STD-00-000-011 EMP Appendix F - Inspection Schedules Plan TR-HSE-PLN-011
146 Oil Spill Contingency Plan	Health, Safety and Environmental Management Standard TR-GEN-STD-00-000-007_1 Crisis and Emergency Management Standard: TR-GEN-STD-00-000-009 EMP Appendix D - Oil Spill Contingency Plan TR-HSE-PLN-004a IMO/IPIECA (2012). Sensitivity Mapping for Oil Spill Response. IMO/IPIECA, July 2012. IPIECA/IOGP (2014). Incident Management System. IOGP Report Number 517. Nov 2014. IPIECA/IOGP (2015). Contingency Planning for Oil Spills on Water. Report No. 519. Jan 2015. IPIECA (2004). Guidelines for oil spill waste minimization and management. IPIECA 2004. IPIECA (2007). Guide to tiered preparedness and response, IPIECA, 2007. OSRL (2013). Inland Operations Field Guide - an operational guide to the containment and recovery of oil spills in the inland environment. Version Number: 1. Oil Spill Response Limited September 2013.
147 - Environmental Performance	Objectives, Targets and Planning Standard: TR-GEN-STD-00-000-004 Inspection and Audit Standard: TR-GEN-STD-00-000-010_1 Non-Conformance: Corrective and Preventative Action Standard: TR-GEN-STD-00-000-010_2 Incident Reporting and Investigation Standard: TR-GEN-STD-00-000-010_3 Performance and Compliance Standard: TR-GEN-STD-00-000-011 Addressed in the EMP TL-OT-17-09 TR-HSE-PLN-015
149 - Waste Management	Health, Safety and Environmental Management Standard TR-GEN-STD-00-000-007_1 EMP -Appendix A - Waste Management Plan Appendix A Rev1 29-12-20

REFERENCE ARTICLE	COMPLIANCE ACHIEVED THROUGH OMS AND INDUSTRY BEST PRACTICE
	IOGP Guidelines for Waste Management. Report No. 413March 2009
150 - Chemicals Use	Full Compliance with ANPM Chemical Approvals Master Register. Chemicals Approved by ANPM. Risk Assessment and Control Standard: TR-GEN-STD-00-000-002 Health, Safety and Environmental Management Standard TR-GEN-STD-00-000-007_1 Contractor and Purchasing Management Standard: TR-GEN-STD-00-000-007_4 Rev4 Chemical Approvals Master Register Chemicals - Transport Risk Assessment 20200717 Haemano Warehouse Temporary Chemical Storage Risk Assessment Rev21 20200701 EMP -Appendix A - Waste Management Plan Appendix A TR-HSE-PLN-007 IOGP Guidelines for Waste Management. Report No. 413March 2009
151 - Noise	Risk Assessment and Control Standard: TR-GEN-STD-00-000-002 Health, Safety and Environmental Management Standard TR-GEN-STD-00-000-007_1 EMP Appendix G - Noise Management Plan TR-HSE-PLN-012
152 Explosives	Responsibility rests with specialist contractor Schlumberger: Contractor and Purchasing Management Standard: TR-GEN-STD-00-000-007_4 Addressed in Safety Case PSC TL-OT-17-08 and 09 TR-HSE-SCE-001
153 Soil and Groundwater	Risk Assessment and Control Standard: TR-GEN-STD-00-000-002 Health, Safety and Environmental Management Standard TR-GEN-STD-00-000-007_1 EIS TL-OT-17-09 TR-HSE-EIA-002 EMP TL-OT-17-09 TR-HSE-PLN-015 EMP Appendix B - Rehabilitation Plan TR-HSE-PLN-008
157 - Liability **158- 3rd Party Liability** **159- Restitution**	TR carries requisite insurance including, but not limited to, Control of Well Insurance, Redrilling/Extra Expense Insurance, Seepage and Pollution, Clean-up and Contamination Insurance.

REFERENCE ARTICLE	COMPLIANCE ACHIEVED THROUGH OMS AND INDUSTRY BEST PRACTICE
160 - Unauthorised Activities	Details of TR insurances are registered with ANPM.
Law 5/2011	
Chapter II - Licensing System **Chapter III - Information Phase**	Project Document prepared following Ministerial Diploma No.46/2017. Approved - Category A Project Terms of Reference prepared following Ministerial Diploma No.46/2017. Approved
Chapter IV - EIA and Licence	Environmental Impact Statement and Environment Management Plan prepared following Ministerial Diploma No.46/2017 and Ministerial Diploma No.47/2017 EIS TL-OT-17-09 TR-HSE-EIA-002 EMP TL-OT-17-09 TR-HSE-PLN-015 Appendix A - Waste Management Plan Appendix A TR-HSE-PLN-007 Appendix B - Rehabilitation Plan TR-HSE-PLN-008 Appendix C - Redress and Grievance Appendix TR-HSE-PLN-009 Appendix D - Oil Spill Contingency Plan TR-HSE-PLN-004a Appendix E - Traffic Management Plan TR-HSE-PLN-010 Appendix F - Inspection Schedules Plan TR-HSE-PLN-011 Appendix G - Noise Management Plan TR-HSE-PLN-012 Appendix H - Incident Reporting and Investigation Standard TR-GEN-STD-00-000-010_3 Rev 0 22-9-20 Appendix I - Community Consultation Plan TR-HSE-PLN-013 Appendix J - Air Quality Plan TR-HSE-PLN-014 Appendix K - Soil Erosion Management Plan TR-HSE-PLN-017 Appendix L - Surface Water Management Plan TR-HSE-PLN-018

6 INSTITUTIONAL ROLES & RESPONSIBILITIES

Table 6-1 provides details of the roles and responsibilities for all the HSE related aspects of Timor Resources and its drilling contractor management within the project activities.

Table 6-1 - Timor Resources and its Contractor Personnel Roles and Responsibilities

POSITION	ROLES AND RESPONSIBILITIES	
	GENERAL RESPONSIBILITIES	SPECIFIC RESPONSIBILITIES
TIMOR RESOURCES		
Chief Executive Officer	Operating Management System (OMS) and Health Safety and Environment (HSE) issues	• CEO is the OMS Champion and the focus for OMS leadership across Company • Provide each level of management the necessary authority and resources to establish and implement the OMS • Signs HSE Policies and ensures compliance • Leads management and KPI reviews • Receives regular reports on progress, incidents, issues to be aware of • Receives updates from HSE Officer as to compliance or non-compliance with legislation, and recommendations to rectify
General Manager Exploration	Overall responsibility for the project	• Provides the normal channel of communications with ANPM with regard to Drilling operations. • Responsible for the implementation of the OMS across the Company • Leads in seeking the resolution of HSE issues • Implements and updates the Project Environmental Management Plan • Manages the resolution of project environmental issues
Drilling Team Leader	Overall responsibility for the drilling operations	• Responsible for the implementation of the OMS in drilling operations • Ensures Drilling Contractor meets all OMS obligations • Leads in drilling related Risk Workshops • Reviews Risk Assessment reports and Risk Registers and ensures they are completed, and corrective actions undertaken • Responsible to conduct emergency drills on the rig site.
Drilling Supervisor or “Company	Overall responsibility for the drill rig	• Timor Resource’s Company Representative (OCR) on-site who works in close liaison with Eastern Drilling

POSITION	ROLES AND RESPONSIBILITIES	
	GENERAL RESPONSIBILITIES	SPECIFIC RESPONSIBILITIES
Man" formally known as Operator's Company Representative	operations	ED Drilling Manager and rig crew.
Operations Manager	Overall responsibility for operations other than drilling activities	• Responsible for the implementation of the OMS in all operational areas. • Make sure that work activities are carried out in a safe and environmentally sound manner. • Ensures sediment and erosion control measures are in place and functioning. • Provides advice and assistance on environmental matters to employees. • Leads in operations related Risk Workshops. • Reviews Risk Assessment reports and Risk. Registers and ensures they are completed, and corrective actions implemented. • Ensure records are kept and are up to date.
	Supervises all civil engineering contractors on- site	• Ensures plant & equipment are weed free when entering/leaving site. • Monitors that vegetation is not disturbed except where approved. • Ensures work is not conducted outside designated project boundary. • Based at the operational sites and responsible for the overall compliance with project Environmental Management Plan. • Communicates HSE information with senior staff and ensures follow-up. • Responsible to conduct emergency drills with the operations team and ensures implementation of Emergency Response Plan.

POSITION	ROLES AND RESPONSIBILITIES	
	GENERAL RESPONSIBILITIES	SPECIFIC RESPONSIBILITIES
Country Manager	Overall responsibility for community and government liaison	• Liaise and communicate with ED Rig Manager and TR Drilling Team Leader in both verbal and written communication. • Ensure all instructions of rig management work methods and use of equipment are communicated and carried out properly and safely, with due regard for the environment. • Manage and organise public consultation with local authorities and community for any related social and environmental issues or aspects that are mentioned or identified within the project EIS/EMP.
Health, Safety and Environment (HSE) Officer	Site HSE Compliance	• Monitors environmental legislative requirements. • Controls all management system documentation. • Review and update HSE documents. • Observes all environmental acts, rules and regulations. • Manages and provides HSE training and inductions for all project employees. • Audits the crew on a regular basis. • Maintains contact with Timor Resources management, participates in HSE meetings.
	Site HSE Compliance	• Actions HSE report and carries out workplace inspections. • Monitors implementation of the OMS across the Company. • Prepares TR Incident Management Plan (IMP) and integrates with Contractor's Site Emergency Response Plan (SERP) and Corporate Crisis Management Plan (CMP), including medical contingency planning / evacuation procedures and emergency contacts etc. • Ensure dissemination of HSE information to all crews, such as audit reports, incidents reports etc. • Ensure proper training of all staff to necessary competence level. • Coordinate the compilation and reporting of all incidents, audits and HSE statistics to Management. • Ensure that all contractors apply Timor Resources HSE standards and requirements equally throughout the operation. • Keep fully appraised of ongoing HSE concerns in both the office and field environments.

POSITION	ROLES AND RESPONSIBILITIES	
	GENERAL RESPONSIBILITIES	SPECIFIC RESPONSIBILITIES
		• Participate in incident investigations and ensures that investigations are thoroughly carried out and actions completed, • Liaison between contractor management and Timor Resources HSE for HSE issues. • Follows all HSE guidelines and provides leadership for all employees to follow good • Assists the Operations and Management teams in the implementation of all aspects of the project EMP. • Compile and documents all HSE reports and statistics. • Conducts audits and all HSE improvement plans, generating the reports to be distributed internally and to relevant authorities. • Ensures that all the activities are in compliance with the environmental legislative requirements. • Controls all OMS documentation. • Organise and participates in HSE drills and exercises. • Communicates HSE requirements through the reporting line.
EASTERN DRILLING RESOURCES		
Drilling Manager	Overall responsibility for the drilling activities	• Responsible for the day to day operations of the rig and is the formal single point of contact with TR Drilling Supervisor/Company Man (OCR). • Responsible for liaison and negotiations with TR on all operational matters. • Ensures adequate resources and support are applied to meet Safety case (SC) requirements. • Ensures all requirements are met with regard to the technical standard of the rig its equipment and certification. • Ensures Operational and HSE management of the rig is planned and organised in accordance with Eastern Drilling (ED) policies and in compliance with HSE requirements. • Ensure all personnel on board the rig are adequately trained and experienced to perform the tasks they are assigned. • Ensure contractors evaluation; selection and management are done in accordance with ED and TR procedures.

POSITION	ROLES AND RESPONSIBILITIES	
	GENERAL RESPONSIBILITIES	SPECIFIC RESPONSIBILITIES
Rig Superintendent	Accountable to the Drilling Manager for maintaining safe working conditions on the rig site	• Overall safety of the rig, and for the health and welfare of all the persons on the rig. • Compliance with all relevant regulatory requirements. • Ensuring that the correct level of supervision is in place at all times. • Organising safety and emergency drills, according to requirements detailed in HSE MS. • Ensuring that the rig personnel maintains competence in the execution of their duties • Communicates with and assists onsite representative on a daily basis to implement and promote procedures and goals. • Organise and delegate responsibilities and authority to the Toolpushers, Mechanic, Electricians and Safety Supervisors. • Supervises all the daily activities on the rig
Tool Pusher – Night shift		• Responsible for the safe drilling operations that are being conducted at maximum efficiency during night time hours. • Perform activities organised by the Rig Superintendent.
HSE Officer		• Reports to Rig Superintendent • Responsible to promote, implement, supervise all company HSE management on daily operational matters.

7 EXISTING ENVIRONMENT

A detailed description of the environment of the drilling location and surrounding areas is described in Chapter 6 of the EIS document and summarised below.

A summary of the environmental and social impacts that are either likely to occur, or have the potential to occur, are presented in Section 8 immediately prior to statement of Timor Resources' planned management activities to prevent or mitigate environmental impact.

7.1 PHYSICAL ENVIRONMENT

7.1.1 Climate and meteorology

The climate of Timor-Leste is characterised by extreme conditions. In the north of the island there is little or no rain for almost eight months of the year. The island has a monsoon climate, typical for the Asian tropics. From December to March northwest to southwest winds prevail, bringing the principal wet season for the year to most parts of the island. From May until October southeast to northeast winds prevail, bringing mostly dry conditions, except on the south coast and the southern slopes where the wet season persists until July. Average annual rainfall is around 1,500mm, varying from 565mm at Manatuto along the north coast to 2,837mm at Lolotai in the central-western mountains. As is common in most tropical locations, extremely heavy rainfall occasionally occurs in Timor-Leste during relatively short time intervals.

There is little temperature variation on either a diurnal or a seasonal basis. Temperature variations mainly occur with altitude. Average annual temperatures decrease from 27^{o}C at sea level to 24^{o}C at 500 m; 21^{o}C at 1 000 m; 18^{o}C at 1,500m and 14^{o}C at 2,000m. Relative humidity varies between 70 and 80 percent, which makes the climate humid in general, but pleasant (FAO, 2016).

The tropical cyclone season in the Timor Sea normally runs from November to April. Many tropical storms and cyclones originate or pass through the Timor Sea. Between 1964 and 2002, 25 cyclones were recorded (RDTL, 2010).

7.1.2 Geology

Rock distribution in PSC TL-OT-17-09 shows most of the oldest rocks from Permian to Triassic are well represented in the north and south west of the area. Mount Cablac is covered by Triassic Perdido Group and interpreted to be thrusted over Lolotoi Complex. South east and south west of Mt. Cablac is covered by syn-orogenic deposition of Batu Putih and Viqueque Group. Permo-Triassic units commonly topped by Baucau limestone are well exposed between the Belulik River (Cassa Bridge) and Caraulun river near Same. A late Cretaceous unit of Wai Bua Formation is cropping out in central Betano and its surrounding area.

At the location of Rusa-1, are rock units that range from Permian to recent. The following is the physical description of all the rock units that occur in the vicinity of the wellsite in order from oldest to youngest.

7.1.3 Topography

Significant topographic features around the project area include:

- Mt Cablac coupled with low to high grade Lolotoi metamorphic controls the north to north east morphology.
- A coral limestone platform covers most of the western part of the project area with average height 300 m above sea level.
- The North east and eastern parts are dominated by Mt Bian and Mt Manumera and extend to Mt Kaitaba and Mt Cnuamotukleten.
- Mt. Akadirukau with a height 160 m above sea level occurs to the south of the project area with an alluvial plain extending towards the sea.
- In the far north west the landscape is controlled by recent deposition of the Batu Putih chalk that is expressed in a low relief to moderate morphology with an average height 120 m above sea level.

7.1.4 Air Quality

The ambient air quality data collected at the three sensitive locations for Sulphur Dioxide (SO_2) and Nitrogen Dioxide (NO_2) and Ozone (O_3) were all below 1µg/m^3, the detection limit of the instrumentation, thus well within the WHO Standards.

The concentration of dust particulate of $PM_{2.5}$ at the three receptors are generally within the WHO 24-hour standard of 25µg/m^3 except for peaks that occur at peak traffic hours between 0600 and 0900 and again at 1800-1900. There appears to be an anomalous reading at Aldeia Raimerlau at 2300.

PM_{10} data at Rusa-1 drilling location are for the most part below slightly above the WHO 24-hour standard of 50µg/m^3 with a maximum at Aldeia Fatukabelak of 14086µg/m^3 between 0500 and 0700 which might be attributed to cooking fires, levels are again slightly elevated from 1900-2300 with values between 70 and 86µg/m^3. Similar values and patterns are observed at Aldeia Raimerlau, but remain above the WHO standard of 5086µg/m^3 throughout the day.

PM10 levels at Aldeia Sessurai are within WHO standard at night time between 2200 and 0800 but are much elevated during the day reaching a maximum of 500 - 725µg/m^3. It should be noted that the sampling location at the school in Sessurai is on the main road between Betano and Same thus is considered to be a result of high traffic volumes during the day.

In the case of diesel generators and vehicle engines the emissions levels were calculated based on fuel usage and using recognised emission estimate methodology. Each well programme is expected to take 30 days and based on this the emissions were calculated at some 480 tonnes CO_2 and 500 tonnes GHG for the single well. The levels are insignificant in comparison with

other operations in Timor and globally. In 2018, CO_2 emissions per capita for Timor-Leste was some 275,000 tonnes.

The total release of CO_2E during the drilling operation is estimated to be 490 tonnes of CO_2E for the well. Significant greenhouse gas (GHG) emissions occur from all oil and gas operations worldwide (>100,000 tons CO_2 equivalent per year) IFC (2007).

7.1.5 Noise

air quality noise levels were measured in the project area and additional secondary data from the Betano Petroleum Refinery and Beaço LNG Plant EIS study and the Suai Supply Base project (Worley Parsons 2012a and 2012b) accessed with both compared against IFC Guidelines (IFC 2007a) and WHO guidelines for community noise (Berglund et. al. 1999).

Overall the noise levels measured during the baseline survey at the three sensitive receptors are between 30dB and 61dB, with most below the residential limits of 55dB (day time) and 44 dB (night time). There is a marked difference between the locations with the highest levels recorded in Aldeia Sessurai at the school, which is on the main road, where maximum levels between 11am and 6pm were in the range is 48-61 dB outside these hours, levels are in the range 35-47 dB.

7.1.6 Surface and Groundwater

a total of three water samples were collected and tested by the National DNSAS laboratory in accordance with the WHO Drinking Water Guidelines (WHO 2011).

All physical test results are within the WHO/East Timor Guidelines cited by DNSAS. pH is as expected at 7.8-7.9. TDS readings were 363 in sample 01 and 03 but higher in sample 03 at 632 indicating sample 02 from the small creek may be more open to soil erosion and runoff. Turbidity (NTU) was higher in sample 1 which is to be expected in the open flowing river, whilst the more protected areas in sample 2 and 3 were significantly lower at 0.4.

Chemical test results are all well within the WHO/East Timor Guidelines cited by DNSAS, with the exception of Total Hardness (135-200 mg/l) and Total Alkalinity (140-205 mg/l) which is as expected given the limestone rock structure.

In terms of bacterial test sample 1 and 3 were zero, but some contamination was observed in sample 2 (the small creek) at 2 CFU/100ml which may might be related to the faecal runoff from animals grazing near the creek.

7.1.7 Soil

Common soils found in Timor are Vertisols, Luvisols and Fluvisols (UN Food and Agriculture Organisation classification scheme). Vertisols are mostly found inland, Luvisols and Fluvisols are found closer to the coastal area (Thompson, 2011). Vertisol contains high clay, at least 35%

or more, and is usually covered by natural grassland or woodland. In 2012, Seeds of Life generated soil texture map based on Garcia and Cardoso (1978) data and divided soil texture into ten divisions: clay, clay loam, loam, organic, sand, sandy clay, sandy loam, silty clay, silty loam and variable. Mostly Timor island is covered by clay and loam and rarely organic soil

7.2 BIODIVERSITY, FLORA AND FAUNA

Four transects were walked at the well location and detail is provided of the biodiversity, flora, and fauna observed along each. Locations of the transects are shown on satellite images.

- **Biodiversity:** the immediate well site includes secondary forest, primary forest, savanna, teak plantation, including agricultural farmland and landscape area. The existing natural resources at the well site has no critical habitat according to national legislation and per the Ramsar Site international agreement.
- **Flora:** Plants identified at the well location include: C*asuarina sp, Acasia sp, Ziziphus sp, Scleoreza oliosa, Corypha elata, Ficus sp, Timonia timun, Sterculia foetida, Toona sureny, Nauclea orientalis, Tectona grandis* and *Gmelina arborea*. None are classed as threatened or with limited geographical expansion in accordance with IUCN Red List. Parcel 5 from track 1 at a distance of 1.2 km from Rusa-1, identified *Pterocarpus indicus* as Near Threatened species (NT).
- **Fauna:** Parcel 5 from track 1 at a distance of 1.2 km from Rusa-1, identified a secondary ecosystem that is an important habitat for 26 bird species, particularly *Turacoena modesta* and *Aprosmictus jonquillaceus* considered Near Threatened (NT). Mammals and reptiles species identified outside the Rusa-1 location include: *Macaca Facicularis (NT), Phalanger orientalis (VU)* and *Gekko gecko, Trimeresurus insularis, Greater reticulated phyton, Crocodylus sp, Turtle sp, Hydrophis sp.* Bird species of limited geographic expansion (rr) or rare species identified in centre Rusa-1 location such as: *Philimon inornata (NT) no Saxicola Gutturalis (NT),* 6 species with limited geographic expansion (rr)

The drilling activities will not cause significant negative impact since species identified will migrate to the same type of forest in another similar area if disturbed during the short programme, because their distribution is categorised as widespread residence, i.e. they can move out to other locations when drilling activities are being carried out.

7.3 SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT

Social - Interviews were conducted in the area with stakeholders during the EBS with local government officials such as Municipality Administrators, Sub-district Administrators, Hospital Management, PNTL Commander, Chefe Sucos, Chefe Aldeias and Lia Nain. The objectives of the interviews were to obtain the local information and data for the following social components: population and communities, health profiles, existing institutions, schools and health facilities, community and family structure and land and property owners and other common or individual rights.

In Ainaro Muncipality the most common spoken language is Mambai and Tetum Prasa (National Language) and a small number of the community speak Bunak, Kemak and other dialects. The population in Manufahi also speaks Mambai along with Tetum Prasa (National Language) and Tetum Terik, these are the most common spoken languages. There are also small number of people, in Manufahi who speaks Lakalei, Bunak, Ismi and Idate dialects.

Literacy in Timor-Leste is considered to be one of a major challenges, census 2015 indicates an increasing number of the population are illiterate, numbers increased from 79.1% in 2010 to 84.02% in 2015 for the population aged 15 to 24 years old.

