



Environment



Environmental Aspects

- Permits
- Air Quality
- Noise
- Noise and Light
- Contaminated Soil
- Cultural Resources
- Unanticipated Discoveries
- Groundwater
- Stormwater
- ESC
- Flora and Fauna
- Spills
- Waste Management





Environmental Policy, Commitments, Objectives and Targets

Environmental Policy



Objectives and Targets:

- Construction of the project without stoppage from the Regulator
- Compliance with permit and approval requirements
- Prevent harm to the environment
- Safeguard the environment through an actively managed sustainable development strategy



Our Environmental Vision:

"We will lighten the footprint of our activities"

GLNG adopts the principles of sustainable development. We recognise our responsibility to meet community expectations and we are committed to the continuous improvement of our environmental performance. We believe that environmental stewardship is both a management obligation and the responsibility of every employee.

To achieve this we will:

- Adopt and contribute to continuously improving the Santos Environment, Health and Safety Management System (EHSMS).
- Ensure that all employees and contractors receive appropriate training to fulfil their individual environmental responsibilities.
- Proactively pursue the identification of all hazards and eliminate or, if not possible, manage the risk to as low as reasonably practicable.
- Establish annual environmental objectives and targets and implement programs to achieve them.
- As a minimum comply with relevant legal and other requirements.
- Ensure that we have the resources and skills necessary to achieve our environmental commitments.
- Incorporate environmental performance in the annual appraisal of employees and contractors and recognise accordingly.
- Implement strategies to minimise pollution, manage waste effectively, use water and energy efficiently and address relevant cultural heritage and biodiversity issues.
- Formally monitor, audit, review and report annually on our environmental performance requirements against defined objectives.
- Require that companies providing contract services to GLNG manage their environmental performance in line with this Policy.

As Chief Executive Officer, I am committed to working with GLNG personnel to ensure that this policy is communicated, understood, accepted and successfully implemented by all GLNG employees and contractors.

Mark Macfarlane
CEO GLNG Operations (OPL)
1 September 2010



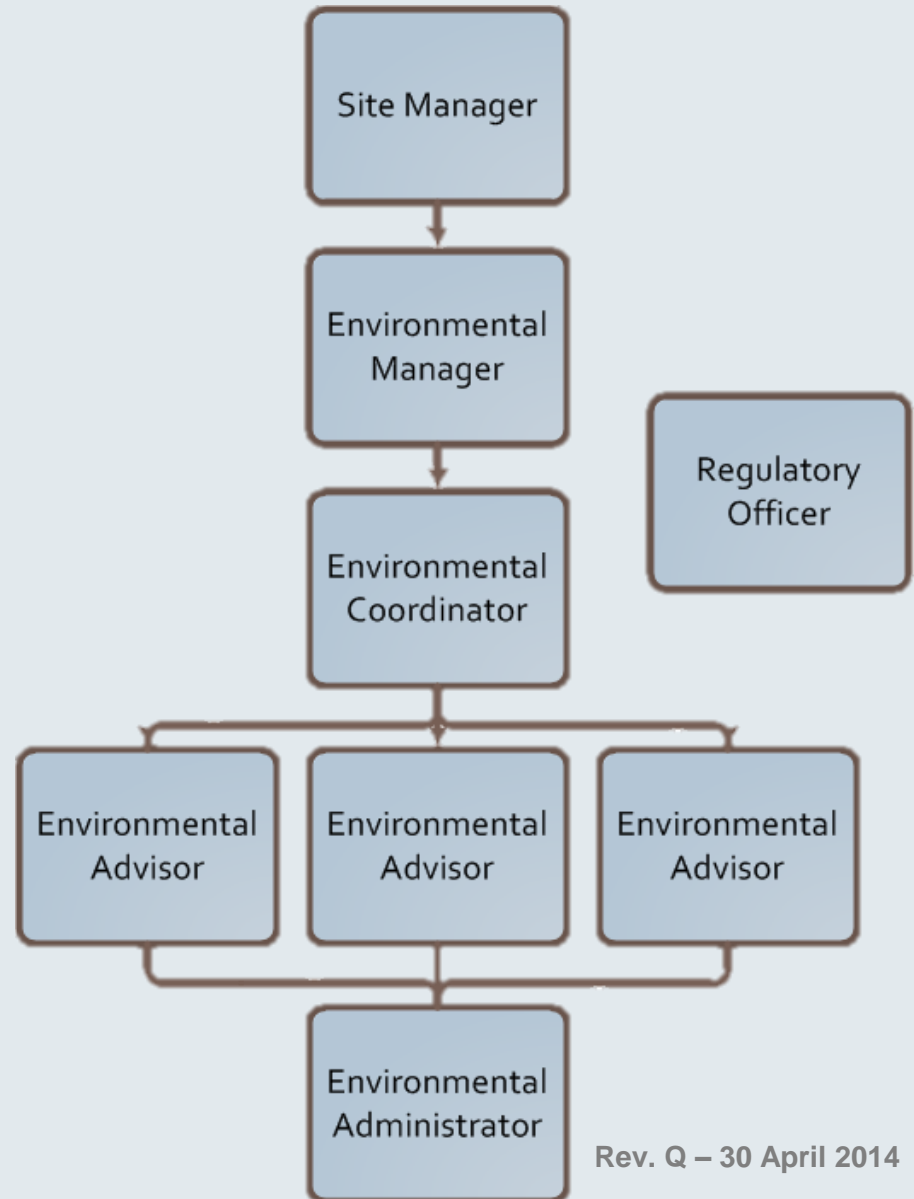
Roles, Responsibilities and Communication