There are a total of 109 schools in Ainaro and 835 schools located throughout the municipality. Looking at the number of students in both municipality, the highest number of students are in primary and pre-secondary, 17,737 (82.9%) in Ainaro and 15,743 (76.2%) in Manufahi.

In Suco Foho-Ai-Lico (Rusa-1 Well Location) there are 1,277 (29.2%) of the population never attended a formal education and 1,301 of the population (29.8%) left school early. Collectively, out of 4,373 population the numbers indicated there are 59% of the population in this community that has never attended school and/or left school compared to the population that attended school (39.2%). These statistics are an indication that many people at the grass root are not attending formal education.

The poverty incidence in the affected area is high. All household have access to electrical power from the national transmission grid. Drinking water is provided from distribution pipe and local wells. Most of the population in Foho-Ai-Lico are farmers. Agriculture is the main source of income by the local community, which is then sold back to consumers as their income. Additional income for people come from animal breeding and seasonal working in rice paddies twice a year.

Economic - Most of the population in Suco Foho-Ai-Lico, Post Administrative of Hatu-Udo, Municipality of Ainaro consist of farmers, commercial activities and fishermen, other are official (civil) servant (approximately 10%). Frequently these farmers earn their income from selling their local farming products to the customers such as corn, cassava, vegetable, banana, and teak wood. Supplementing their income supported by collecting and selling firewood, construction materials such as sand and rocks that they collected from the nearby rivers. The small business owner established their mini stores (Kiosk); however, with only a small quantity of services provided. Due to their daily low income or limited source of revenue resulted in some of the local communities live under the poverty line.

Population of Ainaro and Manufahi are two of the lowest in Timor-Leste when compared with other municipalities. The total number of population in Ainaro and Manufahi municipality are 64,615 and 53,691, respectively. A total of 4,939 staying overnight at suco Foho-Ai-Lico (Rusa-1 Well Location).

Cultural - Customary cultures in Ainaro and Manufahi are permeated with intangible cultural heritage where the local communities celebrate their cultural ceremony or conduct local ritual at the site such as marriage; death; birth; harvest of agricultural products, which is commonly for rice and corns production and harvesting; where dry season for longer period then the community will perform a ritual by the elders where they belief that the ritual could potentially increase the probability of rainy seasons. Thus, with the purpose of the ritual and belief, the community has a confidence that they have asked the permission from the sacred land and sites thus the activity of the project can be continued and developed as planned.

There are no archeological or anthropological sites identified during the EIA survey in the field within the study area or to be found or to take place within the well site location.

There are no major historical sites observed during survey within the identified surveyed areas. There, however general historical sites outside the study areas such as Dom Boaventura statue, it was a historical site of the kingdom and the King of Boaventura.There is one sacred site approximately 0.2 km from the Rusa-1 location called Nakabelis. Nakabelis sacred site from Uma Lisan Aisabe Toko, this sacred house has been practicing several traditional skills to enhance and innovate their way of living. Moreover, the use of modern technology and essential expertise for conservation with the use of sustainable resources of forestry and animal provides socio-economic values. This practices happens almost every year in both Ainaro and Manufahi, the aforementioned practices performed by the *uma lisans* for instance the ceremony of *sau batar* during corn harvesting season and farming time where surface water is diverted from the river into the agricultural irrigation system for farming purposes.

There is no unique landscape protected or conserved either by local community or at state level near the Rusa-1 location

7.3.1 Land Access and Resettlement

The project does not require any resettlement of people. Land use and land access have included:

- Negotiations in good faith and in a respectful and reasonable manner.
- Consultation with landowners to obtain their consent. These consultations typically covered the impact and term of the proposed use or access, employment and business development opportunities.
- A community land use agreement.
- Compensation and land rental with local landowners for land use in accordance with the Timor-Leste rates, as required by the Onshore Decree Law of Timor-Leste. Compensation payments are transparent and made in the presence of relevant community and government representatives or independent observers.

7.3.2 Positive and Negative Impacts

Timor Resources presence has the potential to have positive and negative impacts on the day-to-day lives of project area communities. The major benefits from a successful exploration drilling project could include increased employment opportunities for local communities both direct and indirect, improvement in livelihood of the communities, and increased revenue for the local area. In addition, the multiplier effect on the domestic economy will be substantial, by way of import duties, WHT's, as well as the potential revenue stream that would be created post any discovery for Timor-Leste by way of royalties, petroleum taxes and state participation by ANPM and Timor Gap E.P.

The impact assessment technique used determines that most identified impacts are classed as having a "Moderate" significance level which are reduced to "Minor" on the application of mitigation measures. Those identified as "Minor" were subsequently reduced to "Negligible" on application of residual measures. The singular exception relates to a catastrophic oil spill which would result in a "Major" impact, that is, potentially long term and affecting a larger regional area beyond the site, this mitigated by the implementation of an oil spill contingency plan and the emergency response and incident management plans, reducing the impact to "Moderate".

Positive impacts include:

Employment - 150 -180 positions will be filled by Timorese nationals during the whole of the drilling campaign in both PSCs. There will be a combination of skilled and unskilled positions, in the drilling crews, civil construction crews, geological teams, security teams, catering and services for the drilling contractor as well as a host of unskilled positions for labourers, cooks, cleaners and administration staff.

Employment opportunities will be advertised, and the unskilled positions will be filled by the recruitment of the local community.

Skilled positions will be filled from domestic and international markets, with a bias towards on the job training to capacity build and increase skills of the domestic work force, in Timor Resources' efforts to facilitate the employment of Timorese nationals.

The locally experienced workforce will be competitively recruited to work alongside expatriates during the Drilling campaign and there will be training for the "shadow program" whereby Timorese persons can learn on the job skills, to be eligible to take over from an expatriate employee, when the level of competency has been achieved that allows for the national worker to productively contribute to the work program in the drilling crew.

Negative implications are limited, however this activity may result in the following negative impacts:

Traffic - An increase in traffic may create a nuisance and potential impact on the safety of other road users, however, this is a short programme temporary in nature and the transient nature of the project limits potential effects.

Soil - Removal of topsoil and soil compaction will occur largely during the construction phase, the effect will continue through operations until sites are decommissioned and rehabilitated.

Air Quality - during construction dust may cause nuisance and impact on the community and fauna and flora immediately near to the project site. Short construction programme, with very low levels of diesel usage limit this impact.

Gaseous emissions during rig operations may create a nuisance and minor impact in the immediate area around the project site. A short drilling programme (30 drilling days) and low levels of diesel usage in the region 5000L/day or 150 tonnes diesel for the duration of the well limit impacts.

As in the construction phase, dust may cause a nuisance when decommissioning, but this again will be short term and temporary. Short decommissioning period, impacts are considered short term and transient.

Solid Waste - by the nature of the project, solid wastes will arise, waste management will provide the best available solution for waste management, however, the principal method of incineration will result in emissions to the atmosphere. Also, by nature of the project such emissions will be short term. A Waste Management Plan (WMP) is completed and takes into account the existing elimination processes for treating or eliminating, partly or fully, all waste generated by the project.

Noise - drilling operations will be conducted on a 24 hour, 7 day per week basis so may cause a short term nuisance for local communities and wild life, but the duration is 30-40 days, thus is short term and transient.

The impact assessment fully reflects that the project is limited spatially to the drilling location and immediate surrounds and is short term and transient in nature, thus, there is limited potential to cause any significant or permanent impacts. Any negative residual impacts are considered inconsequential compared to the benefits generated.

7.3.3 Corporate Social Responsibility (CSR) Programs

Timor Resources has implemented a number of community programs, including horticulture, gifted seeds, irrigation and financial support. The supply of irrigation and water infrastructure has been the focus of Company support during seismic and is continuing during the drilling campaign.

Support for local sporting competitions, teams and local events is another community contribution. The sponsoring of the Manufahi Cup, the Tour de Dili, and the local community football and soccer federations.

The road leading to the site is subject to a community improvement project ahead of project initiation in the PSC.

7.3.4 Grievance Management

Providing effective channels for expressing and resolving grievances and concerns reduces the risk of escalation and ensures we address community concerns appropriately.

Community members can raise matters at any of our sites through the local community liaison officers or during routine visits by our Community Affairs team. We record the grievance centrally, assess it for potential risk or impact, and elevate or respond to it accordingly. Material grievances are reported to the senior management team. This approach ensures grievances relating to our activities can be raised easily and in a culturally appropriate manner.

7.3.5 Social Impact Management

The project will have a significant multiplier effect for the community and the Country at large. The positive impacts are identified as employment; consumption of local goods and services, paying of local taxes and import duties as well as the benefit of the CSR program Timor Resources has and will continue to be undertaken during the project.

Timor Resources activity will attract spending onshore that exceeds will stimulate the domestic economy during this drilling campaign. Economic activity can be tracked and monitored under the following positive impact categories.

7.4 Conclusions and Recommendations

Mitigation measures have been proposed for all the residual impacts identified aimed at protecting the physical, biological, and socio-economic environments. This Environmental Management Plan (EMP) has been developed to manage the potential impacts of the proposed activities to as low as reasonably practicable and ensure that they remain at acceptable levels throughout the course of the program.

The EIA process has identified that the project is limited spatially and is short term and transient in nature with limited potential to cause any permanent or significant impacts. The negative residual impacts are considered inconsequential compared to the benefits generated, hence, the Environment Authority is requested to license the project.

The project is viable subject to the EMP being followed and complying with all other statutory requirements that the project subscribes to.

Key recommendations are as follows:

1. Implement a Redress and Grievance Procedure that will be used throughout the project.
2. The Community Liaison Officer will maintain continuous engagement with all stakeholders and keep communities informed at all stages of the project in regard to activities, schedules and potential impacts.
3. All activities to be conducted in compliance with Timor-Leste laws including but not limited to: Law No.3 2012 - Legislative Authorisation in Environmental Matters; Law No 26 2012 - Environmental Basic Law; Decree-Law No.18/2020 - Onshore Petroleum Operations.
4. All activities to be conducted in compliance with Timor Resources HSE policy and Operating Management System Standards.
5. Consult with local administration and security agencies for support on security issues.
6. Liaise with the local community during the recruitment process.
7. Implement a Waste Management Plan and agree waste management practices and facilities in consultation with the Municipality.
8. Wastes should only be transported by an approved waste transporter agreed in consultation with the Municipality.
9. Implement a Traffic Management Plan and enforce traffic speed limits to minimise dust generation.
10. Make use of the existing access roads to the maximum extent possible.
11. Minimise vegetation clearance.
12. Prepare Rehabilitation Plan at the decommissioning stage.
13. Implement Noise and Air Quality Management Plans.
14. Implement Incident management system: Crisis Management Plan - Corporate, Incident Management Plan - National, and Site Emergency Response Plan and Oil Spill Contingency Plan - local.

8 POTENTIAL ENVIRONMENTAL IMPACTS AND MANAGEMENT MEASURES

8.1 Environmental Performance Objectives, Standards and MEASUREMENT CRITERIA

The approach adopted in this EMP is that identified potential environmental impacts are to have an associated environmental performance objective. An environmental performance objective is defined by ISO 14001 as "overall environmental goal, consistent with the environmental policy, that an organization sets itself to achieve".

- For impacts where there is low residual environmental impact, the objective may be focussed on the processes and procedures necessary to ensure adequate controls are applied for reducing risk to ALARP
- For impacts where there is a moderate or greater residual environmental impact, the performance objective is to directly relate to protection of the environmental feature(s) at risk.

Environmental performances standard (referred to as environmental targets within ISO 14001) are defined as "detailed performance requirement, applicable to the organisation, that arises from the environmental objectives that needs to be set and met in order to achieve those objectives". The approach adopted in this EMP is to:

1. Set clear performance objectives that are directly related to the forecast or potential environmental impact
2. Describe the measures (methods) that will be taken to achieve the objective(s)
3. List the relevant performance standards that will be met or applied in carrying out the measures, noting that each of the standards identified may apply to more than one of the objectives or methods described. Where specific quantitative values are provided in the standards these are identified.
4. Identify quantitative criteria to indicate whether environmental objectives and standards have been met.

The proposed mitigation and management measures that will be implemented to reduce impacts to an acceptable level and ALARP are presented in the following sub-sections of this Environmental Management Plan.

8.2 COMMUNITY CONSULTATION AND ENGAGEMENT

8.2.1 Summary of Social Impact Analysis

Community consultation and engagement is described in Section 9.3.9 and Section 13 of the EIS document and Section 16 of this document. The project will cause various interactions with the local community through all phases including impacts related to employment, local services and community programmes; and environmentally related negative impacts within sections describing impact associated with land use, traffic, air quality and noise.

Other potential impacts on the local community relate to safety issues and the requirement for the local population to be made aware of various operational hazards, such as road safety, keeping a safe distance from the well site, and understanding hazards. Various programmes will be established to ensure the community are aware of hazards and emergency plans, in addition, a complaints/grievance mechanism will be established to ensure an open, two-way dialogue. The Community is an integral part of Timor Resources management of the project and understanding perceptions, expectations and concerns are central to the process.

To date Timor Resources has been involved in various engagement programmes in regard to both the seismic and the forthcoming drilling projects. Consultation was carried out through an individual approach, in small group discussions, community meetings and through public consultation. Affected individuals or families were directly approached in the case of land use or farmland use as drilling sites. Small group gatherings were also carried out with local elderly to discuss on the cultural ceremony requirements and, with local authorities, to disseminate information and discussion on public consultation.

The Public Consultations were conducted by means of direct meeting between the project owner, stakeholders and the general public, local institutions and other interest parties. The facilitator and the project owner directly presenting the material to the participants with a specific section dedicated to question and answer.

8.2.2 Objective

The potential impacts to community are either minor or positive therefore the objective is focussed on processes and procedures for ensuring adequate communication and engagement for reducing impact to as low as reasonably practicable.

8.2.3 Mitigation and Control Measures

The planned mitigation and control measures are:

- Contact local stakeholders early in the process to identify sensitive land areas, land uses, issues, and local plans and any local regulations.
- Site the project on previously disturbed land whenever possible.
- Depending on the individual site, consider steps to minimise the amount of vehicular traffic and human activity.
- Provide adequate public notice of planned activities.

- Establish a rehabilitation plan (encompassed within Appendix B Land Use and Rehabilitation Plan) that addresses both interim and final rehabilitation requirements and agree after-use if applicable.
- Ensure that interim rehabilitation of disturbed areas is conducted as soon as possible.
- Restricting removal of vegetation and soil cover to those areas necessary for the project.
- All topsoil removed is retained offsite for future re-instatement
- Manage storm and flood flash water effectively to avoid movement or loss of soils.
- Work areas will be clearly defined and demarcated, to avoid unnecessary disturbance on areas outside the project footprint.
- Preventing pollution of ground from servicing of vehicles and wastes by having specific sites for collection, sorting and transport of wastes.
- Construction vehicles should remain on designated roads and should avoid off-site driving.

8.2.4 Community Consultation and Engagement: Performance Objectives, Standards, and Measurement Criteria

Performance Objectives	Methods	Standards	Measurement Criteria
Ensure local communities are aware of planned drilling activities	Specific information on drilling program activities shall be made available via project sites, community centres or municipal information board/conference room	Environmental (Licensing) Decree Law No.5/2011 - Specific provisions for public consultation and the protection of the traditional customs and cultural practices Diploma Ministerial No.44/2017 – Impact Benefit Agreement The IFC Procedure for Environmental and Social Review of Project: Guidance Note F: Guidance for Preparation of a Public Consultation and Disclosure Plan [https://www.ifc.org/wps/wcm/connect/] IFC, Addressing Grievances from Project-Affected Communities [https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_gpn_grievances] United Nations, Guiding Principles on Business	Copies of information notices and records of distribution to community centres and municipal information board/conference room.
Establish positive, co-operative relationships with relevant government agencies and surrounding communities with the aim of ensuring key stakeholders are informed of TR performance	Provide a transparent and consistent process for resolving complaints and grievances against TR		All complaints and grievances will be entered into the grievance register kept by Timor Resources. Records of formal response (verbal or written) within 14 days of the date on which the Grievance Form was recorded in the Grievance Log/Database. Photos and/or other documentary evidence will be collected as record of the grievance and how it was resolved.

Performance Objectives	Methods	Standards	Measurement Criteria
		and Human Rights (article 21) [https://www.ohchr.org/documents/publications/guidingprinciplesbusinesshr_en.pdf] Appendix I - Community Consultation and Engagement Plan	

8.3 Land Use and Rehabilitation

8.3.1 Summary of Environmental Impact of Land Use

Appendix B Rehabilitation Plan provides detailed description of rehabilitation methods to minimise effect of drilling operations on land use.

Land use (described in Section 9.3.2 of the EIS document) can result in a variety of environmental impacts. The term "land use" includes both direct land use and indirect impact on the community and also soil related aspects resulting from land disturbance throughout all project phases: pre-project/ construction, operations and decommissioning. Appendix B: Land Use and Rehabilitation Plan presents' detailed description of management practices to mitigate and control environmental impacts associated with land use and rehabilitation.

The well leases are approximately 1 hectare and, where on private land, a short-term rental payment is negotiated with the landowner. Access road requirements vary depending on the well location, but leasing will be conducted in the same manner as the well site. Section 4.4.3 of the EIS document provides detailed maps of the drilling location delineating existing and the new access road, the major drainage systems (catchment to the well site and out flow), urbanised areas and other infrastructure boundaries.

Land use impacts may occur throughout the project phases. There is potential for conflicts with existing land use such as habitation, agriculture, forest, grazing lands, etc., and where the drilling rig occupies the land. Timor Resources have selected the well location to avoid use of inhabited or productive land and where practicable has been sited to occupy land that is already disturbed.

Construction activities will involve vegetation clearing, levelling and soil compaction. The main environmental impacts of these works are:

- Loss of vegetation and habitat;
- Loss of topsoil productivity; and
- Soil compaction.

Secondary effects are increased susceptibility of soil to erosion (addressed in Section 8.6), and potential contamination of soils with petroleum products (addressed in Section 8.5).

The displacement of local fauna is directly related to activities of clearing because it involves the loss of their habitat. Larger more mobile species, such as the endangered *Cervus Timorensis* and *Phalanger Orientalis* (should they happen to be at the drill location construction area), will be likely be displaced to adjacent areas or have their normal range area reduced. The consequence of this temporary displacement or reduction in range is unlikely to be significant because of the relatively short duration of drilling activities. In contrast smaller and less mobile animals, such as lizards, that may rely on the vegetation for shade or as a refuge from predators will be significantly affected.

8.3.2 Objective

The likely consequences of land use are small when considering the short nature of the project, relatively wide distribution (compared to the area of the well site) of the potentially affected flora and fauna. The significance of the residual impact associated with land use are Minor (refer to Section 9.3.2.1 of the EIS document) therefore the objective is focussed on processes and procedures for ensuring adequate controls are applied for reducing impact and risk to ALARP.

8.3.3 Mitigation and Control Measures

The planned mitigation and control measures are:

- Contact local stakeholders early in the process to identify sensitive land areas, land uses, issues, and local plans and any local regulations.
- Site the project on previously disturbed land whenever possible
- Clearing vegetation only in construction areas and demarcating areas where no clearing will happen.
- Vehicles coming into the site must use designated roads
- Depending on the individual site, consider steps to minimise the amount of vehicular traffic and human activity.
- Provide adequate public notice of planned activities.
- Establish a rehabilitation plan (encompassed within Appendix B Land Use and Rehabilitation Plan) that addresses both interim and final rehabilitation requirements and agree after-use if applicable.
- Ensure that interim rehabilitation of disturbed areas is conducted as soon as possible.
- Restricting removal of vegetation and soil cover to those areas necessary for the project.
- All topsoil removed is retained offsite for future re-instatement.
- Manage storm and flood flash water effectively to avoid movement or loss of soils.
- Work areas will be clearly defined and demarcated, to avoid unnecessary disturbance on areas outside the project footprint.
- Preventing pollution of ground from servicing of vehicles and wastes by having specific sites for collection, sorting and transport of wastes.

- Construction vehicles should remain on designated roads and should avoid off-site driving. Setting aside topsoil during earthmoving and replacing onto areas where the reestablishment of plant cover is desirable to prevent erosion if it was necessary will encourage rapid regeneration of plant cover.
- Implement a tree-planting program to offset loss of trees due to the construction phase.
- Clearing vegetation only in construction areas and demarcating areas where no clearing will happen.
- Soil originally removed in the construction phase and stored will be returned upon restoration of the drill site and access road if necessary.
- Drains will be installed, and drainage patterns will be re-established to prevent erosion.
- The well site and road are either left to an agreed after-use or rehabilitated following drilling. If the well is successful, the area will be reduced to the minimum size necessary in discussion with the authorities and the landowner.
- During restoration and rehabilitation of the well site and the access road, the site will be ripped before returning of the stockpiled topsoil.
- Soil profile and contours will be reinstated upon completions of decommissioning phase.

8.3.4 Land Use and Rehabilitation: Performance Objectives, Standards, and Measurement Criteria

Performance Objectives	Methods	Standards	Measurement Criteria
Minimise loss of natural vegetation	Select well site to avoid environmentally sensitive land areas and utilise previously disturbed areas where practical to do so. Well site to be limited to1 hectare in area. Work areas will be clearly defined and demarcated, to avoid unnecessary disturbance on areas outside the project footprint	Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007) IOGP (E&P Forum) and UNEP (1997). Environmental Management in Oil &Gas Exploration and Production 1997. IOGP Report No. 254 IECA Best Practice Erosion and Sediment Control Guideline 2008 Appendix B: Land Use and Rehabilitation Management Plan	Inspection shows the well location sited to maximise use of previously disturbed land Inspection shows the well site are no greater than 1 hectare in area. Inspection shows work areas clearly defined and marked to prevent unnecessary disturbance
Minimise displacement or mortality of fauna.			
Minimise area of disturbance to smallest practicable footprint			
Rehabilitate areas of land disturbed by drilling activities	Stockpile and retain topsoil offsite for re-instatement Commence topsoil replacement as soon as		Survey 12-months post drilling shows that land has been re-instated to reflect the natural ecosystem/s, or establish an alternative outcome that is

Performance Objectives	Methods	Standards	Measurement Criteria
	practical to do so after completion of drilling activities. Soil originally removed in the construction phase and stored will be returned upon restoration of the drill site and access road if necessary. Drains will be installed, and drainage patterns will be re-established to prevent erosion. Well site and access road are either left to an agreed after-use or rehabilitated following drilling. If the well is successful, the area will be reduced to the minimum size necessary in discussion with the authorities and the landowner. During restoration and rehabilitation of the well site and access road, the site will be ripped before returning of the stockpiled topsoil. Soil profile and contours will be reinstated upon completions of decommissioning phase		commiserate with the surrounding land use e.g., vegetation growing, cropping, Post-rehabilitation inspection demonstrates that significantly disturbed areas are rehabilitated to the following criteria in comparison to surrounding land use: • Greater than, or equal to, 70% native groundcover species richness. • Greater than, or equal to, total percent of original groundcover. (Note. The original condition of the location or analogue sites are to be used to determine levels of species composition and richness, and to assist in reaching the specified rehabilitation success criteria).

8.4 PROTECTION OF FLORA AND FAUNA (CUMULATIVE IMPACTS)

8.4.1 Summary of Environmental Impact

8.4.1.1 Land Use

Four transects were walked at the well location and detail is provided of the biodiversity, flora, and fauna observed along each. Locations of the transects are shown on satellite images.

- **Biodiversity:** the immediate well site includes secondary forest, primary forest, savanna, teak plantation, including agricultural farmland and landscape area. The existing natural resources at the well site has no critical habitat according to national legislation and per the Ramsar Site international agreement.
- **Flora:** Plants identified at the well location include C*asuarina sp, Acasia sp, Ziziphus sp, Scleoreza oliosa, Corypha elata, Ficus sp, Timonia timun, Sterculia foetida, Toona sureny, Nauclea orientalis*, *Tectona grandis* and *Gmelina arborea*. None are classed as threatened or with limited geographical expansion in accordance with IUCN Red List. Parcel 5 from track 1 at a distance of 1.2 km from Rusa-1, identified *Pterocarpus indicus* as Near Threatened species (NT).
- **Fauna:** Parcel 5 from track 1 at a distance of 1.2 km from Rusa-1, identified a secondary ecosystem that is an important habitat for 26 bird species, particularly *Turacoena modesta* and *Aprosmictus jonquillaceus* considered Near Threatened (NT). Mammals and reptiles species identified outside the Rusa-1 location include: *Macaca Facicularis (NT), Phalanger orientalis (VU)* and *Gekko gecko, Trimeresurus insularis, Greater reticulated phyton, Crocodylus sp, Turtle sp, Hydrophis sp.* Bird species of limited geographic expansion (rr) or rare species identified in centre Rusa-1 location such as: *Philimon inornata (NT) no Saxicola Gutturalis (NT),* 6 species with limited geographic expansion (rr)

The drilling activities will not cause significant negative impacts since species identified will migrate to the same type of forest in another similar area if disturbed during the short programme, because their distribution is categorised as widespread residence, i.e., they can move out to other locations when drilling activities are being carried out.

Construction activities will involve vegetation clearing, levelling and soil compaction. The main environmental impacts of these works are.

- Loss of vegetation and habitat,
- Loss of topsoil productivity; and
- Soil compaction.

Secondary effects are increased susceptibility of soil to erosion (addressed in Section 8.5).

The displacement of local fauna is directly related to activities of clearing because it involves the loss of their habitat. Likewise, in the construction stage the presence of vehicles, machinery, heavy equipment (for the formation of the drilling platform and the construction of drilling facilities), sounds, as well as the presence of workers in the area may cause a significance

disturbance on local fauna. Larger more mobile species, such as the vulnerable *Phalanger Orientalis* and Near Threatened *Macaca facicularis* (should they happen to be at the drill location construction area), will likely be displaced to adjacent areas or have their normal range area reduced. The consequence of this temporary displacement or reduction in range is unlikely to be significant because of the relatively short duration of drilling activities.

8.4.1.2 Light and Noise

The effect of noise and light pollution to larger animals such as *Phalanger Orientalis* and *Macaca facicularis* (should they happen to be at or passing the drill location), will likely be temporary displacement and loss of access to the drilling location. The consequence of this temporary displacement or reduction in range is unlikely to be significant because of the relatively short duration of drilling activities.

Noise and light pollution affect birds through avoidance of noisy areas and change in vocal communication (Ortega. 2102). However, whether these behavioural changes affect fitness is less clear, as is how and why species vary in their sensitivity to these stressors. No data is available describing noise and light impacts to the bird species present or likely to be present at the drilling location (detailed in section 6.2.6 of the EIS) hence it is necessary to take a conservative approach and assume that they would be negatively affected if present in the area. However, the potential consequences are mitigated by the relatively short duration of the drilling activities and the small footprint of impact. It is considered unlikely that drilling activities will cause significant negative impact to identified bird species around the well site because firstly; the normal distribution of those bird is widespread, and the total area of habitat affected is only very small portion of their natural range and secondly the duration of disturbance is relatively short.

8.4.2 Objective

The significance of the residual impact to flora and fauna is minor therefore the objective is focussed on processes and procedures for ensuring adequate controls are applied for reducing impact and risk to ALARP.

8.4.3 Mitigation and Control Measures

The planned mitigation and control measures (in addition to measures identified to prevent impacts from specific sources described in other parts of Section 8) are:

- Minimise land clearance activities. Management measures to minimise land clearing and to rehabilitate the area after completion of drilling are separately addressed in Section 8.3 of this document and Appendix B Land Use and Rehabilitation Plan.
- Site the project on previously disturbed land whenever possible.
- Education on the importance of flora and fauna in the areas, including the appropriate regulatory requirements.
- Turn off all unnecessary lighting at night to avoid disturbing wildlife and migratory birds.

- Ensure protection of important resources by establishing protective buffers to exclude unintentional disturbance.

8.4.4 Protection of Flora and Fauna: Performance Objectives, Standards, and Measurement Criteria

Performance Objectives	Methods	Standards	Measurement Criteria
Minimise loss of natural vegetation	Select well site to avoid environmentally sensitive land areas and utilise previously disturbed areas where practical to do so. Well site to be limited to1 hectare in area. Work areas will be clearly defined and demarcated, to avoid unnecessary disturbance on areas outside the project footprint	Decree Law No. 26/2012 on Basic Environmental Law United Nations Convention on Biological Diversity (UNCBD) Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007) IOGP (E&P Forum) and UNEP (1997). Environmental Management in Oil &Gas Exploration and Production 1997. IOGP Report No. 254 IECA Best Practice Erosion and Sediment Control Guideline 2008 Appendix B: Land Use and Rehabilitation Management Plan	Inspection shows that location sited to maximise use of previously disturbed land Inspection shows well site are no greater than 1 hectare in area. Inspection shows work areas clearly defined and marked to prevent unnecessary disturbance
Minimise displacement or mortality of fauna.	Turn off all unnecessary lighting at night to avoid disturbing wildlife and migratory birds. Ensure protection of important resources by establishing protective buffers to exclude unintentional disturbance. Promote awareness of flora and fauna protection by providing workforce with information on protection of environment and wildlife and sustainable use of natural resources		Inspection shows lighting kept to minimum necessary for safe work practise. Inspection shows areas of environmental significance clearly identified and demarcated from work areas. Records of environmental awareness training demonstrate staff instructed in measures to protect flora and fauna.

8.5 LIQUID WASTE MANAGEMENT

8.5.1 Summary of Environmental Impact of Liquid Waste

Appendix A Waste Management Plan provides detailed methods for avoiding and mitigating impacts from waste, including liquid wastes, generated during all phases of the drilling operations.

Liquid wastes (described in Section 9.3.6.1 of the EIS document) will arise from a variety of sources. Appendix A: Waste Management presents detailed description of waste management practices. Liquid wastes generated and the actual or potential environmental impact are summarised below and discussed more fully in the EIS document.

- **Runoff of rainwater, firewater and dust suppression water**: If excessive sediment loads are lifted from the ground and introduced into streams or irrigation channels through erosion it can have the effect of altering natural patterns of water flow and consequently the supply or drainage with consequential effects to agriculture or natural water bodies.
- **Septic system discharge**: Septic system discharge is high in soluble nitrogen and phosphorus and other nutrients (Na, K, Cl, B and Mn) and represents a source of nutrient emissions to surface waters, however these nutrients are progressively retained by soil particles and assimilated by microflora as they migrate through the soil.
- **Drilling muds**: The mud system to be used (described in Section 4.4.1.2.2 of the EIS document) is a Potassium Chloride / Polymer mud. Whilst some individual components pose limited safety hazards, (two components are caustic and will be treated as hazardous materials), the “whole mud” when made up is non-toxic and does not pose a potential environmental impact. Potassium Chloride / Polymer mud is a widely accepted water-based mud system for drilling water-sensitive shales, with PHPA (partially hydrolysed polyacrylamide) the polymer. It is classified as low toxicity and is commonly used as a flocculant in water and wastewater treatments.
- **Leaks and minor spillages** in the hazardous area of the rig can lead to contamination of surface water and groundwater with consequential toxic impacts to flora and fauna.

8.5.2 Objective

The risk analysis indicates that the residual impact of liquid wastes is minor (refer to Section 9.3.6.1 of the EIS document) therefore the objective is focussed on processes and procedures for ensuring adequate controls are applied for reducing impact and risk to ALARP.

8.5.3 Mitigation and Control Measures

The planned mitigation and control measures are:

- Open drains on the rig floor will collect any oily residues and discharge to the mud pit.
- Rainwater and wash down water within the well site will routed via the perimeter drain to an interceptor where oil is separated.

- Sewage will be collected and treated in a standard field septic system and the effluent discharged to the ground through a trickle feed weeping tile. The septic system will be sited at least 1 km from any wetland areas.
- The drilling rig will have a test separator to process any produced fluid from well testing operations. Any produced liquids will be stored in tanks and transported to existing facilities for processing.
- Drill fluids will be retained in secure pit for re-use or disposal.
- Refuelling will occur in a designated fuelling area that includes a temporary berm to limit the spread of any spill.
- Rig design incorporates leak minimisation and drainage containment systems to ensure that spillages do not enter the environment.
- All chemicals and fuel on site will be stored in bunded impermeable areas with adequate shading.
- Correct storage, handling, use and transportation of chemicals will be followed according to manufacturer's specifications, material safety data sheets and regulations.
- Provide a Hazardous Substance SOP for chemicals management in compliance with company rules and national standards.
- No disposal of unused chemicals, all excess materials will be quantified and recorded and returned to the vendors.

Note: all spills are to be reported to ANPM in accordance with the Oil Spill Contingency Plan (Appendix D).

8.5.4 Liquid Wastes: Performance Objectives, Methods, Standards, and Measurement Criteria

Performance Objectives	Methods	Standards	Measurement Criteria
No nutrient enrichment of natural water course or wetland from septic system discharge	Utilise recognised methods for construction of septic systems. Locate septic systems distant form any natural water course	Decree Law No.33/2008 – Hygiene and Public Order IFC (2007). 'Environmental, Health, and Safety Guidelines: Onshore Oil and Gas Developments' IPIECA (2016). Oil spills: inland response good practice guidelines for incident management and emergency response personnel IOGP (2009). Guidelines for waste management with special focus on areas with limited infrastructure Report No. 413, rev1.1 September 2008 (updated March 2009) Appendix A: Waste Management	Records of Total N and Total P concentrations taken at natural water course downstream of well site demonstrate concentrations are not significantly different from samples taken upstream of well site
No contamination of water runoff from well site	Open drains on the rig floor will collect any oily residues and discharge to the mud pit. Leaks and spills of hydrocarbons or chemicals are retained with well site and disposed of in manner that minimises potential environmental impact		Inspection shows a perimeter drainage ditch constructed around each drill location to prevent escape of contaminated liquids.

Performance Objectives	Methods	Standards	Measurement Criteria
No hydrocarbon contamination of water bodies from test production	The drilling rig will have a test separator to process any produced fluid from well testing operations. Any produced liquids will be stored in tanks and transported to existing facilities for processing	Plan International Erosion Control Association, • 'Flow control berms' [https://austieca.com.au/documents/item/288] • 'Straw bale barriers' [https://austieca.com.au/documents/item/273] • 'Storm water outlets sediment traps' [https://austieca.com.au/documents/item/266] Queensland Government Water sampling Guidelines • Monitoring and Sampling Manual [https://environment.des.qld.gov.au/__data/assets/pdf_file/0031/89914/monitoring-sampling-manual-2018.pdf] ASTM D 1593 Standard Specification for Nonrigid Vinyl Chloride Plastic Film and Sheeting minimum thickness of HDPE liner to be 0.75mm	Inspections shows test separator fully functioning and used to capture produced fluids during well test
No hydrocarbon contamination of water bodies from refuelling activities	Refuelling to take place in a designated fuelling area that includes a temporary berm to limit the spread of any spill.		Inspection shows refuelling area marked on site plan
No leakage or spill of drilling fluids from mud pits	The type of soil and the natural ground water elevation are determined to inform design of pits. Pits are constructed in accordance with recognised best practise. If pit walls need to be constructed from fill materials, the earthwork procedure will require controlled compaction of good quality fill material to ensure slope stability. Pit design incorporates the allowable side slopes based on the type of soil and pit floor to be above the natural ground water table. Pits are large enough to contain forecast volumes under all conditions. Impermeable membrane is installed to prevent liquid entering the surrounding ground.		Inspection shows well test fluids stored in secure containers Documented record shows geotechnical investigation at the mud pit location to determine the soil properties for design completed prior to construction. Records show pit design has been approved by Civil Engineer, who is competent in the field of geotechnical engineering. Inspection shows pits are lined internally with seam welded High Density Polyethylene (HPDE) membrane and comply with minimum thickness. Inspection shows that wherever the wellsite terrain permits, the pits are to be excavated in original ground to minimise the need to construct full depth pit walls from fill materials
Prevent leakage and small spills	Rig design incorporates leak minimisation and drainage containment systems to ensure that spillages do not enter the environment.		Inspection demonstrates effective spill/leak containment systems are in place
Prevent chemical contamination of	All chemicals and fuel on site will be stored in		Inspection demonstrates all chemicals and fuel on site

Performance Objectives	Methods	Standards	Measurement Criteria
groundwater	bunded impermeable areas with adequate shading. Correct storage, handling, use and transportation of chemicals will be followed according to manufacturer's specifications, material safety data sheets and best practise		is securely stored in bunded area(s) in accordance with safety data sheets and best practise. Records demonstrate that all chemicals used have been approved by ANPM.

8.6 Water Quality Management

8.6.1 Summary of Environmental Impact

The potential environmental effects occurring as consequence change in water quality related to water as a resource and impacts on flora and fauna in natural watercourses.

Water as a resource: If excessive sediment loads are introduced into streams or irrigation channels through erosion it can have the effect of altering natural patterns of water flow and consequently the supply or drainage of water.

Contamination of the groundwater during drilling may potentially restrict normal use of groundwater by other community or industry groups.

Surface water that falls on the site will be directed to a watercourse on the downstream side of the lease. Potential impacts to surface water quality are contamination from leaks and spills (addressed in Sections 8.5 and Section 8.6 of this document), or increased sediment load into natural water bodies from soil erosion or dust settlement (addressed in this Section).

Flora and fauna: During construction and operation, storm water runoff will be managed to prevent erosion of the road and slopes of the well pad. Such soil erosion, if allowed to reach watercourses, could adversely affect water quality through increased turbidity, increased sedimentation and possibly the introduction of chemical contamination from areas outside of the drill location. Turbidity from suspended particles is a natural occurrence in water bodies, however, extended periods of high turbidity can cause reduction in light necessary for photosynthesis by phytoplankton and aquatic plants. It can also adversely affect fish health through irritation of gill membranes.

Each drilling location will have berms to divert natural surface water run-off around the site and minimise disruption of natural flow patterns.

There is no planned discharge to groundwater. Potential impacts to groundwater are discussed in Section 8.5.4 Liquid Waste Management.

8.6.2 Objective

The risk analysis indicates that the residual impact of water quality change is minor (refer to Section 9.3.4.1 of the EIS document) therefore the objective is focussed on processes and procedures for ensuring adequate controls are applied for reducing impact and risk to ALARP.

8.6.3 Mitigation and Control Measures

- Minimise the planned amount of land to be disturbed as much as possible by use of existing roads.
- Identify and avoid unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure).
- Natural watercourse across well site is diverted around well site to re-join downstream of well site.
- Surface water discharge points will be designed to minimise potential for soil erosion installation of erosion protection infrastructure, eg spoon drains, straw-bale fencing and contouring
- If soil erosion becomes evident the area will be stabilised with mulched vegetation
- Refuel in a designated fuelling area that includes a temporary berm to limit the spread of any spill.
- Closely monitor construction near aquifer recharge areas to reduce potential contamination of the aquifer.
- Any discharge of grey water should be treated first to avoid contaminating water sources.
- Upon completion of the decommissioning phase, disturbed areas will be contoured and vegetated to minimise the potential for soil erosion and water quality related impacts.
- Temporary sediment and erosion control measures such as sediment fences installed where necessary especially in areas in close proximity to drains or surface water features to avoid runoff to water source.
- Any area artificially elevated via pad or access track construction will be lowered to original ground level by removal of paving material unless otherwise instructed by the landowners.
- Original drainage patterns will be restored during decommissioning.

Note: all spills are to be reported to ANPM in accordance with the Oil Spill Contingency Plan (Appendix D).

8.6.4 Water Quality: Performance Objectives, Standards, and Measurement Criteria

Performance Objectives	Methods	Standards	Measurement Criteria
Prevent erosion and/or alteration of natural water course.	Natural watercourse across well site is diverted around well site to re-join downstream of well site.	WHO drinking water standards (2011) – refer to Section 9.4 for quantitative limits. IFC (2007). 'Environmental, Health, and Safety Guidelines: Onshore Oil and Gas Developments' IOGP (2009). Guidelines for waste management with special focus on areas with limited infrastructure Report No. 413, rev1.1 September 2008 (updated March 2009) Appendix A: Waste Management Plan International Erosion Control Association, • 'Flow control berms' [https://austieca.com.au/documents/item/288] • 'Straw bale barriers' [https://austieca.com.au/documents/item/273] • 'Storm water outlets sediment traps' [https://austieca.com.au/documents/item/266]	Records indicate that topographical study of well site completed and diversion planned and implemented to maintain natural water course as far as reasonably practicable. Inspection shows drainage ditches are only constructed where necessary. Culvert outlets are constructed to minimise potential erosion.
	Diversions are constructed to minimise and capture sediment erosion		
	Natural water course is re-instated during decommissioning		Records and decommission inspection shows natural water course has been re-instated
	Erosion protection infrastructure, eg spoon drains, strawbale fencing and contouring will be installed to ensure that sediments are retained within site boundary as far as is practicable		
	If soil erosion becomes evident the area will be stabilised with mulched vegetation		
Prevent contamination of surface water.	Refer to Section 8.5.4		
Prevent contamination of groundwater from spills or leaks	Refer to Section 8.5.4		
Prevent pollution of groundwater from residual drilling muds	Refer to Section 8.5.4		

8.7 SOLID WASTE MANAGEMENT

8.7.1 Summary of Environmental Impact of Solid Waste

Appendix A Waste Management Plan provides detailed methods for avoiding and mitigating impacts from waste generated during all phases of the drilling operations.

Solid wastes (described in Section 9.3.6.2 of the EIS document) will be generated during construction, drilling, and decommissioning operations. Improper management of solid and liquid wastes may result in pollution and contamination of the environment. There is also the potential for secondary impacts on fauna that may interact with wastes, such as packaging and binding, should these escape the well site. Appendix A: Waste Management presents detailed description of waste management practices. The solid wastes generated will include:

- Dry domestic waste, typically comprised of general hotel management type wastes from the camp such as paper, disposable cups, food waste, packaging etc. During the drilling project typical waste arising of 5 tonnes per week will occur. A site near to Haemanu camp has been assigned by the Municipality for use as a waste reception facility and will be used for collection, sorting, storage and treatment of wastes arising from the short programme. The environmental concerns with incineration are health effects (primarily related to particulates, SO_2, NO_2 and CO) and greenhouse gas emissions. The incinerator is an Inciner8 model constructed in the United Kingdom to European Union Standards. The incremental concentration of pollutants from such incinerators is far below the ambient air quality guidelines of the WHO.

- Industrial organic wastes including paper, wood, oily rags, non-metallic oil filters, absorbent pads, plastic wraps, packing materials, sludge and various small amounts of other flammable materials. All industrial organic wastes will be incinerated with potential environmental effects similar to that described for dry domestic waste.

- Industrial inorganic wastes risings from normal operations will include discarded wire, scrap metals, paint and thinner, rags, cans, plastics, spent filtration cartridges, chemical drums, metallic filters, glass items and batteries. Once again typical amounts that will require disposal will be small, less than a tonne for the full project. Industrial inorganic wastes will be disposed of via local facilities for scrap metals and special wastes (e.g. batteries, used drums etc.). Wastes will be segregated onsite before reclamation.

- Medical waste will be properly stored in biohazard medical waste containers and managed by the rig medic; arrangements have been made to dispose of the small levels of medical waste at the Suai hospital.

- Drill cuttings from the well. It is expected that 250m^3 - 300m^3 will be generated from the well (note that cuttings expansion taken as x 2.5).

- Drums and containers, metal and plastic containers are used for a wide range of lubricants and chemicals and the accumulation and disposal of these can be problematic. Drums and containers inevitably contain variable quantities of residues, the environmental impact of which is dependent on the contents.
- Scrap metals, these are inert and represent a potentially valuable resource for recycling.
- Hazardous waste is defined as material that is explosive, poisonous or an irritant, flammable, toxic, carcinogenic or corrosive. Due to their hazardous properties, materials in this waste stream must be dealt with separately from other waste and in an approved manner to prevent environmental exposure.

8.7.2 Objective

The volumes of waste arising from project activities are small when considering the short nature of the project and with the implementation mitigation measures together with robust waste management (See EMP Appendix A - Waste Management Plan), the significance of the residual impact associated with solid wastes are Minor (refer to Section 9.3.6.2 of the EIS document) therefore the objective is focussed on processes and procedures for ensuring adequate controls are applied for reducing impact and risk to ALARP.

8.7.3 Mitigation and Control Measures

The planned mitigation and control measures are:

- Work in concert with the Municipality to develop and implement a fit for purpose waste management plan.
- Assessing and creating opportunities for Reducing, Reusing, and Recycling of waste generated.
- Municipality making available suitable facilities for the collection, segregation, storage and safe disposal of the wastes.
- Creating waste collection areas for segregation of waste with clearly marked facilities such as colour-coded bins. The bins to be coded according to biodegradable and non-biodegradable, reuse, recycling and reduce.