Environmental compliance on site is enforced by inspections, audits and management practices.

Any complaints received are investigated and actioned in accordance with site management plans and permits conditions.

All environmental corrective actions are tracked through a register and closed out within 90 days.

Communication with the workforce is maintained by bulletins and toolboxes which are enforced by senior management.





Permits & Plans

- Environmental Authority (Curtis Island environmental conditions)
- Environmental Authority (Mainland facilities environmental conditions)
- Construction Environmental Management Plan (Plan of how to manage environmental aspects on site)
- Tidal Works (Enabling works on the shoreline)
- Species Management Plan (Management of animal breeding places)





Air Quality & Dust

Controlling dust on site:

- Utilise water trucks
- Cover loads
- Alter the activity
- Minimise speed



Controlling unnecessary emissions on site:

- Equipment maintenance
- Turn machines off during breaks
- No unauthorised burning of material on site

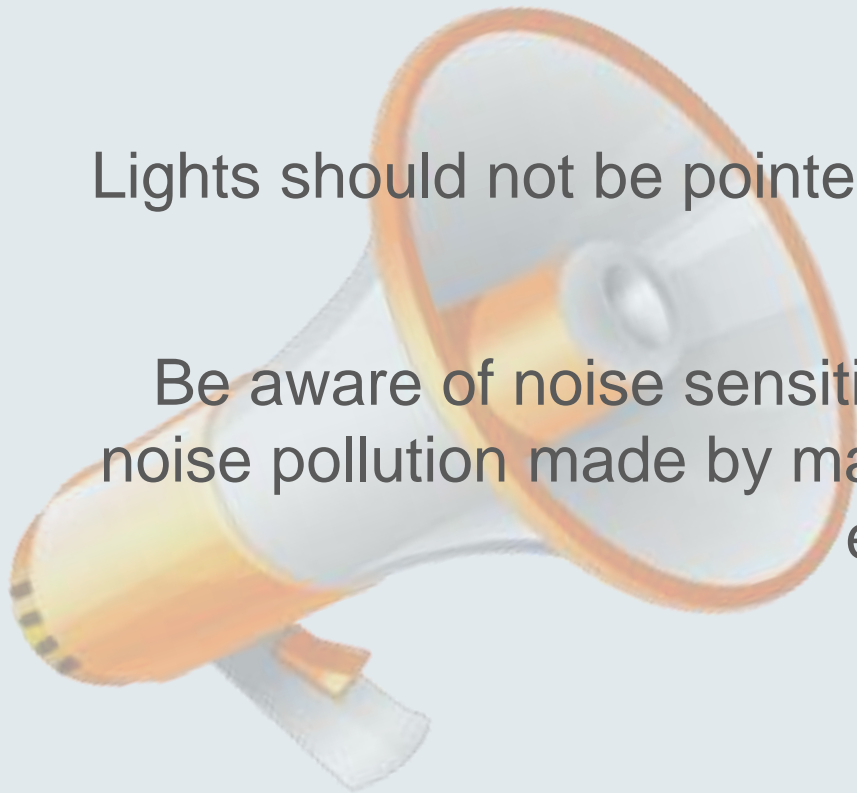


Noise & Light

Minimise reflective surfaces and work area lighting as much as reasonably practicable and as long as it is safe to do so.

Lights should not be pointed onto the ocean or bushland.

Be aware of noise sensitive areas and aim to reduce noise pollution made by machines, power tools, vehicles etc.





Cultural Heritage

Cultural heritage on Curtis Island includes stone artifacts, shelters, shields containers, workshops, quarries, farming and grazing equipment.

There are several cultural heritage management plans applicable to the site and they set out how the site works together to manage cultural heritage with the relevant Native Title claimants.

Protected sites on Curtis Island are identified by:

NOTE: All aboriginal sites, objects and remains in Queensland are protected under the Aboriginal Cultural Heritage Act 2003 and must not be harmed, excavated, relocated, taken away or possessed if the person knows or reasonably ought to know that it is Aboriginal cultural heritage.





Unanticipated Discoveries & Contaminated Soil

During excavation or other site works there is a potential to come in contact with unanticipated discoveries, examples of these are:

- Hazardous waste
- Chemical substances
- Acid sulfate soil
- Buried utilities



If this occurs, stop work and contact your supervisor for further direction.



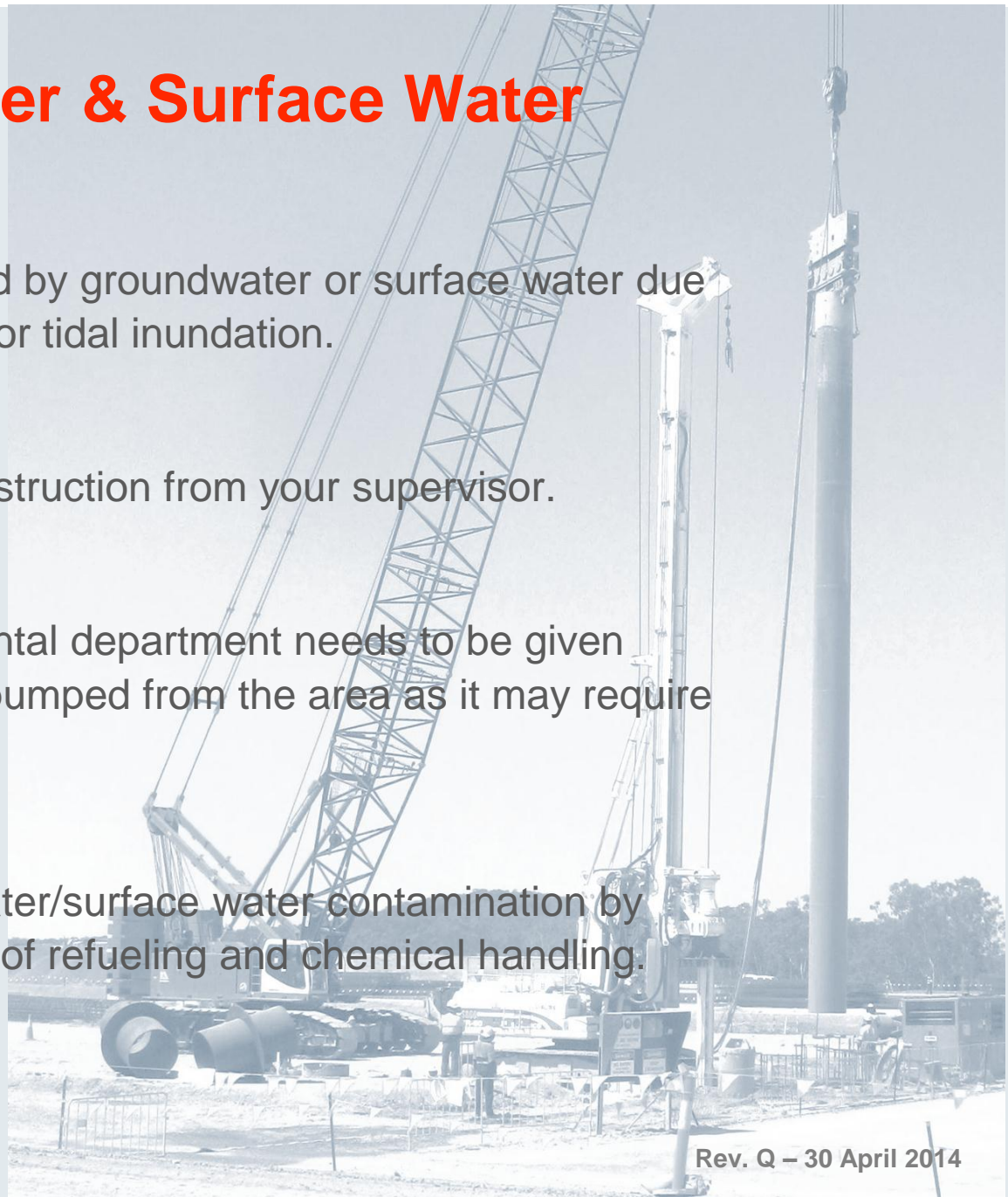
Groundwater & Surface Water

Works on site may be effected by groundwater or surface water due to drilling works, excavations or tidal inundation.