8.7.4 Solid Waste: Performance Objectives, Methods, Standards, and Measurement Criteria

Performance Objectives	Method	Standards	Measurement Criteria
Prevent pollution from waste	All waste is contained and disposed of according to the Waste Management Plan.	Decree Law No.33/2008 – Hygiene and Public Order Decree Law No. 2/2007 – Urban Residual Waste Management United Nations Framework for Climate Change Convention (UNFCCC) Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007) European Emission Standards for Waste Incinerators [https://ec.europa.eu/jrc/en/news/new-eu-environmental-standards-waste-incineration] Offshore Chemicals Notification Scheme, ranked list [https://www.cefas.co.uk/data-and-publications/ocns/definitive-ranked-lists-of-registered-products/] Appendix A: Waste Management Plan	Records demonstrate that all waste will has been recorded in a manifest (see Appendix A), and tracked with the following recorded: • Date • Type • Volume (individual and cumulative) • Location • Disposal method, destination and contractor details Waste Disposal records will be reported by contractor, Operations Department and Haemanu camp to TR HSE Officer on a daily basis.
Prevent pollution of groundwater from residual drilling muds	Using OCNS rating to as selection criteria in choice of drilling fluids to limit pollution potential. Cuttings are to be treated to remove and recover drilling fluids for re-use. Cuttings are to be disposed of onsite through mixing and burial to enhance biodegradation		Evidence that drilling fluids additives used are ranked D or better on OCNS ranked list or have documented evidence of meeting requirements for ranking of D or better. Records demonstrate that drilling rig solids control equipment has been tested and operational to design specifications during drilling programme. Documentation of operational status (integrity) and capacity (prevent/contain) of storage, transfer facilities and associated equipment for fluids prior and during drilling activities. Documentation of dewatering and burial of cuttings in accordance with IFC's 'Environmental, Health, and Safety Guidelines: Onshore Oil and Gas Developments'
Minimise greenhouse gas emissions from incineration of wastes and prevent localised air pollution.	Incineration is conducted using high efficiency incinerator with low environmental impact	World Health Organisation (2005). WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide. Global update 2005 - Summary of Risk Assessment.	Documentation shows incinerators are in good working order and operated by trained personnel

Performance Objectives	Method	Standards	Measurement Criteria
		World Health Organisation (2018). WHO Fact Sheet Ambient (outdoor) air pollution Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) EHS General Guidelines (IFC 2007b) IFC (2012). Performance Standard 1 (PS 1) - Assessment and Management of Environmental and Social Risks (IFC 2012).	

8.8 TRAFFIC MANAGEMENT

8.8.1 Summary of Environmental and Social Impact of Traffic

Appendix E Traffic Management Plan provides detailed methods for avoiding and mitigating impacts from drilling related traffic movement.

During all phases of the planned drilling activity there will be a potential for increase traffic hazards due to the use of public roads and increased traffic use related to the drilling operation. Traffic impacts include environmental impacts such as dust and noise as well as social impacts; these are discussed in separate sections of the EIS document. A Traffic Management Plan has been prepared (Appendix E to this document) to assist in the safe movement of vehicles associated with drilling activities and to avoid or minimise potential environmental impacts.

Where traffic is likely to have a cumulative effect on fauna, such as noise and light pollution, these stressors have been considered together in the relevant sections of the EIS document and Section 8.8 of this document.

8.8.2 Objective

The potential impacts to community or environment of traffic are minor therefore the objective is focussed on processes and procedures for ensuring adequate management of traffic to reduce impact or disturbance to as low as reasonably practicable.

8.8.3 Mitigation and Control Measures

The planned mitigation and control measures are:

- Plan to use existing roads to the maximum extent possible.
- Prepare an access road siting study and management plan to guide road design and maintenance standards, coordinate closely with Municipality and national government authorities responsible for maintaining roadways and bridges. Compare the number, size,

and weight of loads to service projects to the existing road infrastructure to determine if roads and bridges are adequate to support intended loads.

- Route project traffic to minimise impacts on local communities.
- Issue notices/advisories of pending traffic inconveniences and conduct briefing meetings with local authorities, schools and residents before the commencement of works.
- Flagmen should be employed to control traffic and assist all vehicles as they enter and exit.
- Maintain on site a record of incidents and accidents.
- Ensuring that all drivers for the project understand and comply with speed limits.
- Ensure all vehicles and machinery used for the project are in good working condition both legally and are fit for purpose.
- Control dust along un-surfaced roads, especially near residences, schools and fields.
- Limit all traffic movement through villages in particular school opening and closing times.

8.8.4 Traffic Management: Performance Objectives, Standards, and Measurement Criteria

Performance Objectives	Methods	Standards	Measurement Criteria
Minimise traffic disturbance to local communities	Issue notices/advisories of pending traffic inconveniences and conduct briefing meetings with local authorities, schools and residents before the commencement of works. Route project traffic to minimise impacts on local communities. Movement of vehicles to and from the rig site is limited to the hours 0700 to 1900. Traffic management controls will be implemented ahead of all rig moves in cooperation with local authorities and police and	**International Best practice:** IOGP Land Transportation Safety Recommended Practice 365 November 2016	Copies of information notices and records of distribution. Minutes of meetings shows discussion of traffic management prior to commencement of work. Documents of traffic routes and time of movement show compliance with Traffic Management Plan
Prevent drilling traffic activity causing deterioration of roads	Conduct an access road siting study to guide road design and maintenance standards by comparing the number, size, and weight of loads to service projects to the existing infrastructure to determine if roads and bridges are adequate to support intended loads road.		Records of access road siting study.

8.9 Noise and Vibration Management

8.9.1 Summary of Environmental and Social Impact of Noise and Vibration

Appendix G Noise Management Plan provides detailed methods for avoiding and mitigating noise and vibration impacts.

Noise will arise throughout the project during construction, operations and decommissioning. The expected levels of noise during operations are presented in Section 4.4.3 of the EIS document. It is predicted that noise levels will be in the region of 40-60 dB(A) at the perimeter fence. A series of maps of noise contours relative to the well location and any nearby receptors are presented in the EIS document. The projected noise levels are limited spatially to small areas of land around each well site, and it is shown that the sound will attenuate 70% within 500m of the source.

8.9.2 Objective

The potential impacts to community or flora and fauna are either minor or positive therefore the objective is focussed on processes and procedures for ensuring impacts associated with noise, vibration and light are reduced to as low as reasonably practicable.

8.9.3 Mitigation and Control Measures

The planned mitigation and control measures are:

- Drilling areas located distant from residential areas.
- Avoid traffic noise during night by limiting heavy vehicle movement to daylight hours.
- Install noise barrier at the well site boundary if required.
- Manage drilling operations particularly during nighttime, adherence to noise control procedures.
- Locate all stationary construction equipment (i.e., compressors and generators) as far as practicable from any nearby sensitive receptors.
- Machinery maintained regularly to reduce noise resulting from friction during operations.

8.9.4 Noise and Vibration: Performance Objectives, Standards, and Measurement Criteria

Performance Objectives	Methods	Standards	Measurement Criteria
Prevent noise, vibration and light disturbance to local communities	Drilling areas located distant from residential areas.	World Health Organisation (2015). WHO noise quality standard – WHO, 2015. [https://www.who.int/docstore/peh/noise/ComnoiseExec.htm] Refer to Section 9.3 for quantitative emission limits. Appendix G Noise Management Plan	Recordings of noise levels indicate that noise at closest residence do not exceed levels presented in the World Health Organisation noise quality standard –or result in a maximum increase in background levels of 3 dB at the nearest community receptor location off-site for any sustained length of time. Records demonstrate that heavy vehicle traffic movement was restricted to daylight hours. Engine and generator service records
Reduce noise level exposure to drilling crew and surrounding communities	Avoid traffic noise during night by limiting heavy vehicle movement to daylight hours		
	Install noise barrier at the well site boundary if required		
	Manage drilling operations particularly during nighttime to ensure adherence to noise control procedures,		
	Locate all stationary construction equipment (i.e., compressors and generators) as far as practicable from any nearby sensitive receptors.		
	Machinery maintained regularly to reduce noise resulting from friction during operations.		

8.10 Air Quality Management (Cumulative Impacts)

8.10.1 Summary of Environmental Impact Analysis

Greenhouse gas emissions: The level of emissions likely to be generated from all phases of the drilling activities has been calculated based on fuel usage and using recognised emission estimate methodology. Each well program is expected to take 30 days and based on this the emissions were calculated at some 480 tonnes CO_2 and 500 tonnes GHG per well. The levels are insignificant in comparison with other operations in Timor and globally. In 2018, CO_2 emissions per capita for Timor-Leste were some 275,000 tonnes.

Dust: Dust is the air emission of potential concern it can occur during all phases of the drilling most particularly during earthworks at construction and decommissioning. Dust emissions have the potential to decrease vegetation growth by smothering leaves. Loss of vegetation may in turn impact adversely on fauna. Particulate dust may also impact on the health and safety of workers at the drill site and nearby communities. Management measures to minimise dust emissions are described in Sections 8.8 and Section 8.10 of this document and also addressed in *Appendix B: Land Use and Rehabilitation Plan* and *Appendix: J Air Quality Management Plan*.

Oxides of Nitrogen and Sulphur dioxide: Oxides of nitrogen (NOx) is a collective term for nitrogen monoxide and nitrogen dioxide. NOx and sulphur dioxide can affect human health and retard vegetation growth if it exceeds the safe level. In an air quality context, the primary sources of NOx are motor vehicle and power generation exhausts. Sulphur dioxide is also produced by combustion of fuels that contain sulphides, for example diesel or 'sour' natural gas.

Particulate matter: Primary sources of particulate matter are likely to be combustion exhaust from vehicular traffic and dust generated from agricultural activities

8.10.2 Objective

The volumes of air emissions relatively small and localised and with the implementation mitigation measures together with robust waste management (See EMP Appendix A - Waste Management Plan), the significance of the residual impact associated with air are Moderate (refer to Section 9.3.3 of the EIS document) therefore the objective is focussed on processes and procedures for ensuring adequate controls are applied for reducing impact and risk to ALARP.

8.10.3 Mitigation and Control Measures

Measures to mitigate greenhouse gas emissions

- Regular servicing and maintenance machinery and vehicles to ensure efficient fuel usage.
- Use of high efficiency incinerator to dispose of organic and combustible wastes.
- If hydrocarbons are discovered a well test programme may be instigated, either immediately following the completion of the well, or at a later date. A detailed Well Testing program will be developed for acceptance by ANPM.

- 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 pad and access road leading to the site, the following measures shall be implemented during construction:
    - Vehicle idling time shall be minimised.
    - Equipment shall be properly tuned and maintained.

Measures to mitigate and control dust emissions during the drilling phases include:

Construction phase

- Sprinkling water on soil before excavation and periodically when operations are under way to prevent raising of dust.
- Controlling the speed and operation of construction vehicles; drivers should adhere to the speed limit of 20 km/hr on the access road and 40 km/hr blacktop.
- Regular maintenance and services of machines and engines.
- 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.

Drilling operations

- Sprinkling water on the access road to reduce dust.
- Use of low sulphur fossil fuel.
- Speed limit on access road 20 km/hr on the access road and 40 km/hr on 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 operations, the following measures shall be implemented during construction:
    - Vehicle idling time shall be minimised.
    - Equipment shall be properly tuned and maintained.

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.

8.10.4 Air Quality: Performance Objectives, Standards, and Measurement Criteria

Performance Objectives	Methods	Standards	Measurement Criteria
Minimise greenhouse gas emissions	Machinery maintained to reduce greenhouse gas emissions from inefficient fuel combustion. Use of efficient incinerator to dispose of organic and combustible wastes. Raise awareness of construction workers on emission reduction	Decree Law 18/2020 Onshore Petroleum Operations - Article 123 Health and Safety Monitoring. Environmental (Licensing) Decree Law No.5/2011 - Specific provisions for public consultation and the protection of the traditional customs and cultural practices United Nations Framework for Climate Change Convention (UNFCCC) WHO Ambient Air Quality Guidelines refer to Section 9.3 for quantitative emission limits Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007) IOGP (E&P Forum) and UNEP (1997). Environmental Management in Oil &Gas Exploration and Production 1997. IOGP Report No. 254 Appendix B: Land Use and Rehabilitation Plan Appendix: J Air Quality Management Plan	Records indicate machinery serviced and in good working order. Documentation shows incinerators are in good working order and operated by trained personnel. Records of environmental awareness training demonstrate staff made aware of measures to reduce emissions
Minimise emissions of dust, particulates, NOx and sulphur dioxide	Dust suppression through sprinkling of water on soil prior to excavation and periodically when operations are under way to prevent raising of dust. Controlling the speed and operation of construction vehicles Waste materials must be transported in covered vehicles. Use of low sulphur fossil fuel. Machinery maintained to reduce NOx and sulphur dioxide emissions from inefficient fuel combustion.		Records demonstrate dust suppression activities carried out regularly. Documented random checks demonstrate construction vehicle speed is less than 40km/h on sealed roads or 20 km/h on unsealed roads. Documented random checks demonstrate that waste materials are covered in transport. Maintenance records demonstrate machinery maintained to reduce greenhouse gas emissions from inefficient fuel combustion.

9 REGULATION PARAMETERS

9.1 TIMOR RESOURCES OPERATING MANAGEMENT SYSTEM

Project activities will be managed in accordance with applicable Timor Leste laws and regulations and follow the Timor Resource Operating Management System (OMS) and Eastern Drilling Health, Safety and Environmental Management System (HSE-MS). Any contradictions between TR and ED's HSE-MS will be bridged through HSE Bridging Document.

The mitigation measures identified for the management of potential environmental impacts will be integrated into the project design through the OMS. Implementation will follow Timor Resources HSE Policy and the OMS and meet Timor Leste legislation and regulations, in particular, Environmental Basic Law No 26/2012, Environmental Licensing Decree Law 5/2011 (and supporting Ministerial Diplomas 45/46/47) and Decree-Law No.18/2020 Onshore Petroleum Operations.

The key OMS elements for implementation of the mitigation measures are included under:

- Element 7 Operational Controls:
    - Health, Safety and Environmental Management
    - Management of Change
    - Contractor and Purchasing Management
    - Asset Integrity, Engineering and Project Management
- Element 9 Crisis and Emergency Management
- Element 10 Assurance
    - Inspection and Audit
    - Non-Conformance Corrective and Preventative Action
- Element 11 Performance and Compliance

This EMP follows the Timor Resources OMS "*Plan - Do - Check - Act*" PDCA cycle appropriate to the nature and scale of the project and the impacts identified and summarised in this EIS by:

- Adopting a mitigation hierarchy to anticipate, avoid, minimise and, where residual impacts remain, offset impacts to the environment and affected communities.
- Ensuring that all grievances from the community are responded to and managed appropriately.
- Promoting and providing adequate engagement with communities throughout the project on issues that could potentially affect them and ensuring that relevant information is disclosed and shared.

This EMP outlines the actions and outcomes required to address the issues raised in the EIS, and includes performance standards, targets and time frames, and assigning responsibilities for implementation.

A grievance mechanism will be established to resolve concerns promptly, following an understandable and transparent consultative process that is readily accessible, at no cost and without retribution to the party that originated the issue or concern.

9.2 Industry Best Practice

Application of applicable 'Industry Best Practice' is a requirement under Decree Law 18/2020 Onshore Petroleum Operations - Article 123 Health and Safety Monitoring. Table 9-1 below provides a summary of international and industry best practice that is applied in this EMP.

9.3 Air Quality Standard

Table 9-1 - WHO Ambient Air Quality Guidelines*

	AVERAGING PERIOD	GUIDELINE VALUE $\mu g/m^3$
Sulphur dioxide (SO_2)	24-hour mean 10-minute mean	20 (guideline) 500 (guideline)
Nitrogen dioxide (NO_2)	Annual mean 1-hour mean	40 (guideline) 200 (guideline)
Particulate Matter PM_{10}	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)

*Source: WHO air quality guideline global update 2005

Section 10 and Table 10-1 state Particulate's monitoring will be conducted on a monthly basis for dust levels. A commitment is made to conduct monthly monitoring of the WHO Air Quality standard gases (as well as particulates).

9.4 WATER QUALITY STANDARD

Water and soil samples were taken according to the WHO standards presented in Table 9-2 below, with water physical tests conducted onsite such as pH, Conductivity, Salinity, Total Dissolved Solid (TDS) and Total Suspended Solid (TSS). Water chemical and bacteriological tests were conducted in the laboratory and all tests were based on the WHO drinking water quality guidelines as referred by the Ministry of Health.

A commitment is made to conduct quarterly monitoring of the baseline by National Directorate for Water and Sanitation (DNSAS).

Sewage discharge through the underground trickle feed can be estimated as per the EIS, camp water use 100L/day/person. Sewage will be collected and treated in a standard field septic system and the effluent discharged under the ground surface through a trickle feed weeping tile.

There are no emissions to water or soils, however, records will be kept of any and all spillages together with a report, a manifest will be kept of drilling discharges to the pits.

Table 9-2 - Water Quality Test Parameters (TR-ToR, 2019)*

PARAMETERS	UNIT	WHO/TIMOR-LESTE GUIDELINE
Physical Test		
pH value	pH meter	6.5 - 8.5
E. Conductivity	µs/cm	100 µs - 1 ms/cm
TSS	mg/L	
TDS	mg/L	1,000
Salinity	%	
Temperature	°C	
Turbidity	NTU	5
Chemical Test		
NH_3-N	mg/L	1.5
NO_3-N	mg/L	50
NO_2-N	mg/L	3
Iron (Fe)	mg/L	0.3
Manganese (Mn)	mg/L	0.5
Fluoride	mg/L	1.5
Chloride (Cl-)	mg/L	250
Free Chlorine	mg/L	5
Ca Hardness	mg/L	2.5
Total Hardness	mg/L	200
Total Alkalinity	mg/L	500
Sulphate (SO_4)	mg/L	250
Arsenic	mg/L	0.1
Bacterial Test		
Total Coliform	CFU/100ml	0
E.Coli	CFU/100ml	0

*Source: WHO drinking water standards (2011)

9.5 NOISE STANDARD

A commitment is made to conduct monthly monitoring of noise against WHO Noise standards, see Table 9-3 .

Table 9-3 - WHO Guideline values for community noise in specific environment*s

SPECIFIC ENVIRONMENT	CRITICAL HEALTH EFFECT(S)	L_{Aeq} [dB(A)]	TIME BASE [HOURS]	L_{Amax} fast [dB]
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-
Dwelling, indoors	Speech intelligibility & moderate annoyance, daytime & evening	35	16	
Inside bedrooms	Sleep disturbance, night-time	30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60
School class rooms & pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	during class	-
Pre-school bedrooms, indoor	Sleep disturbance	30	sleeping-time	45
School, playground outdoor	Annoyance (external source)	55	during play	-
Hospital, ward rooms, indoors	Sleep disturbance, night-time	30	8	40
	Sleep disturbance, daytime and evenings	30	16	-
Hospitals, treatment rooms, indoors	Interference with rest and recovery	#1		
Industrial, commercial shopping and traffic areas, indoors and outdoors	Hearing impairment	70	24	110
Ceremonies, festivals and entertainment events	Hearing impairment (patrons:<5 times/year)	100	4	110
Public addresses, indoors and outdoors	Hearing impairment	85	1	110
Music and other sounds through headphones/ earphones	Hearing impairment (free-field value)	85 #4	1	110
Impulse sounds from toys, fireworks and firearms	Hearing impairment (adults)	-	-	140 #2
	Hearing impairment (children)	-	-	120 #2
Outdoors in parkland and conservations areas	Disruption of tranquility	#3		

Note:
* Source: https://www.who.int/docstore/peh/noise/ComnoiseExec.htm
#1: As low as possible.
#2: Peak sound pressure (not LAF, max) measured 100 mm from the ear.
#3: Existing quiet outdoor areas should be preserved and the ratio of intruding noise to natural background sound should be kept low.
#4: Under headphones, adapted to free-field values.

9.6 SOILS

Soil sampling was conducted at the well site in April 2021 and laboratory tests and analyses were completed by a Timor-Leste geotechnical laboratory.

International Reference Standards Applied to Soil Sampling and Analysis

Various international reference standards have been applied to soil sampling and analysis throughout the environmental assessment process and for the Safety Case and these are summarised in Table 9-4.

Table 9-4 - International Reference Standards Applied to Soil Sampling and Analysis

Source	Description	Standard/Procedure
XRF Instrument	Bruker's S1 TITAN Handheld XRF Analyzer	US EPA Method 6200
SOVV	Process Industry Practices - Geotech Engineering Investigations	CVS02010
	Site Characterisation for Engineering and Construction Purposes	ASTM D 420
	Soil Investigation by Auger Boring	ASTM D 1452
	Unified Soil Classification System	ASTM D 2487
	Visual Classification of Soils	ASTM D 2488
	Plasticity Chart	ASTM D 2487
	Field Vane Shear Test in Cohesive Soil	ASTM D 2573
	Atterberg Limit Tests for Soils	ASTM D 4318
	Surface Site Characterisation for On-Site Septic Systems	ASTM D 5879
	Hollow Stem Augers for Soil Investigation	ASTM D 6151
	Particle Size Analysis of Soils Using Sieve Analysis	ASTM D 6913
	DCP in Shallow Pavement Applications	ASTM D 6951
	Mechanical Cone Penetration of Soils (DCPT)	ASTM D 3441
	Sieves for Testing Purposes	ASTM E 11
	Transporting Soil Samples	ASTM D 4220

Additional soil samples were collected and analysed during a supplementary baseline survey conducted in October 2021 and the soil chemistry results are presented in Section 6.1.7.6 of the EIS. Soil chemistry was determined in house using a calibrated Bruker's S1 TITAN Handheld XRF Analyzer (XRF - X-ray fluorescence). XRF is a non-destructive analytical technique used to determine the elemental composition of materials and determine the chemistry of a sample by measuring the fluorescent (or secondary) X-ray emitted from a sample when it is excited by a primary X-ray source. Handheld XRF guns have become the instrument of choice for soils analysis when characterizing, remediating and monitoring sites. TR use a Bruker's S1 TITAN Handheld XRF Analyzer that is based on the US EPA Method 6200.

In the absence of "quantitative emission" limit values for soils, monitoring samples will be taken prior to rehabilitation and measured against the baseline for comparison to ascertain if any changes have occurred. All solid waste arisings will be quantified.

10 MONITORING PROGRAM

A key part of the EMP is the requirement to monitor to ensure that the mitigation measures are effective. The monitoring program details the parameters that are to be measured, termed "Monitoring/Performance Indicators", as well as who is responsible for the measurement and the timing or frequency of the measure.

This EMP also identifies the applicable 'Performance Standard", e.g. the legislation and/or best practice standard, against which the monitoring is conducted to ensure compliance with Timor-Leste legislation and applicable industry best practice standards, as described in Section 9 – Regulating Parameters within this document.

Table 10-1 provides a summary of monitoring activities for all project phases excluding the decommissioning (P&A) stage.

Table 10-1 - Monitoring Activities

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
Land Use **All Phases**	Grievance/ Complaints records	Community Affairs Officer	Continuous	Timor Resources Grievance Mechanism International Best Practice: IOGP (E&P Forum) and UNEP (1997). Environmental Management in Oil &Gas Exploration and Production 1997. IOGP Report No. 254
Traffic **All Phases**	Adherence to Traffic Management Procedure Journey Management Speed Monitoring Engine and generator service records Driver training Defensive driving	Operations Manager	Daily Daily Daily Monthly Induction	Timor Resources Traffic Management Plan Grievance Mechanism **International Best practice:** IOGP Land Transportation Safety Recommended Practice 365 November 2016 Issue relevant Reports and Standard Operating Procedures Accident and Incident Reports
Soil **All Phases**	Regular Inspection of road culverts and rig drainage system Adherence to Site Civils Construction Procedure	Operations Manager Civils Construction Engineer	Weekly Monthly	International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a)

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
	Baseline parameters repeated at sensitive receptors	Operations Manager	Prior to rehabilitation and post rehabilitation	
Air Quality Construction	Dust management Particulates and Air Quality Standard Gases Monitoring at fence and sensitive receptors Fuel Consumption Engine and generator service records	Civils contractor for construction Civils Contractor for construction Transport Contractor for service vehicles Transport Contractor	Daily Monthly Daily Monthly	Timor Resources Air Quality Management Plan World Health Organisation (2005). WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide. Global update 2005 - Summary of Risk Assessment. World Health Organisation (2018). WHO Fact Sheet Ambient (outdoor) air pollution. 2 May 2018. International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IFC Performance Standard 1 (PS 1) - Assessment and Management of Environmental and Social Risks (IFC 2012).
Air Quality Operations	Dust management Generator fuel consumption Particulates and Air Quality Standard Gases Monitoring at fence and sensitive receptors Fuel Consumption Engine and generator service records	Drilling contractor Drilling Drilling for rig emissions/ Transport Contractor Drilling contractor	Daily Daily Monthly Daily Monthly	Timor Resources Air Quality Management Plan World Health Organisation (2005). WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide. Global update 2005 - Summary of Risk Assessment. World Health Organisation (2018). WHO Fact Sheet Ambient (outdoor) air pollution International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IFC Performance Standard 1 (PS 1) - Assessment and Management of Environmental and Social Risks (IFC 2012).
Air Quality Decommissioning	Dust management Particulates and Air Quality	Civils contractor Civils contractor	Daily Monthly	Timor Resources Air Quality Management Plan World Health Organisation (2005). WHO Air quality guidelines for particulate

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
	Standard Gases Monitoring at fence and sensitive receptors Engine and generator service records	 Transport contractor for service vehicles	 Monthly	matter, ozone, nitrogen dioxide and sulphur dioxide. Global update 2005 - Summary of Risk Assessment. World Health Organisation (2018). WHO Fact Sheet Ambient (outdoor) air pollution International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IFC Performance Standard 1 (PS 1) - Assessment and Management of Environmental and Social Risks (IFC 2012).
Surface Water All Phases	Inspection of sewage system Perimeter Drain Oil Trap Regular checking and cleaning of oil, fuel and waste spills Inspection of perimeter drain and road culverts Baseline parameters repeated at sensitive receptors	Drilling Contractor/ Camp Boss Drilling Contractor Drilling Contractor Operations Manager Operations Manager	Monthly Each Tour (12 hourly) Each Tour (12 hourly) Weekly Quarterly	World Health Organisation (2011). WHO Guidelines for Drinking-water Quality, 2011 International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Groundwater All Phases	Inspection of sewage system Perimeter drain oil trap Regular checking and cleaning of oil, fuel and waste spills Inspection of perimeter drain and road culverts	Drilling Contractor/ Camp Boss Drilling Contractor Drilling Contractor Operations Manager	Monthly Each Tour (12 hourly) Each Tour (12 hourly) Weekly	World Health Organisation (2011). WHO Guidelines for Drinking-water Quality, 2011 International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
	Baseline parameters repeated at sensitive receptors	Operations Manager	Quarterly	
Operational Leaks and Spills **All Phases**	OSCP Regular checking and cleaning of oil, fuel and waste spills Inspection of perimeter drain and road culverts OSCP drill	HSE Officer Drilling Contractor Operations Manager HSE Officer	Continuous Each Tour (12 hourly) Weekly Pre spud	Timor Resources Oil/Chemical Spill Contingency Plan (OSCP) International Best Practice: - IPIECA (2016). Oil spills: inland response good practice guidelines for incident management and emergency response personnel - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Worst Case Oil Spill Operations	CMP / IMP SERP Maintenance of CMP/IMP CMP/IMP/ SERP Drill	General Manager Exploration Drilling Contractor HSE Officer HSE Officer	Continuous Continuous Continuous Pre spud	Timor Resources Crisis Management Plan (CMP) / Incident Management Plan (IMP) Site Emergency Response Plan (SERP) International Best Practice: - IPIECA (2015). Oil spills: inland response good practice guidelines for incident management and emergency response personnel No 514 2015. - IPIECA (2014). Incident Management System No 517 Nov 2014. - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Water Supply **All Phases**	Monitor water usage Monthly water management report	Drilling Contractor Operations Manager	Daily Monthly	Timor Resources Grievance Mechanism International Best Practice: IOGP (E&P Forum) and UNEP (1997). Environmental Management in Oil &Gas Exploration and Production 1997. IOGP Report No. 254
Biodiversity, flora, fauna and habitat **All Phases**	Grievance/ Complaints records	Community Liaison Officer/HSE Officer	Continuous	Timor Resources Grievance Mechanism IUCN (2020). *The IUCN Red List of Threatened Species. Version 2020-2*.
Liquid Effluents **All Phases**	Inspection of sewage system Perimeter drain oil trap	Drilling Contractor/ Camp Boss Drilling Contractor	Monthly Each Tour (12 hourly)	Timor Resources Waste Management Plan Timor Resources Grievance Mechanism International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IOGP (2009). Guidelines for waste management with special focus on

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
				areas with limited infrastructure Report No. 413, rev1.1 September 2008 (updated March 2009)
Solid Waste All Phases	Cuttings volumes recorded Rig wastes recorded, manifested and tracked Camp wastes recorded, manifested, tracked All wastes: Monthly Summary report	Drilling Contractor Drilling Contractor Camp Boss Operations Manager	Daily Daily Daily Monthly	Timor Resources Waste Management Plan Timor Resources Grievance Mechanism International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b) - IOGP (2009). Guidelines for waste management with special focus on areas with limited infrastructure Report No. 413, rev1.1 September 2008 (updated March 2009)
Noise Construction	Noise monitoring at fence and sensitive receptors	Operations Manager	Monthly	Timor Resources Noise Management Plan Timor Resources Grievance Mechanism World Health Organisation (2015). WHO noise quality standard – WHO, 2015. International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Noise Operations	Noise monitoring at fence and sensitive receptors	Operations Manager	Monthly	Timor Resources Noise Management Plan Timor Resources Grievance Mechanism World Health Organisation (2015). WHO noise quality standard – WHO, 2015. International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Noise Decommissioning	Noise monitoring at fence and sensitive receptors	Operations Manager	Monthly	Timor Resources Noise Management Plan Timor Resources Grievance Mechanism World Health Organisation (2015). WHO noise quality standard – WHO, 2015. International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)

Monitoring	Monitoring/ Performance Indicator	Responsible Person / Function	Timing and Frequency	Performance Standard
Light **All Phases**	Grievance/ Complaints records	Community Affairs Officer	Continuous	Grievance Mechanism International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Odours **All Phases**	Grievance/ Complaints records	Community Affairs Officer	Continuous	Grievance Mechanism International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)
Community **All Phases**	Grievance/ Complaints records Local Recruitment Program New recruit Training and Induction Local Community Education and Awareness Program	Community Affairs Officer Country Manager Community Affairs Officer Community Affairs Officer	Continuous Pre-project Continuous Continuous	Grievance Mechanism National Labour Code and SEPFOPE Regulation International Best Practice: - Environmental Health and Safety (EHS) Guidelines for Onshore Oil and Gas Development (IFC 2007a) - EHS General Guidelines (IFC 2007b)

11 REPORTING REQUIREMENTS

Routine reports and records are used to record performance against the EMP requirements and to demonstrate that legal requirements such as the Environmental Basic Law No 26/2012 and Environmental Licensing Decree Law 5/2011 are met, as well as meeting TR policy and OMS expectations. Reports are presented as daily/weekly operational reports and in monthly/quarterly/annual performance formats, as described below.

Daily operational reports are prepared for routine drilling and project activities and include a brief summary of any HSE and/or community issues during the previous 24-hour period. **Weekly operational reports** are provided to management including any HSE/community incidents. Weekly operational reports are required under Law 18/2020.

Monthly, Quarterly and Annual performance reports prepared for the Chief Executive Officer are a compilation of the weekly operations report and include the performance metrics shown in Table 11-1 . The Community Affairs Officer prepares similar Community Affairs reports. An annual report is required under Law 18/2020 as per Article 23 that includes a summary of HSE performance through the year.

Decree Law 18/2020 on Onshore Petroleum Operations in Timor Leste: Article 22 requires that an authorised person submit monthly exploration reports to the Ministry within fifteen days after the end of each calendar month.

Incident reports are required following any incident or near miss and are specified under the TR OMS and Law 18/2020 Article 125.

Decree Law 18/2020 on Onshore Petroleum Operations in Timor Leste: Article 125 requires that an authorised person shall promptly notify the Ministry, other relevant authorities and potentially affected communities and persons of an emergency, major accident event or other health and safety incident as soon as possible, no later than 24 hours after the incident occurred.

Decree Law 18/2020 Article 148: An Authorised Person shall provide an oral or written notice to the Ministry of any Reportable Spill[1] as soon as possible, but not later than two hours, and a Significant Spill[2] within twenty-four hours after occurrence. Oral notice shall be followed by prompt written notices to the Ministry, in any case not later than three days after the first occurrence.

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[1] "*Reportable Spill*" means any authorised and observable discharge of Petroleum, brine, chemical or hazardous substances.

[2] "*Significant Spill*" means an unauthorised discharge of Petroleum exceeding 80 litres per incident that has been spilt, or is likely to spill, onto land, into rivers or into ground water, or, in the case of Natural Gas, a leakage.

Environmental Reporting under Law 5/2011 includes biannual inspection reports during the construction and decommissioning phases and an annually during the operational phase. Environmental Provisions are also specified in Decree Law 18/2020, Chapter XVII, in particular Article 144 - Environmental Management Plan, Article 145 - Environmental Monitoring and Article 147 - Environmental Performance Report.

The EMP monitoring and performance requirements are detailed in Table 10-1 , and the reports generated by this activity are summarised in Table 11-1 and Table 11-2 and will be prepared and submitted in accordance with the project environmental license reporting requirements.

Table 11-1 present list of standard key performance indicator reports that will be used by TR to monitor safety and environmental performance.

Lagging Indicators: are reactive measures that track only negative outcomes, such as emissions.

Leading Indicators: are proactive and preventive measures that can shed light about the effectiveness of environmental management activities and help identify potential problems in the EMP.

Table 11-2 presents a list of both external reports plus (where relevant) the internal reports that will be included into the listed external report.

Table 11-1 - Quarterly/Annual HSE Reporting (Lagging and Leading Indicators)

LAGGING INDICATORS	Target Per well	Well l	Well 2	Well 3	Well 4	Well 5
CO_2 Emissions (tonnes per well)	200 tonnes					
Oil and Chemical Spills (Number of spills > 15 bbls)	Zero					
Oil and Chemical Spills – Total Spilt (tonnes)	Zero					
Oil and Chemical Spills – released to the environment (tonnes)	Zero					
LEADING INDICATORS						
Extent of compliance with EIS mitigation measures (per Quarter - percentage) The extent to which mitigation measures identified in the EIS have been set and achieved. Expressed as a percentage: Total number of mitigation measures satisfactorily completed x 100 Total number of mitigation measures identified	60%					
Recycled waste (per well - tonnes) Segregated waste for recycling - plastic bottles and tin cans. Expressed as a weight tonne.	2 tonnes					
Complaints made and redress agreed (per well - percentage Ratio of complaints received vs number redressed. Total number complaints redressed x 100 Total number of complaints made	80%					
Employment Number of local people working in the campaign (rig and camp)	76					
Environmental Inspections and Audits Conducted (per well) Area inspections are primarily operational (e.g., weekly rig and camp inspections), and also weekly inspections for Logistics operations (e.g. road transport/Journey Management System).	5					
Regular inspection and maintenance of road culverts and rig drainage system The extent to which inspections have been set in the EMP and the number achieved. Expressed as a percentage: Total number of inspections completed x 100 Total number of inspections required	80%					
Regular maintenance or service of vehicles, equipment and/or machinery The extent to which vehicle/plant/equipment servicing is set in the EMP and the number achieved. Expressed as a percentage: Total number of services completed x 100 Total number of services required	80%					

Table 11-2 - Project report type and distribution list

Monitoring/ Performance Activity	Report	Timing and Frequency	Distribution	Responsible Person / Function
Local Recruitment Program - as required under the National Labour Code/SEPFOPE	Personnel records	Pre-project	External - ANPM	Country Manager
New recruit Training and Induction	Community Affairs reports	Continuous	Internal	Community Affairs Officer
Local Community Education and Awareness Program		Continuous	Internal External - ANPM	Community Affairs Officer
Drills: CMP/IMP/ SERP/OSCP	Exercise/Drill Reports	Pre spud	Internal	HSE Officer
Implementation: CMP/IMP				General Manager Exploration
SERP				Drilling Contractor
OSCP				HSE Officer
Driver training Defensive driving	Personnel records	Induction	Internal	Operations Manager
Grievance/ Complaints records	Grievance Report Forms	Continuous	Internal External - ANPM	Community Affairs Officer
DAILY				
Perimeter drain oil trap inspection Each Tour (12 hourly)	Non-conformance report as required	As required	Internal	Drilling Contractor
Regular checking and cleaning of oil, fuel and waste spills Each Tour (12 hourly)	Non-conformance report as required	As required	Internal	Drilling Contractor
Daily - Adherence to Traffic Management Procedure	Non-conformance report as required	As required	Internal	Operations Manager
Journey Management	Journey Management Sheets	Daily	Internal	Operations Manager
Speed Monitoring - Daily	Non-conformance report as required	As required	Internal	Operations Manager
Dust management - Daily	Visual		Internal	Civils contractor for construction Drilling Contractor for rig operations
Fuel Consumption	Operations Report	Daily/Weekly/Monthly	Internal	Transport Contractor for service vehicles
	Performance Reports	Quarterly and Annual	Internal	Drilling Contractor for rig operations
	Inspection Reports	Biannual and annual	External -	

Monitoring/ Performance Activity	Report	Timing and Frequency	Distribution	Responsible Person / Function
	(under Law 5/2011)		ANPM	
Monitor water usage	Operations Report Performance Reports Inspection Reports (under Law 5/2011)	Daily/Weekly/Monthly Quarterly and Annual Biannual and Annual	Internal Internal External - ANPM	Drilling Contractor
Cuttings volumes recorded	Operations Report Performance Reports Inspection Reports (under Law 5/2011)	Daily/Weekly/Monthly Quarterly and Annual Biannual and Annual	Internal Internal External - ANPM	Drilling Contractor
Rig wastes recorded, manifested and tracked	Operations Report Performance Reports Inspection Reports (under Law 5/2011)	Daily/Weekly/Monthly Quarterly and Annual Biannual and Annual	Internal Internal External - ANPM	Drilling Contractor
Camp wastes recorded, manifested, tracked	Operations Report Performance Reports Inspection Reports (under Law 5/2011)	Daily/Weekly/Monthly Quarterly and Annual Biannual and Annual	Internal Internal External - ANPM	Camp Boss
WEEKLY				
Weekly Inspection of road culverts and rig drainage system	Non-conformance report as required	As required	Internal	Operations Manager
MONTHLY				
Engine and generator service records	Operations Report Performance Reports	Daily/Weekly/Monthly Quarterly and Annual	Internal	Transport Contractor
Adherence to Site Civils Construction Procedure	Operations Report Performance Reports	Daily/Weekly/Monthly Quarterly and Annual	Internal	Civils Construction Engineer
Particulates and Air Quality Standard Gases Monitoring at fence and sensitive receptors	Operations Report Performance Reports Inspection Reports (under Law 5/2011)	Monthly Quarterly and Annual Biannual and Annual	Internal Internal External - ANPM	Civils Contractor during construction Operations Manager during operations and decommissioning
Monthly inspection of sewage system	Non-conformance report	As required	Internal	Drilling Contractor/ Camp Boss

Monitoring/ Performance Activity	Report	Timing and Frequency	Distribution	Responsible Person / Function
Monthly water management report	Operations Report Performance Reports Inspection Reports (under Law 5/2011)	Monthly Quarterly and Annual Biannual and Annual	Internal Internal External - ANPM	Operations Manager
All wastes: Monthly Summary report	Operations Report Performance Reports Inspection Reports (under Law 5/2011)	Monthly Quarterly and Annual Biannual and Annual	Internal Internal External - ANPM	Operations Manager
Noise monitoring at fence and sensitive receptors	Operations Report Performance Reports Inspection Reports (under Law 5/2011)	Monthly Quarterly and Annual Biannual and Annual	Internal Internal External - ANPM	Operations Manager
QUARTERLY				
Water quality baseline parameters repeated at sensitive receptors	Operations Report Performance Reports	Quarterly Quarterly and Annual	Internal	Operations Manager National Directorate for Water and Sanitation (DNSAS) Laboratory
PRE AND POST REHABILITATION				
Soil baseline parameters repeated at sensitive receptors	Rehabilitation programme	Pre and Post-rehabilitation	Internal	Operations Manager
END OF DRILLING PROGRAMME				
Environmental performance report upon completion of drilling	Performance Reports	At completion of drilling programme	Internal	Operations Manager

12 RESPONSIBILITIES FOR MITIGATION AND MONITORING ACTIVITIES

Responsibilities are presented in Table 10-1 and Table 11-2, and can be summarised as follows:

General Manager Exploration

- CMP/IMP and drills

Operations Manager:

- Off rig Emergency Response Plan (SERP)
- Traffic management
- Journey management
- Defensive driver training
- Speed monitoring
- Engine and generator servicing
- Inspections - road culverts
- Water management
- Camp waste management
- Noise and Air Quality monitoring

Country Manager

- Community programmes
- Local Recruitment programme

Community Affairs Officer:

- Grievance/ Complaints records
- Recruit Training and Induction
- Local Community Education and Awareness Program

HSE Officer

- CMP/IMP/ERPs/OSCP drills

Civils Construction Engineer:

- Civils' standards
- Dust and particulates management during construction and demobilisation

Drilling Contractor

- Dust and particulates management during operations
- Engine and generator servicing
- Inspection of sewage system

- Perimeter drains and PCP
- Routine site inspections for spillages
- Water consumption
- Rig ERP
- Cutting's volumes
- Rig waste management

Transport Contractor

- Fuel consumption monitoring
- Engine and generator servicing

13 EMERGENCY RESPONSE

The Emergency response system in place for the project is presented in the Project Safety Case Bridging Document (Safety Case Bridging Document PSC TL OT 17 08 and 09 - Rev2_2 0210519) and is summarised below.

13.1 EMERGENCY RESPONSE PROCEDURES

Planning for the drilling program crisis and emergency response in PSC TL OT 17 08 falls under three main categories:

- The ED Emergency Response Team (ERT) will manage incidents concerning Eastern Drilling (ED) Rig #1 rig site. Timor Resources Incident Management Team (IMT) and, as required, Crisis Management Team (CMT) will support and work in co-operation with ED ERT.
- Incidents off the rig site concerning Timor resource's operations, activities, personnel, families, office, vehicles, camp and expatriate accommodation. In such cases the Timor Resources in country Incident Management Team (IMT) will directly manage the incident, in liaison with ED and ANPM as necessary.
- Incidents that may affect Timor Resource's reputation and cooperation with Government and ANPM, its capability and capacity of doing business, business continuity and recovery, and direct stakeholder involvement or interest. The incident will be coordinated under the TR Crisis Management Team (CMT) may or may not be related to operational activities.

Both TR and ED have an Emergency/Incident Management Team that operates within the following guidelines:

- Timor Resources: Site Emergency Response Plan TR-PLN- 003
- Eastern Drilling: Site Emergency Response Procedure ED-HSE-SOP-05.

The purpose of these documents is to provide written guidance for the actions to be taken by personnel during an emergency. ED has primacy in any emergency situation that endangers the safety of personnel or the integrity of the rig. TR has primacy in a pollution incident and an incident off the rig.

The ED Rig Superintendent has primacy in any emergency situation involving rig personnel or equipment. The ED Rig Superintendent is the designated On-Scene Commander (OSC) during any emergency situation on RIG #1 and is responsible for directing the response to the emergency in accordance with the ED Emergency Response Procedure ED-HSE-SOP-05.

The TR Drilling Supervisor provides support and advice to the OSC during the emergency situation. He has overall responsibility for communicating with the TR General Manager Exploration and TR Dili Incident Management Team (IMT) lead by Director Commercial and

Compliance. The TR Drilling Supervisor will also coordinate clean-up operations in case of oil or fuel spillage.

Muster lists are kept in the RIG #1's Rig Superintendent's office which serves as the Emergency Control Centre (ECC). These POB lists are updated daily and are maintained by the Rig HSE Officer and communicated daily in the daily HSE report to Dili.

The ED Rig Superintendent is responsible for organising Emergency Drills (see Table 13-1)at frequent intervals, as per the RIG #1 HSE Safety Plan.

Table 13-1 - ED Rig #1 Emergency Drills

TYPE OF DRILL	FREQUENCY	PERSONNEL
Any Scenario	Pre-spud	All
BOP	14 days (not to exceed 21 days)	Drilling Crew
Pit Drill	14 days	Drilling Crew
Kick/Trip Drill	Daily	Drilling Crew
Fire / Abandon	Weekly	All
Fire / Mock injury	Monthly	All
Tiered Emergency Response Exercise	6 Month	Rig + Base + Dili
Medical Evacuation	6 Month	ISOS
Search & Rescue	Monthly	All

13.2 Medical Organisation

ED will maintain a clinic on the rig site and a trauma-trained medic will be on site at all times. The medical arrangements for ED Rig #1 are provided in *ED-HSE-SOP-21 Site Medical Treatment & Facility Standard*.