Stop work and seek further instruction from your supervisor.

Approval from the Environmental department needs to be given before surface water can be pumped from the area as it may require special treatment.

Minimise the risk of groundwater/surface water contamination by practicing good management of refueling and chemical handling.





Stormwater, Erosion and Sediment Control

The GLNG Plant Project has received over 1400mm of rain since the start of 2013.

Effective controls need to be in place to limit the release of contaminants to stormwater drains:

- Sediment
- Litter
- Chemicals

Temporary controls that can be implemented limit erosion and sediment movement:

- Silt fence
- Coir logs
- Geo fabric or matting

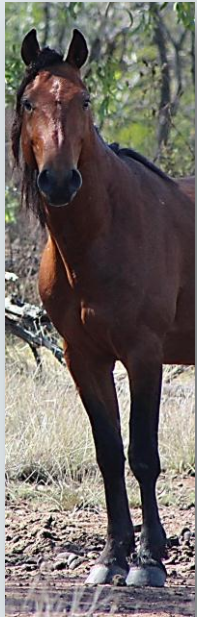




Wildlife

Feeding wildlife or leaving food in a manner accessible to wildlife is not allowed on the Project site. Attracting wildlife to the Project site is dangerous to workers and the animals.

Do not approach, pet or attempt to interact with any animals, including kangaroos, dogs, cats, cattle, or horses (brumby). Interacting with wild animals is dangerous and can result in severe bites and/or contraction of diseases





Wildlife

Report sick or injured animals to the Environmental Team.

If necessary wildlife can be removed from the island for care and rehabilitation until they can be released back into the wild by a qualified, licensed person.

There are no pets or fishing allowed on GLNG Project Sites.

Vulnerable Animals on Curtis Island:



False Water-Rat | *Xeromys myoides*



Yakka Skink | *Egernia rugosa*



Eastern Curlew | *Numenius madagascariensis*
(Near Threatened)



Native Wildlife & Sensitive Habitat



Short Beaked Echidna | *Tachyglossus aculeatus*



Eastern Grey Kangaroo | *Macropus giganteus*



Common Brushtail Possum | *Trichorurus vulpecula*



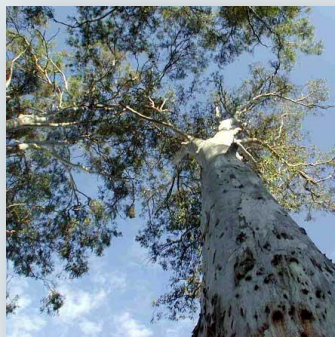
Striped Rocket Frog | *Litoria nasuta*



Flatback Sea Turtle | *Natator depressus*



Yellow Bellied Sheath Tailed Bat | *Saccolaimus flaviventris*



Forest Red Gum | *Eucalyptus tereticornis*



Yellow Mangrove | *Cerips tagal*



Great Barrier World Heritage Area

The GLNG Plant Project is located in the Great Barrier Reef World Heritage Area.

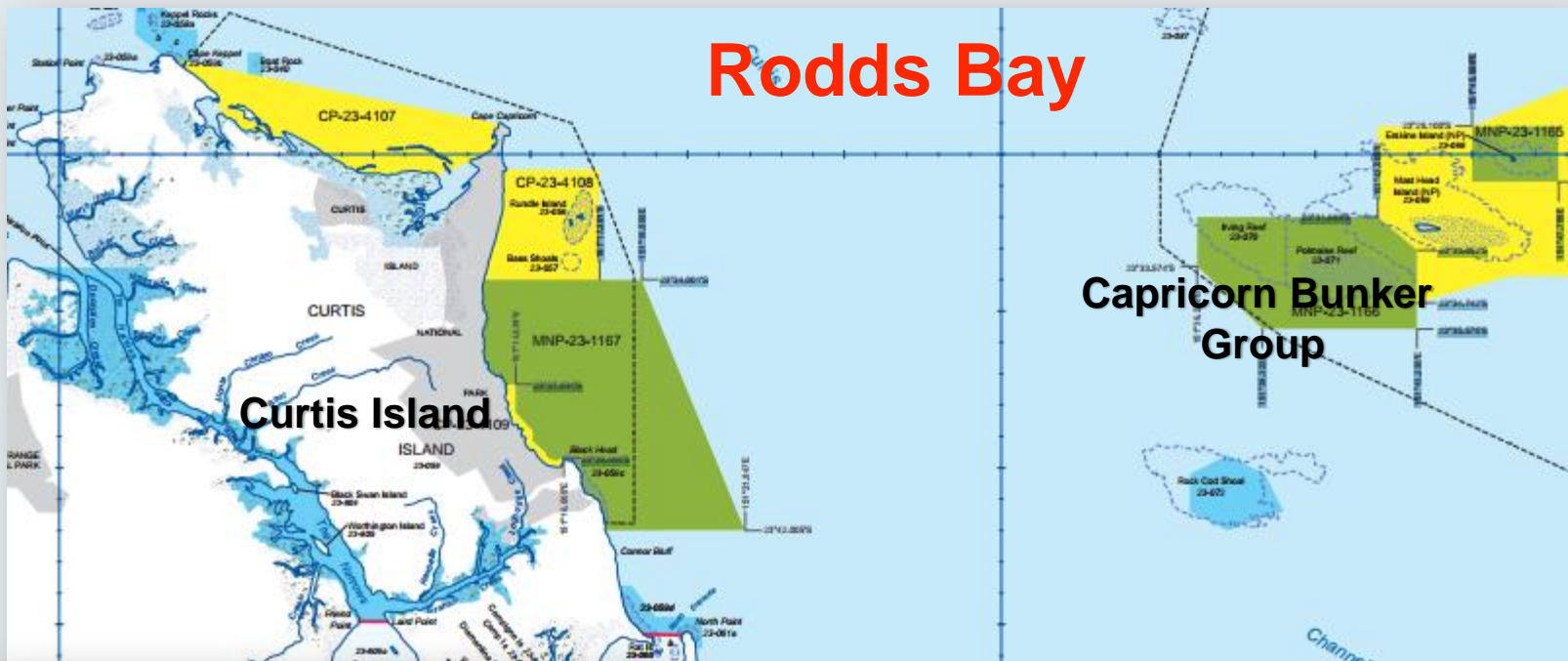
The reefs of the Great Barrier Reef - almost 3000 in total – represent about 10 per cent of all the coral reef areas in the world. There are thousands of different species of marine plants and animals living in the Great Barrier Reef.



The Great Barrier Reef is managed under the *Great Barrier Reef Marine Park Act 1975*, which regulates the use of the area, and states that anyone who enters the Great Barrier Reef Marine Park area must take all reasonable steps to minimise harm to the environment. Discipline for offences of misconduct or environmental harm in the Great Barrier Reef can be up to hundreds of thousands of dollars in fines and imprisonment.



Rodds Bay



ACTIVITIES GUIDE

(see relevant Zoning Plans and Regulations for details)

	General Use Zone	Habitat Protection Zone	Conservation Park Zone	Buffer Zone	Scientific Research Zone	Marine National Park Zone	Preservation Zone
Aquaculture	Permit	Permit	Permit ¹	X	X	X	X
Bait netting	✓	✓	✓	X	X	X	X
Boating, diving, photography	✓	✓	✓	✓	2	✓	X
Crabbing (trapping)	✓	✓	✓ ³	X	X	X	X
Harvest fishing for aquarium fish, coral and beachworm	Permit	Permit	Permit ¹	X	X	X	X
Harvest fishing for sea cucumber, trochus, tropical rock lobster	Permit	Permit	X	X	X	X	X
Limited collecting	✓ ⁴	✓ ⁴	✓ ⁴	X	X	X	X
Limited spearfishing (snorkel only)	✓	✓	✓ ¹	X	X	X	X
Line fishing	✓ ⁵	✓ ⁵	✓ ⁶	X	X	X	X
Netting (other than bait netting)	✓	✓	X	X	X	X	X
Research (other than limited impact research)	Permit	Permit	Permit	Permit	Permit	Permit	Permit
Shipping (other than in a designated shipping area)	✓	Permit	Permit	Permit	Permit	Permit	X
Tourism programme	Permit	Permit	Permit	Permit	Permit	Permit	X
Traditional use of marine resources	✓ ⁷	✓ ⁷	✓ ⁷	✓ ⁷	✓ ⁷	✓ ⁷	X
Trawling	✓	X	X	X	X	X	X
Trolling	✓ ⁵	✓ ⁵	✓ ⁵	✓ ^{5,8}	X	X	X