13.3 Medevac arrangements

TR have in place a contract with Mission Aviation Fellowship (MAF) for the chartering of an aircraft to execute medevac of injured persons (IP) from the field using Suai airport. The rig medic will accompany the IP to Dili where transfer to a local medical provider or, if necessary, direct onward movement by air ambulance to Darwin or Denpasar. Full details of the medevac arrangements for field operations are included in TR *Site Emergency Response Plan TR-PLN-003.*

13.4 Emergency Communications

TR is solely responsible for all communications with ANPM. ED will refer any matters requiring ANPM involvement to TR Director Communications and Compliance.

PNTL
TR will provide ANPM and the appropriate law enforcement agencies with a verified POB list. The TR IMT will cross check this with TR POB list before it is released.

In the event of any fatalities, TR will inform ANPM and the PNTL as soon as possible of the names of the deceased. The PNTL will then notify the next-of-kin, accompanied, if possible, by a representative from TR/ED if the deceased is a TR/ED employee.

Media
TR will coordinate with ANPM during any incident. TR will support ANPM in liaising with government departments and handling any local media.

In the event of an emergency, early contact will be established between TR and ANPM Media Response Teams. TR will issue a Holding Statement at the earliest opportunity, to the designated government organisation. All subsequent communications with the media will originate from the TR IMT and will be reviewed in a timely manner and approved by ANPM and ED prior to any release.

Relatives
TR will handle enquiries from relatives of TR personnel and TR contracted employees. The ED HR team will handle relatives of ED employees and contractors. (All efforts will be made to issue consistent statements).

13.5 Oil Spill Response

TR will organize the mobilisation of people and equipment in accordance with the TR Oil Spill Contingency Plan (detailed in Appendix D). The TR Drilling Supervisor is responsible for overall management oil spill response and will liaise with the ED Rig Superintendent to ensured communication of the oil spill response situation. TR IMT will prepare and send the appropriate government notification with a copy to the ED Manager and to the TR Drilling Supervisor.

14 DECOMMISSIONING PLAN (P&A)

Timor Resource will restore the project location as part of its project remediation plan summarised below, see Appendix B: Land Use and Rehabilitation Plan for additional details. The land size occupied by the well site is 100m x 100m, and the amount of land that may require remediation dependent on the agreed after use, which will only be determined once drilling is completed.

Please be aware that future use is determined post drilling and is dependent on whether there is a discovery, and the land is kept, or if unsuccessful there has to be an agreement with the land owner as to future use. TR is committed to return the property back to its original condition or to an agreed after use.

Before the end of the operational phase of the project, a detailed closure, post-closure and rehabilitation plan shall be presented to the Environmental Authority for approval.

Extensive consultation has been undertaken with community and landholders. It is expected that this will be an ongoing process and will assist in determination of an agreed rehabilitation outcome. In some cases, it may be the wish of the landholder for the land to be rehabilitated for a future land use, however, in most cases the land will be rehabilitated to a mutually agreed level consistent with surrounding land uses and ecological values.

Rehabilitation requirements and objectives will be determined on a case-by-case basis, but will be compatible with the safety, landform, vegetation cover and soil stability of the surrounding area and methods developed in this plan.

14.1 VEGETATION CLEARING

Cleared vegetation is to be pushed to one side of any road rights of way, to assist in future rehabilitation works. In other areas, such as rig sites, cleared vegetation may be mulched or stockpiled. Cleared vegetation may also be used in erosion and sediment control structures. Retention of green waste can assist in creation of micro-habitats for seed germination, promote retention of soil moisture, and provide habitat for fauna.

In areas of high weed occurrence, cleared vegetation should be flagged so that it is not used in rehabilitation works. Vegetation clearing is to avoid removal of large trees (>50 cm DBH) where possible.

14.2 NATURAL REGENERATION

In most areas, rehabilitation will rely on natural regeneration. This will be achieved through the re-spreading of topsoil with supplementary planting where it is deemed necessary e.g., within areas of high ecological value pre-disturbance. Where possible, tree root stock should be left undisturbed to facilitate regrowth and soil stabilisation.

14.3 MANAGEMENT OF SOIL

14.3.1 Topsoil

Topsoil is a vitally important part of rehabilitation, as it contains the nutrients, microbes and seed bank. Topsoil is to be removed and stored in such a way that it is protected until such time that it can be re-spread. It is essential to minimise chemical or physical deterioration of the topsoil, and careful consideration is to be given to the location of topsoil storage areas and how is it handled. It will be necessary to store topsoil in many locations, to prevent mixing and/or contamination. This will also ensure timely re-instatement of topsoil in the correct location and order along the corridor.

Topsoil stockpiling will assist in preservation of its biological and chemical properties. It is to be stockpiled separately from other cleared vegetation and protected and stabilised to minimise erosion and soil loss. Ideally, topsoil will be stored on high ground away from drainage flow paths. Erosion and sediment control measures are to be implemented where stockpiles are located within 50 m of any watercourse or drainage flow path.

14.3.2 Re-contouring

Re-contouring will be applied to areas where surface drainage may create instability. Re-contouring is to ensure that water flowing over the surface behaves similar to the surrounding area to minimise the risk of erosion. Where possible, planning is to minimise the need for cut and fill to reduce the need for re-contouring. Re-contouring is to be completed before re-spreading of topsoil

14.3.3 Ripping and scarification

Prior to re-spreading of topsoil, it may be necessary to rip the ground surface. Ripping aids in water infiltration and retention, facilitating seed germination and reducing the velocity and volume of surface water runoff.

Ripping is to be done following the natural contours. Depth of ripping will depend on degree of soil compaction but should not exceed 300 mm to avoid disturbance of underground infrastructure.

After-re spreading of topsoil, the surface can be lightly scarified to promote water infiltration and plant growth, zig-zagging may assist in preventing rill erosion in flat and low gradient areas.

14.3.4 Topsoil re-spreading

Re-spreading of topsoil should be carried out according to the following guidelines:

- Topsoil is to be spread evenly but with a rough surface to avoid compaction and assist with water infiltration and plant growth.

- Topsoil is to cover all sub-surface material. If insufficient topsoil is available, it may be sourced from another similar location, provided the location has similar plant species and is weed free. This should be done in consultation with environmental specialist.
- Erosion and sediment control measures to limit runoff velocities e.g., control banks.
- Weed infested topsoil is not to be used.

14.4 EROSION AND SEDIMENT CONTROL

Key activities in erosion and sediment control include constructing, improving or repairing drainage control measures to reduce water movement, and ensuring topsoil is located away from drainage lines to reduce chance of erosion. The following measures can be used to protect rehabilitated areas.

- Rehabilitation will be undertaken in a progressive manner to limit erosion risk.
- Contour banks should be placed at intervals along a flow path, with frequent discharge points to reduce flow velocities.
- During the rehabilitation period, areas prone to concentration of surface water flows, will be identified. These areas will be monitored and, if necessary, additional mitigation measures may be required (e.g. channelling, drainage)
- Erosion and sediment control devices are to be constructed with consideration of the IECA Best Practice Erosion and Sediment Control Guideline 2008.

14.5 REVEGETATION

When selecting species for use in rehabilitation, consideration will be given to:

- Structure and composition of surrounding areas.
- Advice from community members via consultation.
- The needs of fauna – e.g. food and shelter.
- Soil conditions, microclimate and aspect of the area to be rehabilitated.
- Direct seeding may be carried out in some areas, particularly where erosion potential is high. If direct seeding is done, it is to be completed prior to the wet season to assist in germination without need for ongoing management. Seed is to be sourced locally, where possible.
- Where necessary, the site may need to be protected from destruction by cattle until vegetation is well established e.g. temporary fencing.

14.6 WEED AND PEST MANAGEMENT

Weed and pest management should consider the following controls:

- Vehicles moving to and from the rehabilitation area/s are to be free from weed seed. Weed hygiene is to be carried out prior to access into areas undergoing rehabilitation e.g. wash vehicle down.

- Weed control is required for at least 12-months post rehabilitation, to remove any emerging weeds within the rehabilitated area/s.
- All materials and equipment used during rehabilitation are to be clean and free from dirt that may contain weed seed.
- Species specific management will be developed if identified as required.
- Management of pests is important to limit impacts from grazing, trampling and uprooting of vegetation. Management may be in the form of temporary fencing or other measures as deemed appropriate.

14.7 MAINTENANCE AND MONITORING

Following rehabilitation works, vehicular access should be limited except where required for maintenance or monitoring work. Monitoring will be carried out to ensure:

- Vegetation re-established is on track and consistent with success criteria and surrounding land.
- Erosion and sediment control measures are effective.
- Weed species are controlled.
- Landforms remain stable.

14.8 ACCESS TRACKS

Access tracks that are not required for ongoing operational works, are to be rehabilitated as soon as possible. The surface of tracks are to be lightly scarified before re-spreading of topsoil. Any erosion control measures no longer required will be removed, leaving only those control measures that will reduce surface water flow velocities. Reseeding should be carried out over areas prone to erosion or which may require additional management in order to reach success criteria. Other areas will be left to naturally regenerate.

14.9 TEMPORARY LAY DOWN AREAS

Temporary laydown areas will result in minimal impact, so it is expected that most areas will revegetate naturally. More heavily impacted areas will be treated the same as access tracks, with light surface scarification and ripping. Rip lines are to be spaced such that movement of soil is limited. Direct seeding will be used where required.

14.10 MONITORING

Monitoring will assess the following parameters:

- Percent plant cover-canopy, sub-canopy and shrub layers.
- Percent groundcover.
- Percent weed species.
- Species richness – tree, shrub, grass.
- Presence of debris – woody, leaf litter etc.

- Total vegetation ground cover.
- Signs of erosion.

Large areas (e.g., well site) will have four randomly selected monitoring sites, of nominal size 10 m x 10 m. Linear sites (e.g., access tracks) will have smaller plots measured within each vegetation type, nominally 1 m x 1 m. The number of sites will depend on the size of the vegetation assemblage but should be a minimum of two per assemblage.

Frequency of monitoring

Those areas that are to be progressively rehabilitated will be monitored from the start of rehabilitation works as per the following:

- Monthly for the first three months; then
- After 3 months; then
- After 6 months (12 months since rehabilitation started)

After 12 months an assessment will be made to determine if successful rehabilitation criteria have been met (either actual or on a trajectory). Those sites that are not on the correct trajectory will have remedial works carried out and continue with monthly monitoring, every six months, until successfully rehabilitated. Once deemed successful sites are to be signed off by the Operations Manager.

14.11 REPORTING & RESPONSIBILITIES

Operations personnel and/or contractors will undertake rehabilitation works and monitoring under the direction of the HSE Officer.

The HSE Officer will compile monitoring data and information on rehabilitation works undertaken and provide these to the Operations Manager. The HSE Officer will compile the final rehabilitation report under the direction of the Operations Manager, for submission to relevant authority.

15 CAPACITY BUILDING AND TRAINING

15.1 CAPACITY BUILDING

The following methods are used to ensure that personnel have the necessary knowledge, skills and abilities to meet their responsibilities and to perform their jobs safely, effectively and with due regard for the environment and communities.

- Each manager or supervisor ensures that the knowledge and skills of personnel are appropriate to their work environment. This includes the induction/ orientation procedure, regular awareness training and the provision of relevant information to ensure that personnel are aware of their HSE Obligations.
- Establishing competencies both general and specific (e.g., well control, fire team leader, etc.) required to meet the responsibilities for each job function.
- Assessing individual competencies against the defined responsibilities for the job.
- All newly hired employees are provided with an HSE orientation on the first day and are made aware of any inherent hazards associated with their job.
- Any employee transferred to a new job duty receives the same training as a new hire.

15.2 TRAINING

A training needs assessment is an essential part of the local hire training program and will identify the training needs for each new hire/local hire job in relation to critical exposures. This is primarily a site activity that is conducted by Line Managers/Superintendents and Supervisors. The following routine training is conducted:

- Induction Training, a general orientation to all new employees.
- Specific training on how to do assigned tasks includes training on grinding, cutting and welding, handling tools, spill management and defensive driving.
- Safety training on lifting and rigging equipment.
- Training in hazardous materials handling and specialist machinery/equipment operation.
- First aid, fire-fighting and emergency response, MSDS, PPE, etc.
- Personnel certification, training and examination on NDT, Heavy Equipment (Forklift, Crane, Lifting Boom), Welding, etc.
- Permit to work training, including
    - Gas testing and monitoring
    - Equipment isolations
    - Confined space
    - Pressure systems

A detailed training matrix is included in the project Safety Case, Table 2.2 - Staff Training Matrix, similarly the Safety Case Bridging Document Table 3.3.

16 PUBLIC CONSULTATION AND DISCLOSURE OF INFORMATION

16.1 PURPOSE OF THE CONSULTATION DURING THE PREPARATION OF EIS

Public Consultation for proposed drilling activity of Timor Resource is considered key not only as part of the normal standards for obtaining the environmental licence, but also to gather input, opinions and ideas from communities affected by the proposed activity whilst at the same time serving as a means of disseminating technical and non-technical information. Timor Resources, facilitated by Groena Circoal Consultants presented information to the communities such as location of the drilling site, the well depth, equipment used, infrastructure involved, legal basis, local content, and the potential effect of activity on communities and the surrounding environment.

In addition to dissemination of drilling information, the consultation was used to identify community or individual land and housing that might be directly or indirectly affected by the activities.

16.2 METHODOLOGY AND APPROACH

Consultation was carried out through individual approach, small group discussion and public consultation. Affected individuals or families were directly approached in the case of land use or farmland use as drilling sites. Small group gatherings were also carried out with local elderly to discuss on the cultural ceremony requirements and, with local authorities, to disseminate information and discussion on public consultation.

The Public Consultations were conducted by means of direct meeting between the project owner and general public, local institutions and other interest parties. The facilitator and the project owner directly presenting the material to the participants with a specific section dedicated to question and answer.

Before starting the consultation, the facilitator engaged directly with the participant to provide information on the structure of the public consultation itself. Apart from direct engagement the invitation was also formally issued to the participant.

The Public Consultation was carried out on separate gathering for each drilling location. Nearest villages or sucos to drill sites were invited to attend one day presentation, however, public notices were also sent out to invite any interested parties or individual to attend.

16.3 SUMMARY OF CONSULTATION ACTIVITIES

Below is a summary of consultation activities that were carried out in different stages:

Early Engagement

The socio-economic team of this project has conducted a series of socialisation and public consultation within the community surrounding the project. During the consultation with local communities, the concerns, recommendation, perspective and insight are recorded and analysed in order to develop social impact evaluation framework that will provide a mitigation and control measures to the community affected by the project.

Period of data collection and drafting of EIS

During data collection, TR and consultant Groena Circoal approached authorities in Ainaro Municipality, Post Administrative Hatu-Udo, and Suco Foho-Ai-Lico and advised that a team of engineers will visit the well site and community area to collect environmental data. The team also accessed bush land and farm areas for collection of climate and ecological data and carried out transect survey for Flora and Fauna. They were also informed on coming public consultation and formal invitation to be delivered once the date and venue are confirmed.

Local clinics were also visited to collect health statistics and to discuss hospitals condition or readiness to respond to any emergency during the drilling.

Traditional elders were also met to discuss the traditional ceremonies prior to drilling and also to identify any landmark sacred sites which may need to be protected or aware of access restriction.

Actual Public Consultation

When the public gathering dates were determined, local authorities two Sucos were approached again to secure Community Halls as the consultation venue. Formal invitations were dispatched to local authorities, local institution, NGOs and other interest parties. Village chiefs were requested to assist by disseminating the invitation verbally to general public, village elders and youth groups. A formal public announcement was also made through media and notice boards at Sucos and TR Betano office.

Community members were very enthusiastic to attend the presentation. The wide range of participants such as parents, elderly people, youth, students, member of public institutions, local authorities and Police demonstrate this.

As planned and advertised in the social media the Environment Public Consultation for EIS /EMP was carried out at Suco Foho-Ai-Lico on 27 of April 2021 and at Suco Betano 28 of April 2021.

16.4 SUMMARY OF MAIN COMMENTS FROM PARTICIPANTS

16.4.1 Suco Foho-Ai-Lico

The following questions were raised by participants during the public consultation at Suco Foho-Ai-Lico:

Domingos de Sousa Martins

The Local Community always maintain good cooperation with the Company Timor Resources and would like to see:

a-Small jobs given to the locals in a fair selection

b-Can the Company use small vehicles to build the access road?

Answer by Filomeno De Andrade

Grateful to hear the good cooperation of the locals with Timor Resources and Timor Resources will continue to have the locals as good partner in the activities

a- *Regarding small jobs when is unskilled we always liaise with the community leaders to a fair opportunity for everybody. We don't do selections. We provided the number of workers required and leave to the Community leader's decision to allocate workers for these unskilled positions, as long as they are physically fit for the job.*
   - *For skilled jobs we follow the results from job advertisement and selection by Human resources sector. Using a committee, we shortlist and then interview candidates.*
   - *We have never approached anybody isolated offering a job. We follow the rules, transparency and procedures adopted by the Company to be fair to everybody.*

b- *The Company always follows international best practice in all activities. It is no point to use a small vehicle for heavy and big job out of the purpose, capacity and quality of the vehicle. We want a vehicle to do the job and not to destroy the vehicle.*

Paulo da Costa

a- We need help from Timor Resources to build access road to the Community of Be Mos and Electricity.

b-We have water but need improvement to the existing infrastructure.

Answer by Filomeno de Andrade

a- *We received a proposal from the Community leader of Foho-Ai-Lico. I have submitted to the Company to look at the proposal. If it can be implemented as Community project to respond to the need of your Community we are supportive. I understand that your request is so important for your Community as it will benefit the students to travel to*

school, any patient with urgent medical assistance etc. We will be happy to assist and I will comeback to your Community as soon as possible.

b- We will assess to find out the improvement required and also comeback to you

Santiago da Costa

Concern with the veterans as in many activities they are the obstacle therefore request them to support Timor Resources activities.

Also if there any job opportunity should be fair to everybody and not to give only to the veterans.

Filomeno de Andrade – Thank you Santiago. I shall leave your concerns to you and the Local Authority and Community Leaders to discuss the issue.

Juvenal da Costa

a-Concerns by the way Timor Resources handled the job applications in the past without public announcement of the results and similar approach to the process done by the Government.

b-Timor Resources did not follow the procedures in the community socialization for supply of foods and did not give any participation of local companies.

Answer by Filomeno de Andrade

a- Timor Resources openly advertised vacancies for semiskilled and unskilled locally at all level of the government structure from village to District Administration levels. In the announcement we made clearly written at the bottom of the page that we will only contact the selected applicants for job interview. This information was clearly stated and shown in the advertisement.

- *It was the company recruitment procedures and we only contacted those who were selected. Timor Resources has policies and procedures for recruitment.*
- *If we have to do the public announcement covering all the village to the District Administration it would take at least 4 months to undertake when the job is for less than 3 months.*

b- Regarding to the supply of food I believe you didn't participate in any of the socialization meetings neither the goods and services workshop here at Foho-Ai-Lico otherwise you would have gathered the necessary information to participate in the program. Also we announced a meeting at our camp in Betano to all those who interested to supply food to the camp. There are healthy and safety procedures for this activity. Just to let inform that we had an interesting case with Foho-Ai-Lico. We were told to come to collect fish. The camp boss and myself came here. As we arrived the fisherman jumped into the lake and after 3 hours caught only 8 fish. We returned empty hand with no fish. How could we feed 98 workers with 8 fish.

Salustiano

Thank you for the presentation. He has concern with impact to the water and also recruitment of the locals.

Abilio Fernandes – A samples of water were collected and the quality will be monitoring periodically to ensure the quality is maintained.

Filomeno de Andrade

Local consumption of water will not be affected. Water for the operation will be provided by water suppliers. Water for drilling will be from the river and also from retail suppliers if necessary.

Regarding recruitment of the locals. If it is for unskilled or semiskilled we will advertise the positions available. There are procedures to follow. There will be a short list, job interview and medical examination prior to job offer.

Herculano das Dores

As a veterans he wants to ensure no impediment and suggested Timor Resources to have coordination with veterans to ensure no failure in the activities.

Filomeno de Andrade

Thank you, Mr Herculano, and noted your suggestion. Will contact you when we start with the activities.

Agostinho da Costa

Wanted to inform that he has his land with certificate therefore leave to our consideration if we use his land for access road.

Filomeno de Andrade

The access road is requested by the Community Leader and also members of the Community. I leave to the Community leader to discuss the issue. We received a proposal from the Community leader and we try to assist and possible build a road requested by the community.

Juvenal da Costa

Does not agree with the company policy regarding recruitment process. Still wants the same way as the government.

Filomeno de Andrade

Timor Resources has own policy and procedures for recruitment which is in coordination and agreement with SEFOPE. Our policy is different on recruitment process to hourly rate and fortnight payment of salaries. Everybody was happy with it. You can testify with that gentleman seating next to you. He was Timor Resources employee in Suai. It is simple Mr Juvenal. You apply if agreed with our policy and procedures. Do not apply if you don't agree.

16.4.2 Summary of Main Comments from Participants Betano

The following questions were raised by participants during the public consultation at Suco Betano:

Hermenegildo Pereira

a. High Risk category A affecting fauna and Flora. What measures for air and soil?

Answer by Abilio Fernandes

Samples of air and soil were taken for study and will set as reference in our data record. The Company will monitor the quality of air and soil periodically to ensure be like the data record. If changes occur corrective measures will take place to rectify the problem.

b. Is lease agreement done before or after drilling?

Answer by Filomeno de Andrade

Land negotiation and agreement is done before the use of land. The agreement should contemplate all the necessary activities including duties and responsibilities from both sides: landowner and operator.

c. What will happen to the houses close to the drilling sites?

Answer by Filomeno de Andrade

According to the Law and procedures in place we will relocate the occupants and find It is contemplating in the law. If houses are close to the drilling the occupants are relocated and conditions of the relocation are subject for negotiations between the occupants and the operator.

In our case at the well location is far from any houses therefore no relocation and the provisional in the law is not applicable for Rusa.

d. What happen after the drilling?

Answer by Filomeno de Andrade

If found oil in quantity for production the operator will review the lease agreement with the landowner for longer lease or purchase of the land possible just for the well head and the access.

If not found oil or the quantity is not commercially viable for production the land will return to the landowner under conditions agreed in the lease agreement.

Moeses Pereira

Just recommendation to the Community to cooperate and support Timor Resources drilling activities. The outcome is not only benefiting the Company but the Country.

Answer by Filomeno de Andrade

Thank you for the support.

Tito Gonzaga

a. Recently, around two months ago ETO caused oil spill of around 5000 L to the sea during the transfer from shipment to the power station. There is no more fish in the area and no fishing activities since. What approach Timor Resources will have in this case?