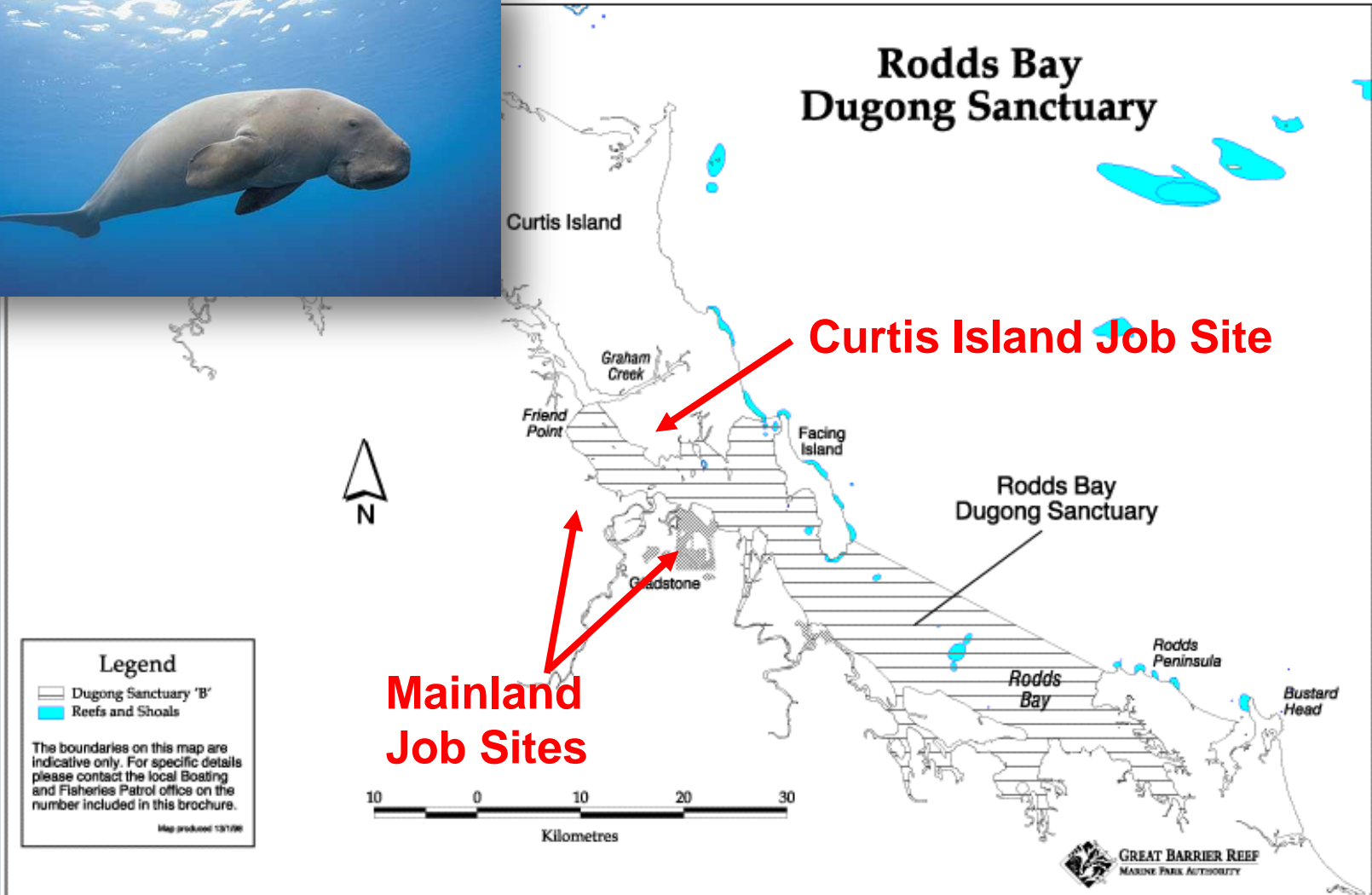
Capricorn Bunker Group

Rodds Peninsula

Rev. Q - 30 April 2014



Rodds Bay Dugong Sanctuary





Curtis Island Environmental Management Precinct

The environmental management precinct (4950 hectares) was created to maintain environmental and ecological values.

DO NOT ENTER the precinct under any circumstances, penalties for unauthorised access to the area are up to \$75,000.

Do not leave the site boundaries without specific authorisation from the Site Manager.





Spill Prevention and Response

Steps:

1. Assess the risk
2. Wear appropriate PPE
3. Stop the source
4. Block drains and divert spill
5. Clean up the spill
6. Clean up remaining product
7. Report the spill



- Use bunds where possible
- Have a spill kit nearby when working with chemicals
- Clean the spill as soon as possible





Environmental Incident Reporting

Minor Spills

A minor spill is a spill to land under 200 litres of any substance, i.e. fuel, paint, diesel, oil and chemicals.

All spills need to be reported to the Environmental Team via your Supervisor, a Minor Spill Report is to be completed and submitted to the Environmental Team.

Environmental Incidents

An environmental incident is an activity that can or does cause harm or adverse impact to the environment

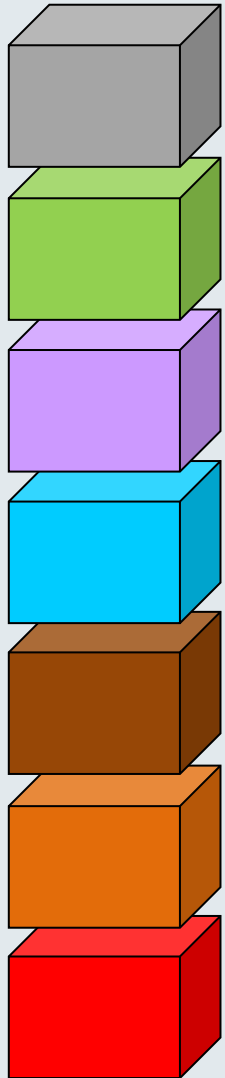
Notify your Supervisor or the Environmental Team immediately

An environmental incident report form is to be submitted to the Environmental Team.

**ALL SPILLS ARE
TO BE CLEANED UP IMMEDIATELY**



Waste Management



General Waste

Recyclables

Cardboard and Paper

Scrap Steel

Timber

Copper

Regulated Waste

- Demonstrate good waste segregation practices
- Look for recycling opportunities
- Perform regular housekeeping of your work area





Glove Decontamination Program

The site offers a glove decontamination program where dirty gloves are sent offsite through a high temperature decontamination process and be returned to site for reuse. This is to reduce the amount of gloves sent to landfill.

Note: No damaged gloves are sent back for use and all gloves are inspected prior to re issue.

Gloves bins are located in all major crib hut areas and at the stores





Environmental Monitoring

Monitoring is required to be conducted under the different permits and approvals that apply to the GLNG Plant Project.

Many different aspects require monitoring to essentially show that contaminants being released or construction activities are not causing environmental harm.

Some of the monitoring methods are:

Stormwater Quality



Water Treatment Plant



Dust Analysis



All monitoring records are retained and are available to auditors or regulators when requested.

If monitoring results show an exceedance or environmental harm, this is reported to the regulator as soon as practicably possible.



Emergency Response

The emergency response team are available to respond to environmental emergencies as well as safety emergencies such as:

- Bushfires
- Marine spills
- Large chemical spills

Radio Channel 'Construction 1'



Hazardous Materials

All fuels and chemicals that are stored onsite must be done so according to Australian Standards.

- Storage areas must have secondary containment
- A copy of the SDS (Safety Data Sheet) must be available where the substances are stored
- Storage areas must be designed to minimise rainfall collection
- Spill kits should be in close vicinity to a storage area or a place where chemicals are decanted.

**ALL CHEMICALS ARE REQUIRED
TO BE APPROVED BY ES&H BEFORE
COMING ONTO SITE**



Weed and Pest Management

Weeds:

- Equipment washed down prior to coming on site and prior to leaving site
- Designated quarantine area for treating international arrivals
- Quarterly weed surveys and spraying is conducted

Pests:

- Pest species such as mice and rats are controlled by regular trapping programs
- Managed per occurrence.