Answer by Filomeno de Andrade

That is ETO's problem, and the Government should take the necessary measures to deal with it.

We are not involved in it. We do have high concern with the damages that occurred but is not Timor Resources problem. It is ETO and the Government's problem. Timor Resources will have an Environment Mitigation Plan in place for drilling activities and this is what we are discussing now. My suggestion for you to raise your concerns to the Government and Local Authorities

b. What implication would be with extension of 5 KM to the sea?

Answer by Filomeno De Andrade

The extension is related to continuity of the geological formation to the sea. We are doing Onshore drilling and there is no implication while the drilling in Onshore. For any offshore activity we will have law and procedures to follow including environment studies and environment mitigation plan.

Maria Martins

What is the environment impact for areas surrounding the drilling sites and what preventive measures are taken?

Answer by Abilio Fernandes

I went through the slides regarding the environment survey and studies and also environment mitigation plan. Yes, we have preventive measures for any negative impact

Filomeno de Andrade

We have provided copy of the EIS and EMP which is in the Suco's office. We encourage you to read in additional to the explanation of Mr Abilio Fernandes. We are always available for any question you may want to ask.

Aniceto da Costa

a. Why still not sure with the discovery sine you have carried out seismic and Geologic activities?

Answer by Filomeno de Andrade

We are using 2 D technology. It does not tell the volume and the quantity. 3D technology is different however is very expensive.

b. If you have now result, would you have handed over the data to the Government?

Answer by Filomeno de Andrade

Correct. It is in the PSC contract. If we don't have discovery will handed out the data acquired to the Government

Simoes

If no discovery what is next?

Answer by Filomeno De Andrade

If we have no discovery, we will close the well. Follow the abandonment procedure according to the law and lease agreement and move out of the place.

Joao Dias

What recruitment system is in place?

Answer by Filomeno de Andrade

The recruitment system is for:

- *Skilled – Professional with years of experience according to requirements in the job description and advertisement. Job advertisement is national wide through newspaper, television and social media, local administration notice board.*
- *Semi-skilled – Professional with years of experience according to requirements in the job description and advertisement. Job advertisement national wide through newspaper, television social media, local administration notice board*

- *Unskilled- background and experience according to requirements in the job description and advertisement. Job advertisement locally through social media, local radio, and local administration notice board.*

16.5 DETAILS OF ACTIVITIES AND PARTICIPANTS

The participants include Local Community leaders such as Chefe Suco, Chefe Aldeia and Local Youth Groups. There were also Representative of Local Authorities such as District Administrator, Sub District Administrator and Vice Commander of Police.

TR carried out individual or small group engagement through direct contact and face to face meetings. For large gathering, TR together with its consultant (Groena Circoal) carried out public consultation which accommodated all level of community and institutions.

16.5.1 Suco Foho-Ai-Lico

As planned and advertised in the social media the Environment Public Consultation for EIS /EMP was carried out at Suco Foho-Ai-Lico on 27 of April 2021.

Venue- Suco Foho-Ai-Lico (Outdoor)

Time : 9:00am – 12:30pm

Particpants:

- Sub District Administrator of Hatudo Mr Rogerio da Costa
- OGL Hatudo- Mr Cegres Zelino Tilman
- Police Commander of Hatudo Mr Tomas Josep
- Community leader of Suco Foho-Ai-Lico Mr Donato de Araujo Laot
- Community leader of Leolima Mr Mariano de Almeida
- Community village leaders-Ferando da Costa, Alcino Amaral, Nazario das Dores, Juliao dos Santos, Rui Tati Tilman, Crisodio da Costa, Anita Honoria, Carmelita da Costa, Domingas da Costa, Julianti da Costa
- Local Veterans- Herculano das Dores, Santiago da Costa, Carmelito da Silva
- Timor Resources: Ocky Maher, Veronica Belo and Filomeno De Andrade
- Groena Circoal Consultant: Zefimo Corbafo, Abilio Fernandes, Caniggio Quintas

Agenda:

1. Introduction by MC – Veronica Belo
2. Opening by Hatudo Representative - Mr Cegres Zelino Tilman
3. Opening by Representative of Local Authority – Mr. Rogerio da Costa
4. General Decree Law - EIS and EMP Mr. Zefimo Carbafo and Mr. Abilio Fernandes
5. General Overview of the Project Timor Resources – Mr. Filomeno de Andrade
6. Open discussion (question, suggestion, and answer)
7. Message by Policy Commander – Mr Tomas Josep
8. Closed by Hatudo Representative - Mr Cegres Zelino Tilman

9. Closed by Representative of Local Authority – Mr. Rogerio da Costa
10. Lunch Together with Participants

Total number of participants - 230 - Signed Attendance list 179, Unable to sign 51

16.5.2 Suco Betano

As planned and advertised in the social media the Environment Public Consultation for EIS /EMP was carried out at Suco Betano 28 of April 2021.

Venue: Suco Betano Community Hall (Outdoor)

Time: 90.30AM – 12.30 PM

Subject: Environment Public Consultation in Block C PSC -TL-OT-17-09

- Police Commander of Same : Mr. Adão de Araujo
- Community Leaders of Betano Representative : Mr. Felix da Costa
- Community Villages Leaders : Aurio Francisco, Saul Seixas, Domingos Tilman, Saturnina Seixas, Manuel das Neves
- Traditional Leaders : Jose de Nascimento
- Timor Resources : Filomeno de Andrade, Octavianos Maher, Veronica Belo
- Groena Circoal Consultant : Zefimo Corbafo, Abilio Fernandes, Caniggio Quintas

AGENDA

1. Introduction by MC – Veronica Belo
2. Opening by Community Leaders of Betano Representative - Mr. Felix da Costa
3. Opening by Representative of Local Authority – Mr. Rogerio da Costa
4. General Decree Law - Environment Impact and Management Plan Environment by Groena Circoal Consultant – Mr. Zefimo Carbafo and Mr. Abilio Fernandes
5. General Overview of the Project Timor Resources – Mr. Filomeno de Andrade
6. Open discussion (question, suggestion, and answer)
7. Message by Policy Commander – Mr. Adao de Araujo
8. Closed by Community Leaders of Betano Representative - Mr. Felix da Costa
9. Closed by Representative of Local Authority –
10. Lunch Together with Participants

Total Number of Participants : 78 -Signed attendance List 67, Unable to Sign 11

16.6 SUMMARY OF PUBLIC OPINION AND ACCEPTANCE OF PUBLIC

During the public consultations and direct engagement, the public demonstrated great interest with the expectation that drilling could bring new opportunities for employment and business activities. Community and local authorities confirmed their support for the success of the project, however, advising TR to ensure that all activities are carried out with due diligence and based on applicable laws to minimize negative impacts in all phases of activities. Local authorities demonstrated their support by advising the public that this project is a national interest therefore requires cooperation from all levels of the community.

16.7 DESCRIPTION OF RELEVANT ACTIVITIES AND MATERIALS FOR CONSULTATIONS

Below are the activities carried out in preparation for consultations:

- Direct Contact was made to individuals and group informing certain activities and upcoming public consultation.
- Formal invitation letters were also distributed to local authorities, public institutions, Police and other interest parties.
- Information Dissemination through Media
- Information on the draft of EIS including the Public Notice was posted through national newspapers such as Timor Post and STTL and a hard copy of these documents were disseminated to Ministry for Mineral and Petroleum as well as Post Administrative and affected sucos. As per the requirement under DM 47/2017. Identified/affected parties were given opportunities no less than 10 working days to provide feedback and comments on the draft EIS and submitted to proponent or the Environmental Authority.

16.8 RECOMMENDATION FOR FUTURE CONSULTATIONS

Overall, the Public Consultation was successful in terms of participation and enthusiasm of communities. All preoccupation of communities have been addressed properly by the project owner. However, strong coordination between the project owner, communities and related government institution is advised.

16.9 PUBLIC CONSULTATION AFTER DRAFT EIS/EMP SUBMISSION TO ANPM

After the submission of draft EIS/EMP to ANPM, Timor Resources made a public notification through printed media and websites on this Public Consultation and also delivered direct invitations to local authorities, community leaders and interest parties. The open invitation is to invite any community members who may be interested or may be affected by this drilling activity to attend and carry forward any concern to the attention of Timor Resources and relevant authorities. The Public Notice was also to invite community members or any interest parties to obtain a copy of draft EIS/EMP for their review and comment.

Most of the concerns or questions from the participants are on the drilling impacts to communities, land and farms, mitigation on drilling issues environmental impacts, job opportunities and local supplies.

16.10 CONTINUOUS PARTICIPATION

TR will ensure continuous participation with communities through various community programmes and also by continuation of the existing Community Consultation Plan (see Appendix I - Community Consultation Plan), and by following TR Stakeholder Engagement Guidelines (see TR-HSE-GUI-001 Stakeholder Engagement Guidelines). All relevant documents are uploaded to the ANPM FTP website.

Through the TR Operating Management System (OMS), processes are established for active two-way external communication and engagement with partners, contractors and all stakeholders on key issues (see Figure 16-1 below) and to report on the performance of our activities and operations, see OMS Communications Standard: TR-GEN-STD-00-000-008. Stakeholder engagement is an ongoing process that involves the following elements:

- Identify and Assess Objectives
- Engage Stakeholders and Develop Engagement Plans
- Implement Engagement Plans
- Monitor and Review

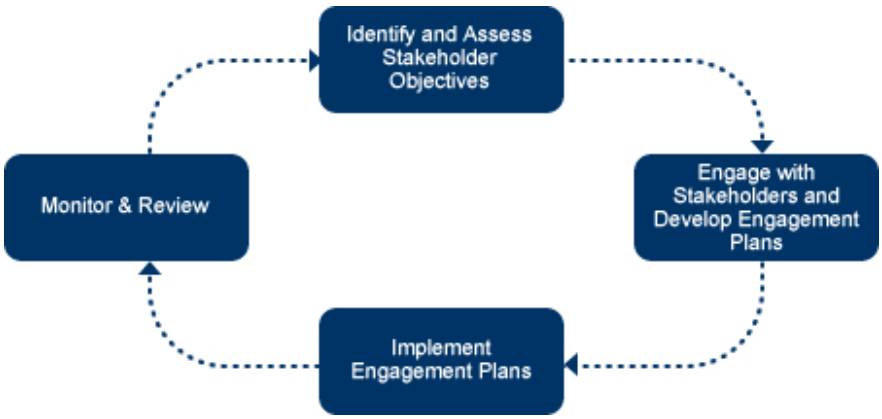

Figure 16-1 - Stakeholder Engagement Process

16.11 Ongoing Community Programmes

Timor Resources has implemented a number of community programs, including horticulture, gifted seeds, irrigation and financial support. The supply of irrigation and water infrastructure has been the focus of Company support during seismic and is continuing during the drilling campaign.

Support for local sporting competitions, teams and local events is another community contribution. The sponsoring of the Manufahi Cup, the Tour de Dili, and the local community football and soccer federations.

The road leading to the site is subject to a community improvement project ahead of project initiation in the PSC.

17 GRIEVANCE REDRESS MECHANISMS

The TR Grievance Redress Mechanism (GRM) (see Appendix C) is a requirement under the Environmental Impact Assessment (EIS) and Environmental Management Plan (EMP). TR is committed to implementing appropriate controls to avoid, manage, mitigate and remediate any negative impacts whilst maximising positive impacts. TR will establish positive, co-operative relationships with relevant government agencies and surrounding communities with the aim of ensuring key stakeholders are informed of TR performance.

The objectives of the GRM are to:

- Help TR understand the community's or stakeholder groups' perception of the environmental and social risks and impacts of the project.
- Ensure that formal grievances from the communities or others are promptly heard, analysed, handled and answered in order to take preventative actions and detect causes before they can have significant implications on business performance.
- Have a transparent and fair process for affected communities and other stakeholder groups seeking to have their grievances resolved.

17.1 SCOPE

The GRM provides a complaints and grievance procedure for PSC TL-OT-17-09 Drilling Campaign only. The procedure will cover or apply from the beginning of the social and environmental assessment process and exist throughout construction and operations phases through to the end of project life. This procedure does not cover or apply to Human Resources issues. This procedure will help provide a transparent and consistent process for resolving complaints and grievances against TR.

17.2 PRINCIPLES OF PROCESS

Grievance: An issue, concern, problem, or claim (perceived or actual) that an individual or community group wants a company or contractor to address and resolve.

Senior Management will provide active and sustained support to this procedure in order for it to be effective and gain legitimacy. The Operations Manager will be responsible for the implementation of the procedure supported by the Health, Safety and Environment (HSE) Officer, and the Community Affairs (CA) Manager and Officers.

The following principles will be applied to the GRM process:

- All complaints and grievances will be treated seriously and entered into the grievance register kept by Timor Resources.
- Strict confidentiality will be upheld.

- The guiding principles of negotiation, mediation and conciliation will be applied.
- All complaints and grievances will be dealt with a specified timeframe.
- No form of persecution, harassment or discrimination will be tolerated.
- Clear and appropriate communication is to occur throughout the process.
- A report will be filed at the completion of the complaints and grievances process.

The structure of the GRM procedure is shown in Figure 17-1 (refer also Appendix C).

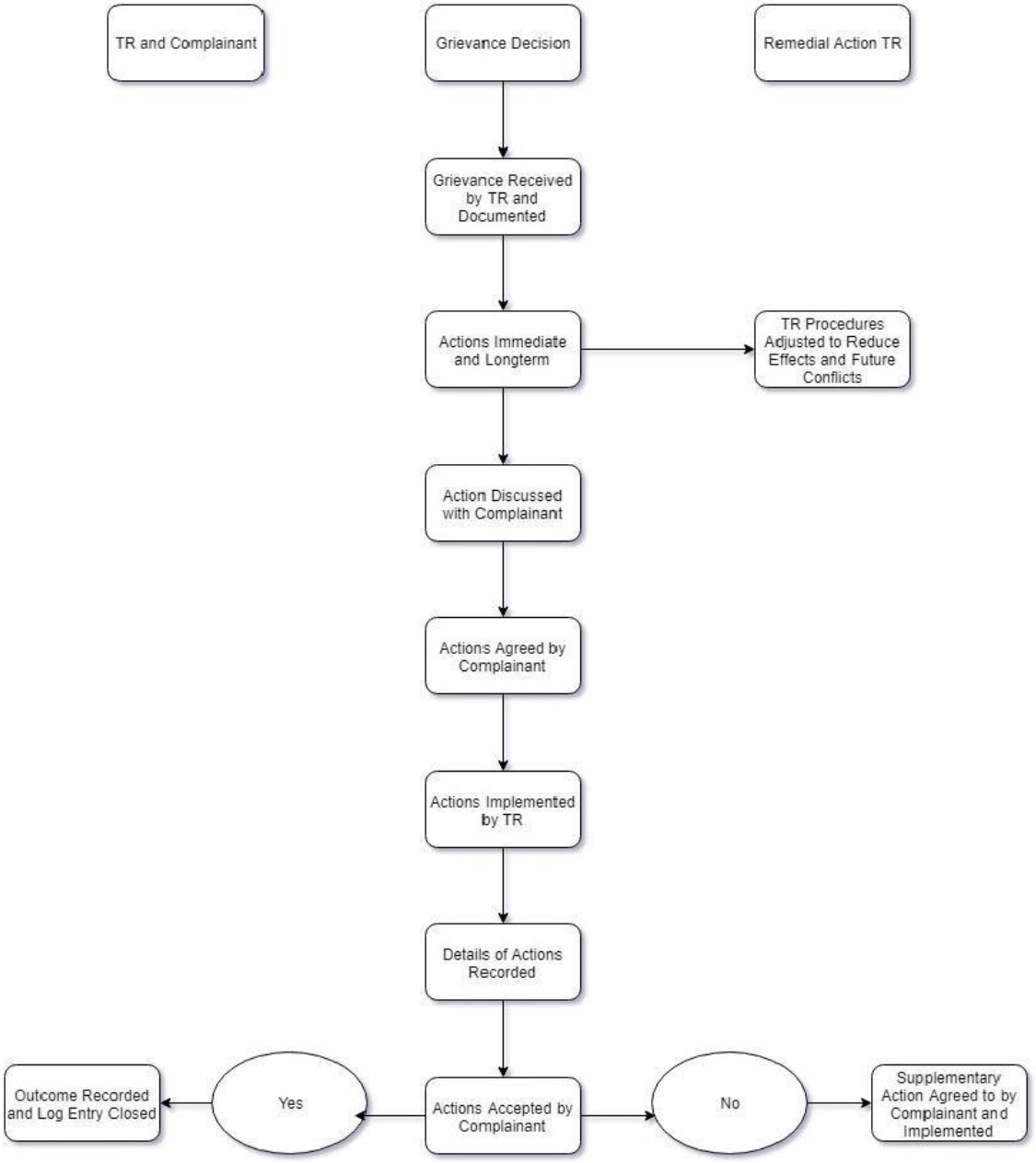

Figure 17-1 - GRM procedure structure

18 WORK PLAN AND IMPLEMENTATIONS SCHEDULE

The TR work plan is presented in Table 18-1 which also indicates the timing for planning any rehabilitation that may be necessary after the drilling of each well depending on the status of the well.

Table 18-1 - Work Plan and Implementation Schedule

	DRILLING CAMPAIGN IN TIMOR-LESTE (May be subject to variation, pending future updates on COVID-19, quarantine and flight restrictions)	START	FINISH
1	Rig move to block C (Relocate rig to Block C – 18 days)	21/10/2021	8/11/2021
2	Rusa-1 drilling (38 days)	9/11/2021	16/12/2021
3	Rusa-1 Well suspension Or Abandonment Plan Prepare rehabilitation plan for approval *	28/12/2021	28 /3/2022
4	Rig Demob via Suai Port	17/12/2021	16/01/2022

* Note: Rehabilitation schedule is drawn up after completion of the well if the wells are to be Plugged and Abandoned (P&A).

Section 10 presents details on the monitoring program.

Section 11 presents details on the reporting activities.

19 COST ESTIMATE

The costs related to environmental mitigation measures are summarised in Table 19-1 . This includes high-cost capital equipment items such as blow-out preventers, diverter, emergency valves the flare line and pressure and flow monitoring equipment (see Items 1 and 2 below), all such items may be categorised as "environmental" spend as they perform environmental protection functions, e.g. preventing a blow out, monitoring high pressure events that could lead to a blow-out. Item 3 is a cost estimate for the mud chemicals which provide a key "barrier" down hole balancing downhole pressures so removing the risk of over-pressure and a blowout. Item 4 covers training costs for personnel and permitting costs, Items 6, 7 and 8 are costs to be considered as local costs in and around the project area.

Table 19-1 - Project Environmental Costs

	Item	Pre-Project/ Construction	Drilling	Decommissioning
1	Equipment Used for Environmental and Risk Mitigations. BOPS's, Diverter, ESD, Flare Line	$3,400,000		
2	Pumps, Choke Lines, Pressure and Flow Monitoring, equipment redundancy	$1,500,000	$400,000	
3	Mud Weighting and Lost circulation	$300,000	$100,000	
4	Rig Certification, Crew training, Crew Certification, Rig maintenance, Approvals, Safety Case, HSE, Category A license	$560,000	$400,000	$260,000
5	Air Noise Light Pollution Habitat, Baseline Studies.	$200,000	$180,000	$120,000
6	Community and cultural, education, inclusion employment, procurement of goods and services, community relations, information sharing, celebrations, local sponsorship, land and surface leasing fees.	$550,000	$600,000	$400,000
7	Civil construction, planning, equipment, logistics inside Timor-Leste incl. import duties, WHT	$1,500,000	$140,000	$320,000
8	Decommissioning, Reforestation, removal of civil constructed sites, monitoring, reporting.	-	$80,000	$600,000

20 REVIEW OF THE EMP

The EMP will be implemented through the Timor Resources Operating Management System (see Table 20-1). The mitigation measures identified for the management of potential environmental impacts will be integrated into the project design through the OMS.

The key OMS elements applied in the review and audit of the EMS are:

- Element 7 Operational Controls:
  - Health, Safety and Environmental Management
  - Management of Change
  - Contractor and Purchasing Management
  - Asset Integrity, Engineering and Project Management
- Element 9 Crisis and Emergency Management
- Element 10 Assurance
  - Inspection and Audit
  - Non-Conformance Corrective and Preventative Action
- Element 11 Performance and Compliance

The EMP and its frameworks may be subject to review for the various reasons:

- Changes of a plan, activity, process or procedure that is considered to pose any detrimental effect to project, human or environmental as whole; it also applicable for any positive changes that are considered to add value to the project, social or environmental as whole.
- Changes of responsibility towards any social and/or environmental aspects identified within the project EIS or EMP and its frameworks.
- Changes of any project related legislation that may require an update to the EMP and its frameworks.
- Changes of monitoring results that may require an update any threshold or environmental limit value identified within project EIS or EMP and its frameworks.

Table 20-1 - Timor Resources Operating Management System

PDCA CYCLE	OMS ELEMENT	OBJECTIVE
CORE	1. LEADERSHIP AND ACCOUNTABILITY	Provide visible leadership at Corporate and Business Unit level with clearly defined and documented authority and accountability. Champion Corporate culture, behaviours and performance.
PLAN	2. RISK ASSESSMENT AND CONTROL	Conduct comprehensive and routine assessment of the hazards and risks associated with activities and operations. Appropriate action is taken to control and mitigate risks. Conduct routine reviews.
	3. POLICIES, EXPECTATIONS AND LEGAL REQUIREMENTS	Policies, Expectations, Standards and legal requirements are properly identified, interpreted and tracked.
	4. OBJECTIVES, TARGETS AND IMPROVEMENT PLANS	Set Objectives and establish annual Targets and Key Performance Indicators. Define effective ways of measuring progress and performance. Specify how performance improvements will be achieved and assign responsibilities.
	5. ORGANISATION, RESOURCES AND CAPABILITY	Define and document organisational structure. Specify resource, competence and assurance requirements. Implement training, organisational learning, and competency development programs.
	6. DOCUMENTS AND RECORDS	Establish and maintain appropriate and practical documentation and records, document control and record management systems.
DO IMPLEMENTATION AND OPERATIONS	7. OPERATIONAL CONTROLS	Appropriate systems and controls are implemented and maintained for all HSE, Security, Engineering, Project, Asset Integrity, Process Safety and Operational activities. Monitor and report on the effectiveness of the systems, and establish mechanisms to prevent non-compliance, corrective and preventative action. Implement methods to manage change and controls for contractors.
	8. COMMUNICATIONS	Establish and maintain processes and procedures for effective communication of information internally and engagement with partners and all other stakeholders.
	9. CRISIS AND EMERGENCY MANAGEMENT	Develop Crisis and Emergency Management capability. Implement and maintain for all activities and operations. Plans are tested and personnel are trained in their expected roles.
CHECK ASSURANCE	10. ASSURANCE	Implement a routine Assurance program: inspection and audit, and a system for managing non-conformance. Report, investigate and analyse all incidents, and act effectively on results.
ACT	11. PERFORMANCE AND COMPLIANCE	Establish and maintain appropriate systems for monitoring and reporting performance and the status of Governance: compliance with and performance of Policies, Expectations, Standards and legal requirements. Assess the effectiveness of the OMS to deliver sustainable performance through management review.

21 NON-TECHNICAL SUMMARY

English	Tetum
Timor Resources Pty Ltd acquired onshore PSC TL-OT-17-09 in Ainaro and Manufahi Municipalities on 7 April 2017. The licence covers1,291 km^2, including 1,002.4 km^{2}onshore extending along the coastline for approximately 52 km and up to 30km inland, and 288.6km^2 of the near offshore for an average distance of 6 km from the coastline.	Timor Resources Pty Ltd hetan contratu ba rai laran PSC TL-OT-17-09 iha Municipio Ainaro e Manufahi iha loron 7 de Abril 2017. Lisença ida ne'e ba area 1,291Km2 nebe 1,002.4km2 iha rai laran tuir tasi ibun mais ou menus 52kn no to'o 30km ba railaran e 288.6km2 tama tasi laran mais ou menus 6km sura husi tasi ibun.
The project is to conduct exploration drilling of a single well named Rusa-1 within the Post Administrative Hatu-Udo, Ainaro municipality. The exploration drilling is planned to commence in Q3/Q4 2021, subject to easing of restrictions imposed due to Covid-19 pandemic.	Projeto ida ne'e atu halao esplorasaun ho perfurasaun mina matan ida naran Rusa-1 iha postu Administrativu Hatudo, Municipio Ainaro.Perfurasaun ba esplorasaun planu atu hahu iha Q3/Q4 tinan 2021, depende oin sa restrisaun hamenus tan medida ba Pandemia Covid 19.
This well was identified as a result of prospect evaluation carried out by Timor Resources' exploration team which ultimately defined the targeted plays to be drilled.	Posu ida ne'e identifika tuir procesu estudu no tetu hala'o husi equipa esplorasaun Timor Resources nian nebe halo desisaun ikus liu kona ba fatin nebe atu halo perfurasaun.
The methods used for the identification and assessment of potential impacts associated with the project meet Timor-Leste legislative requirements, as defined under Environmental Licensing Decree Law 5/2011 and supporting Ministerial Diploma 46, which describes the approach required by Timor Resources to identify the project impacts, in particular for each project phase: construction, operation and decommissioning.	Metodo ne'ebe usa atu hala'o identifikasaun no tetu potensial impactu kona ba projetu tuir lei hatete iha Timor Leste, tuir hatete iha Licensa Ambiental Decreto Lei 5/2011 no mos apoiu husi diploma Ministerial 46 nebe hatudu dalan atu Timor Resources tuir hodi hare impactus ba projetu, liu liu iha fase ba projetu ida ida nian hanesan: construsaun, operasaun no remata.
The project activities are broken down into three phases with regard to impact assessment: construction, drilling operations and decommissioning, the project activities are summarised as follows:	Atividade projeito nian sei fahe iha fase tolu tuir estudu ba impactu: construsaun, perfurasaun, operasaun e remata, atividade ba projetu bele tau hamutuk hanesan tuir mai:
Land access - the proposed drilling site does not require any resettlement of people, and all areas of cultural significance have been avoided. Land use and land access discussions included:	**Asesu ba Rai** - Area nebe hanoin atu fura la precija la muda ema e fatin nebe importante ba cultura hasses tiha ona. Diskuti ba rai atu uja no dalan liu fatin tenki hatama mos:

• Negotiations in good faith and in a respectful and reasonable manner. • Consultation with landowners to obtain their consent. These consultations covered the impact and term of the proposed use or access, employment and business development opportunities. • A community land use agreement, a resettlement and livelihood restoration plan, and agreements if displacement or relocation is required. • Compensation and land rental with local landowners for land use in accordance with the Timor-Leste rates, as required by the Onshore Decree Law of Timor-Leste. Compensation payments are transparent and made in the presence of relevant community and government representatives or independent observers. • **Geotechnical, Geochemical and Topographic surveys -** Surveys are conducted to gain understanding of the topography and soil characteristics of well sites and road access. • **Land clearance for road access and site construction -** The arable topsoil and vegetation is stockpiled and used to rehabilitate the site once drilling. • **Road and bridge surveys plan -** Surveys have been conducted on existing roads, bridges, and highways and mapped for the rig moves. • **Establish water supply -** Water will be sourced from local contractors. The amount of offtake from the water source will be such that it is not detrimental to the supply for other users. • **Well Site -** the dimension of each site is 100m x 100m. Two mud pits with approximate dimensions of 18m x 20m x 3m and 14m x 30m x 3m will be prepared with an impermeable membrane to prevent soil contamination. The pits will be fenced.	• Negosiasaun ho fiar, respeita no hahalok diakalu no respeito. • Konsultasaun ho nain ba rai atu sira hatan. Konsulta sira ne'e kona ba impacto e oin sa atu uja rai ka dalan, emprega ema e oportunidade atu desenvolve negocio • Akordu ba uja comunidade nia rai, muda hela fatin no planu atu hadia moris e akordu karik muda sai ka ba hela fatin seluk wainhira precija. • Compensasaun no renda ba rainebe uja husi nain ba rai kona ba rai uja tuir folin iha Timor Leste, tuir lei Onshore nian iha Timor Leste. Pagamentu ba compensasaun sira transparente no hala'o iha representante husi comunidade, governu ka observadores independentes. • **Survey Geotechnical, Geochemical e Topofraphic** hala'o atu hetan comprende kona ba topografia no carateristica rai nian iha mina fatin no dalan acesu. • **Hamos fatin ba dalan atu ba Fatin construsaun** – Rai leten ne'ebe suru no ai horis sei rai hamutuk atu bele usa fali hodi hadia fatin ne'e wainhira perfurasaun remata. • **Survey ba luron ho ponte**–Survey hala'o ona ba luron, ponte no highways nebe iha mapaatu lori liu rig. • **Oin sa atu fornese be**–Be sei foti husi contrator lokal. Be nebe atu foti sei husi fatin nebe la hamenus be nebe fornese ba ema seluk nebe uja. • **Fatin posu mina**–Kada fatin fura mina nia luan metru 100 x100. Fatin rua ba tau tahu nia bot 18m x 20m x 3m e 14m x 30 x 3m sei prepara ho membrana atu labele iha contaninasaun husi rai. Fatin tahu nia sei iha lutu haleu.

- **Drilling Operations** - The Drilling operation will be conducted as per standard onshore oilfield best practice, the well specific drilling programmes is approved by ANPM. Drilling operations will be conducted around the clock. The time taken to drill a bore hole is expected to be in the order of 20-50 days.
- **Well Testing** - Where a hydrocarbon formation is found well tests may be conducted.
- **Rig Move** - Rig moves from one location to the next have been planned and routes assessed including review of road width, intersections, bridges, community and public infrastructure.
- **Decommissioning** - If the well does not contain oil, the site is decommissioned and restored to its original state or to a state as agreed with landowners and approved by the appropriate authorities.

The following alternatives were assessed as part of the project:

- **"No Project"** -A "No Project" alternative was rejected.
- **well location** -The area surrounding the optimal well location was analysed to assess the impact on the environment, community, and cost of the various alternatives. These considerations are not mutually exclusive so have been considered in terms of a risk assessment based on the location of alternatives within the viable proximity of the optimal location.
- **project design** -an early decision was made to drill vertical, straight holes on safety and cost grounds.
- **water source** -water supply will be met by local suppliers since the level of offtake is such that it is not detrimental to the supply for other users.
- **Power supply** -there is no immediate source of mains power supply at the Rusa-

- **Operasaun Perfurasaun** - Perfurasaun sei hala'o tuir padraun nebe diak liu atu fura mina iha rai laran, programa especifiku ba perfurasaun ne aprova husi ANPM. Operasaun perfurasaun sei hala'o ho lalais. Tempu nebe lori atu hala'o perfurasaun ida sei lori loron 20 – 50.
- **Teste ba posu mina**–Fatin nebe hetan formasaun hydrocarbon (mina)sei hala'o teste ba posu ne'e.
- **Movimento ba Rig** (ekipamentos hodi halo perfurasaun) –Planu ba rig nia dalan atu liu husi fatin ida ba fatin seluk halo tiha ona no mos hare no hadia luron nia luan, comunidade no infraestrutura publika.
- **Dekomisionamento** - Se karik posu nebe fura la iha mina, fatin ne taka e hadia fali tuir molok atu hahu atividade sira ou tuir situasaun nebe konkorda ho nain ba rai no hetan aprova husi autoridade relevante.

Alternativa sira tuir mai hare fali ona hanesan mos parte projetu :

- **"La iha Projeto"**- Alternativa ba "La iha Projetoatu"rejeita ona.
- **Posu fatin**–Fatin nebe haleu ida nebe mak diak liu ba posu fatin analiza ona hodi tetu impaktu kona ba ambiente, comunidade no folin ba alternativas sira seluk. Considerasaun ida ne'e labele hanesan lolos ba fatin hotu nebe hare ona tuir risku nebe mak tetu ba fatin sira alternativa nebe besik fatin ida nebe mak diak liu.
- **Projetu nia design**–Decisaun hala'o uluk tiha ona kona ba perfurasaun vertical e los baseia ba safety no folin.
- **Fatin Be nian**-Be atu fornese ne'e sub contactor sei halo tuir nebe mak precija no quantidade nebe mak foti sei la prejudika fali ema sira seluk.
- **Eletrisidade** -Oras dadaun Eletrisidade la tama iha fatin posu Rusa-1, tan ne'e

1 well location, thus, power for the rig will be supplied from diesel generators on site to ensure consistent supply, the Betano camp will utilise mains supply with a backup generator as required. • **Cuttings disposal** - Cuttings will be buried in an impermeable liner on site after dewatering. • **drilling fluids** -Water based drilling fluids will be utilised throughout the project. **Environment** The drilling activities will not cause significant negative impact to identified animals within the location because they can move out to other locations when drilling activities are being carried out. **Positive Impacts** • **Employment** - 150 -180 positions will be filled by Timorese nationals during the whole of the drilling campaign. There will be a combination of skilled and unskilled positions, in the drilling crews, civil construction crews, geological teams, security teams, catering and services for the drilling contractor as well as a host of unskilled positions for labourers, cooks, cleaners and administration staff. • **Community programs** -Timor Resources has implemented a number of CSR programs, including horticulture that is now well established. Acreage of land owned by farming cooperative group has been gifted seeds, irrigation and financial support to increase their capacity to grow commercial crops. During drilling there is the expectation that US$70,000 will be spent on CSR initiatives directly associated with the contract area	eletrisidade ba rig sei fornese husi generator Diesel iha fatin ne duni atu bene asegura fornesimentu estavel, acampamentu Betano sei uja husi EDTL no iha back up ho generator wainhira precija. • **Fatin rai Foer**–Foer husi perfurasaun sei hakoi ho lensol impermeaval iha site wainhira maran. • **Fluido husi perfurasaun** - Fluido kahur ho be sei uja iha perfurasaun tomak. **Ambiente** Atividade perfurasaun sei la fo impaktu negativu bot ba animal sira nebe mak identifika ona besik fatin ne'e tan bele muda ba fatin seluk wainhra hala'o hela perfurasaun. **Impaktu Positivo** • **Kampo de trabalho**- Fatin servisu 150-180 sei fo'oba ema Timor sira wainhira hala'o perfurasaun. Fatin sira ne'e sei kahur ema skilled, unskilled, crew ba perfurasaun, crew ba construsaun civil ekipa geologia, ekipa security, catering no servisu ba perfurasaun no mos posisaun unskilled ba labour, tein, cleaners no administrasaun • **Programa ba Comunidade**- Timor Resources implementa ona programa ba komunidade hanesan horticulture nebe hari diak hela ona. Rai bot ho grupu agricultura hetan apoio ho fini, irrigasaun no apoio ho osan hodi habot tan sira nia capasidade atu kuda sasan ba fan. Wainhira hala'o perfurasaun hein atu uja $70,000.00 ba atividade nebe ligadu ho CSR iha area Kontratu.

- **Complaints - Commun**ity members can raise matters at any of Timor Resources' sites through the local community liaison officers. Grievance are recorded, assessed for potential risk or impact, and responded to it accordingly, and/or elevated to senior management. This approach ensures grievances relating to our activities can be raised easily and in a culturally appropriate manner.

- **Procurement of Goods and Services** - proc**urement fro**m Timorese owned and operated businesses in the contract area goods and services include but are not limited to:
  - Fresh Food and water $142,344
  - Accommodation Housing/Office Supply $126,700
  - Diesel Supply $276,000
  - Import Services for customs clearance $162,000
  - Rental of Heavy Equipment, trucks, cranes $172,000
  - Environmental Consultancy Engagement $190,000
  - Aggregate and **r**ock base $42,000

Residual Impacts

- **Traffic** - An increase in traffic may create a nuisance and potential impact on the safety of other road users. Limited number of locations and roads, short programme and transient nature of the project limits potential effects.

- **Soil** - Removal of topsoil and soil compaction will occur during the construction phase and continue until sites are decommissioned and rehabilitated.

  Air Quality - a decrease in Air Quality from dust and gaseous emissions during operations may create a nuisance and minor impact on the fauna and flora around the project site. A short drilling

- **Keixa**- Membro komunidade bele hato'o keixa ou duvidas ba iha Timor Resources nia Site liu husi Community Liaising Officer. Sira nia keixa sei regista,tetu kona ba potensial risku ka impaktu no hetan resposta tuir keixa, e/ou hasai ba senior management. Dalan ida ne'e atu asegura keixa kona ba ami nia atividade bele fasil atu hato'o tuir hahalok no cultura nebe diak..

- **Prokuramento ba sasan no services**- Prokuramento husi Companhia Timor no business sira iha area Goods and Services nebe inklui mai be la'os ne deit ba:

  -Hahan fresku ho be $142,344
  -Hela fatin/Fornesimentu ba Office $126,700
  - Fornecimentu mina diesel $276,000
  - Servisu importasaun no customs clearance$162,000
  - Aluga equipamentos pesadus, truck no cranes $172,000
  - Konsultasaun ba impaktu ambiental $190,000
  - Fatuk rahun no fatuk $42,00

Impaktu residuais

- **Trafiku**- movimentu trafiku ne'ebe mak aumenta karik inkomoda no iha posibilidade atu fo impaktu ba seguransa ema seluk ne'ebe mak usa luron Hamenus fatin no luron, habadak programa no movimentu oin oin huis projectu hamenus dalan ba efeitu sira
- **Rai**- suru rai parte leten nian no kompaktasaun sei akontese durante fase konstrusaun no kontinua to'o fase dekommisionamentu no rehabilitasaun ba rai ne'e.
- **Kualidade ar**- Kualidade ar karik sei redus husi rai rahun no emisaun gas durante fase operasaun karik sei inkomoda no karik sei fo impaktu ki'ik ba animal no ai horis iha area projeto.

programme (40 days) and low levels of diesel usage limit impacts. With the short project period impacts are considered short term and transient.

- **Solid Waste** - by the nature of the project, solid wastes will arise, waste management will provide the best available solution for waste management, however, the principal method of incineration will result in emissions to the atmosphere.

- **Noise** - drilling operations will be conducted on a 24 hour, 7 day per week basis so may cause a nuisance for local communities and wild life, but the duration is 40 days, thus is short term and transient.

Public Consultation

Presentations were made to local communities in the areas where the well site is located. The participants included the public, local community leaders such as Chefe Suco, Chefe Aldeia and local youth groups, also representatives of local authorities such as District Administrator, Sub District Administrator and Vice Commander of Police. Consultations were carried out at the following communities, participation was positive.

- Tuesday 27th April 2021 Suco Foho-Ai-Lico.
- Wednesday 28th April 2021 Suco Betano.

Conclusions

Mitigation measures have been proposed for all the residual impacts identified aimed at protecting the physical, biological, and socio-economic environments. An Environmental Management Plan (EMP) has been developed to manage the potential impacts of the proposed activities and ensure that they remain at acceptable levels throughout the course of the program.

Programa perfurasaun ne'ebe badak (loron 40 ba kada posu) no usa gasoel ne'ebe mak la barak sei limita nia impaktu. Ho periodo projeto ne'ebe badak signifika nia impaktu mos sei badak e liu lalais.

- **Lixo Solido –** tuir lalaok projeito nian, lixo solido sei existe, jestaun lixo nian sei oferese solusaun nebe diak atu maneja lixo solido sira ne'e, maibe, metodo principal insinerasaun (sunu) sei resulta emissao ba atmosfera.

- **Barulhu**- Atividade perfurasaun sei halao durante loron no kalan (24 horas) no loron hitu kada semana. Tamba ida ne'e, karik sei inkomoda komunidade local no animal fuik sira. Maibe, durasaun projeto sei hotu iha tempu badak e tamba ida ne'e, nia ipaktu mos sei akontese durante tempu ne'ebe badak.

Konsultasaun Publiku

Apresentasaun ba programa halo ona ba komuidade local iha area ne'ebe besik ba iha posu lima ne'ebe atu fura.

Partisipante iha konsultasaun publiko inklui komunidade local, lideres locais hanesan Chefe Suco, Chefe Aldeia no juventude local no mos representante husi autoridade local hanesan Administrador Municipio, Administrador sub distrito no vise komando PNTL. Konsultasaun publiku halo iha fatin sira hanesan tuir mai ne'e:

- Tersa Feira 27 Abril 2021 Suku Fohoailico.
- Quarta Feira 28 Abril 2021 Suku Betano

Conclusaun

Medidas ba mitigasaun hato'o ona iha proposta ba ba impaktu residual hotu ne identifika ona hodi bele mos proteje ambiente fisiku biologia, no socio-economikal. Sistema Planu Gestaun ba Ambiente (EMP) desenvolve ona atu bele maneija impaktu ne'ebe karik sei akontese ba atividade iha proposta no garante katak sei iha nivel aceitavel wainhira programa hala'o hela.

Recommendations Key recommendations are as follows: • Implement a Redress and Grievance Procedure that will be used throughout the project. • The Community Liaison Officer will maintain continuous engagement with all stakeholders and keep communities informed at all stages of the project in regard to activities, schedules and potential impacts. • All activities to be conducted in compliance with Timor-Leste laws including but not limited to: Law No.3 2012 - Legislative Authorisation in Environmental Matters; Law No 26 2012 - Environmental Basic Law; Decree-Law No.18/2020 - Onshore Petroleum Operations. • All activities to be conducted in compliance with Timor Resources HSE policy and Operating Management System Standards. • Consult with local administration and security agencies for support on security issues. • Liaise with the local community during the recruitment process. • Implement a Waste Management Plan and agree waste management practices and facilities in consultation with the Municipality. • Wastes should only be transported by an approved waste transporter agreed in consultation with the Municipality. • Implement a Traffic Management Plan and enforce traffic speed limits to minimise dust generation. • Make use of the existing access roads to the maximum extent possible. • Minimise vegetation clearance. • Prepare Rehabilitation Plans at the decommissioning stage. • Implement Noise and Air Quality Management Plans.	**Rekomendasaun** Rekomendasaun principal sira mak hanesan tuir mai ne'e: • Kria Sistema atu bele hodi simu reklamasaun no sei implementasaun durante period projeto nian • Ofisial ba Assuntu Comunitarion sei halo nafatin contaktu ho parte hotu nebe partisipa no hato'o nafatin informasaun ba comunidade kona ba fase hotu hotu relasiona ho atividade, planu no impaktu nebe bele mosu. • Atividade hotu sei hala'o tuir lei ne'ebe hala'o iha Timor Leste maibe la'os deit: Lei no..3 2012 konaba ba autorizasaun ba assuntus ambientais, Lei numero 26 2012 konaba lei basico ambiental, Dekreto Lei numero 18/2020 konaba atividade petrolifero iha rai laran. • Atividade hotu sei hala'o tuir Timor Resources nia Sistema Saude Seguransa Ambiental no Padraun ba sistema manejamentu ba operasaun. • Konsulta ho administrasaun local no agencia seguransa atu apoia kona ba asuntu seguransa nian.. • Kordena ho komunidade local durante prosesu rekrutamento. • Implementa Sistema de jestaun ba foer no konkorda ho praticas jestaun ba foer no facilidades no consulta ho municipio. • Foer so bele transporta husi kompanhia ne'ebe mak hetan ona aprovasaun atu transporta foer. • Implementa Sistema de jestaun ba trafiku no reforsa limite de velocidade hodi bele minimiza rai rahun. • Utiliza dalan ne'ebe mak iha nanis ona se possivel. • Minimiza hamos ou tesi ai horis • Prepara plano ba rehabilitasaun ba fase decomisiasaun • Implementa Sistema de jestaun ba kualidade ar no barulho • Implementa Sistema de jestaun ba

• Implement Incident management system: Crisis Management Plan - Corporate, Incident Management Plan - National, and Emergency Response Plan and Oil Spill Contingency Plan - local.	incidente hanesan: Plano jestaun de Krise – Corporativa, Plano de jestaun ba incidente – Nasional, no Plano resposta ba situasaun emergencia no plano hodi resposta ba Mina fakar – local.

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23 APPENDICES

APPENDIX A - WASTE MANAGEMENT PLAN TR-HSE-PLN-007

APPENDIX B – LAND USE AND REHABILITATION PLAN TR-HSE-PLN-008

APPENDIX C - REDRESS AND GRIEVANCES PLAN TR-HSE-PLN-009

APPENDIX D - OIL SPILL CONTINGENCY PLAN TR-HSE-PLN-004

APPENDIX E - TRAFFIC MANAGEMENT PLAN TR-HSE-PLN-010

APPENDIX F - INSPECTION SCHEDULES TR-HSE-PLN-011

APPENDIX G - NOISE MANAGEMENT PLAN TR-HSE-PLN-012

APPENDIX H - INCIDENT REPORTING AND INVESTIGATION STANDARD TR-GEN-STD-00-000-010_3

APPENDIX I - COMMUNITY CONSULTATION TR-HSE-PLN-013

APPENDIX J - AIR QUALITY PLAN TR-HSE-PLN-014

APPENDIX K - SOIL EROSION MANAGEMENT PLAN TR-HSE-PLN-017

APPENDIX L - SURFACE WATER MANAGEMENT PLAN TR-HSE-PLN-018

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