Lantana | *Lantana Camara*



Prickly Pear | *Opuntia stricta*



Black Rat | *Rattus rattus*

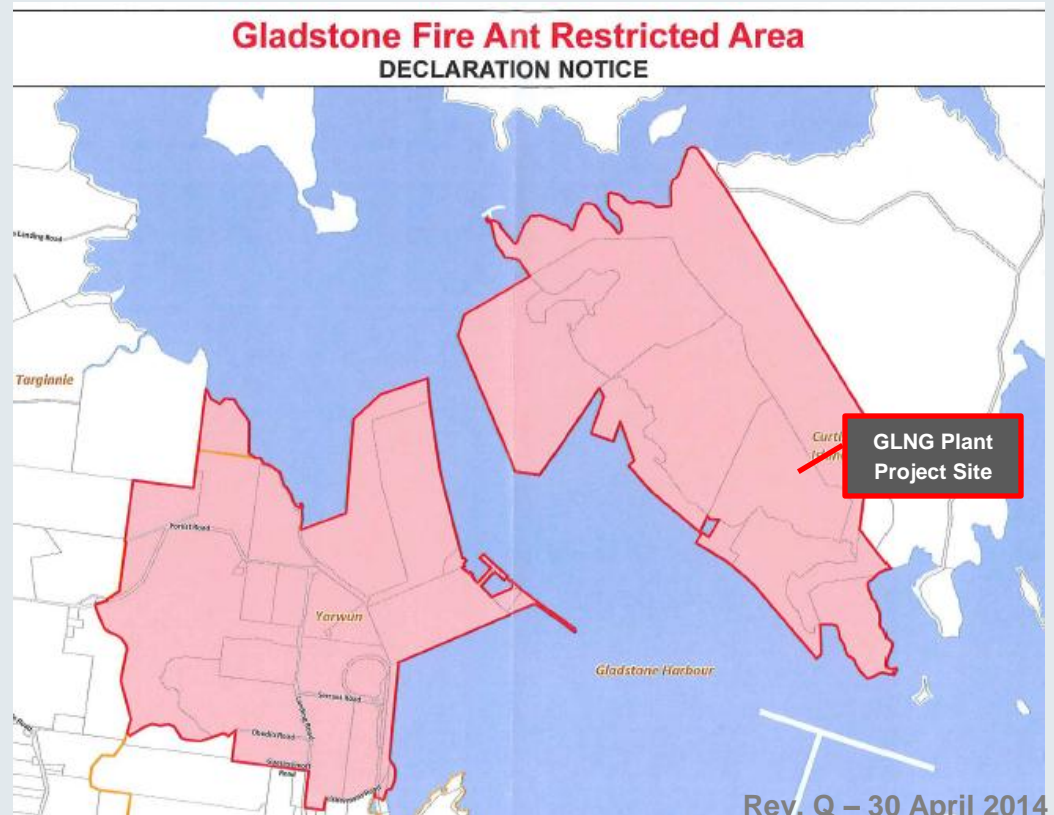




Fire Ants

The GLNG Plant Project is now within the Gladstone Fire Ant Restricted Area, all material leaving the site must be in compliance with an Approved Risk Management Plan and include these measures:

- An inspection checkpoint at the MOF where **all** vehicles are to be inspected for soil prior to being loaded onto the barge; vehicles with soil attached will be washed down before departing. All vehicles are required to be inspected prior to loading otherwise they will be returned to the inspection point.
- Site monitoring will be undertaken
- every 28 days by the Environmental Team to survey for potential fire ant nests.
- Aerial and hand baiting by Biosecurity Queensland





Fire Ants

FIRE ANT CHARACTERISTICS

No fire ants nest have been discovered on the GLNG Plant Project site to date however all personnel should be aware of the risks of fire ants, what they look like and their behaviour.

- Small, copper coloured and ranging in size from 2-6mm
- Ants that exhibit aggressive behaviour
- Nests that vary in size and have no visible entry and exit holes.



Report any potential fire ant sightings to the Environmental Team as soon as possible, do not touch the ants, try to move the nest or attempt to kill the ants.



Mosquito and Midge Management



Mosquito



Sandfly | Biting Midge

Mosquito activity is monitored on site with various monitoring stations placed in the area to monitor their numbers and species

Weekly fogging is conducted in all areas of the site and the accommodation facility to reduce their numbers.

Additional controls to limit their effect are:

- Limit sources of standing water around crib rooms
- Always carry insect repellent



Limit Environmental Harm

Look for ways to minimise the likelihood of environmental harm during day to day activities and operations



Rev. Q - 30 April 2014