

## 8.0 QUARANTINE MANAGEMENT AND RISKS

This PER and associated appendices make reference to both the Approved Gorgon Gas Development and the Revised Gorgon Gas Development, which is the subject of this PER. For clarification purposes, the following definitions are provided:

- ◆ “the Approved Gorgon Gas Development” or “the Approved Development” refers to the development proposed in the EIS/ERMP (Chevron Australia 2005a) and subsequently approved under Statement No. 748 and EPBC Reference: 2003/1294
- ◆ “the Gorgon Gas Development Revised and Expanded Proposal” or “the Revised Gorgon Gas Development” or “the Revised Proposal” refers to the development proposed in this PER, which is yet to gain approval
- ◆ “the Gorgon Gas Development” refers to the entire proposal. This descriptor may be used when the reference is being made to elements of “the Revised Proposal” described in the PER when they replace the elements of “the Approved Development” which have changed to create the final product as proposed in this PER.

### 8.1 Assessment Framework or Policy

The overarching objective of the quarantine strategy for the Gorgon Gas Development, as described in the EIS/ERMP (Chevron Australia 2005a), is to “facilitate the construction and operation of a gas processing facility on Barrow Island and simultaneously protect the conservation values of the island”.

### 8.2 Detailed Assessment of Potentially Significant Impacts

#### 8.2.1 Overview

The Barrow Island Quarantine Management System (QMS) has been designed and developed in consultation with Chevron Australia’s Quarantine Expert Panel (QEP), the Quarantine Advisory Committee (QAC), and community stakeholders. When developing standards for acceptable quarantine risk, the view of the community was that a low level of risk of introducing non-indigenous species (NIS) and marine pests to Barrow Island must be achieved (‘a slight chance of infection’ in the qualitative risk assessment process) – a view accepted by the GJVs and endorsed by the QEP and QAC.

As such, a comprehensive and independent expert-based risk assessment process was undertaken from 2003 to 2006 (as part of the assessment of the Approved Development) to identify and assess the threats of introduction for all pathways of exposure to Barrow Island, and to demonstrate the management measures that could be adopted to reduce the risk of introduction to a ‘low’ level for all pathways. In doing so, a set of systematic and pathway-specific quarantine barriers were analysed in detail for each pathway, in consideration of the circumstances and quantities of people, material and vessels anticipated to be travelling to Barrow Island. Quarantine barriers which could not reduce these risks to a ‘low’ level were replaced or augmented with barriers that achieved this mandate. The QMS captures and operationalises these pre-border systematic and pathway-specific management measures for preventing introductions, as well as post-border surveillance systems for NIS and marine pests, and contingencies for response and eradication. The QAC stated (refer to letter from the Chairman of the QAC to the Chairman of the EPA, dated 18 February 2008):

*‘The Committee is of the view that the outcomes of the workshops, as described in the draft Quarantine Supplement (Part 2 of the Additional Information Package), are well*

*founded and the barriers proposed are likely to result in a low risk of incursions to Barrow Island provided they are implemented in a timely, efficient and effective manner.'*

In all cases, the prevention of NIS introductions to Barrow Island in the pre-border supply chain involves multiple layers of cleaning, inspection, treatment, storage and transport requirements at all pathway steps in the chain, resulting in a substantial degree of precaution and redundancy in the absence of performance data. All of these quarantine barriers are required for each project-related person, item or vessel to be transported to Barrow Island, and are therefore scalable to ensure the same standard of prevention is applied in the event that quantities of people, material or vessels increase or decrease. The changes associated with the Revised Proposal do not change the nature of the materials that will be subject to these quarantine barriers, and no new pathways have been proposed which are different from those already assessed for the Approved Development.

### **8.2.2 Assessment of Quarantine Risk for the Revised Proposal**

Each pathway associated with the Revised Proposal was described in detail to enable independent experts to identify threats of introduction, consider the efficacy of quarantine management measures (barriers), and assess risk. In doing so, the quantities and physical descriptions of material and the logistics activities undertaken to move people, material and vessels to Barrow Island were explicitly considered, from the vendor's premises through the entire supply chain to Barrow Island.

As the engineering design of the Approved Development and the Revised Proposal has matured, increasing opportunities for Gas Treatment Plant 'modularisation' during construction have been explored and adopted, resulting in less 'stick-build' effort for construction of the Gas Treatment Plant on Barrow Island. While the duration of the construction phase is expected to increase by three to six months, the required volumes of individual items and raw materials have been decreased to streamline the logistics effort for construction wherever possible, and opportunities to reduce quarantine risk exposure have been embraced.

Examples of the static or reduced construction quantities for the Revised Proposal include:

- ◆ no increase in the size of the on-island workforce, from the numbers required for the 'stick-build' construction project originally assessed (Approved Development) to the highly modularised construction project (Revised Proposal) under current design circumstances (with no increase in food and perishable volumes or accommodation units originally assessed)
- ◆ reduction in sand and aggregate from an estimated 330 000 tonnes (in 2004) to 160 000 tonnes at the time when the risk assessments were completed (in 2006), to 97 000 tonnes at the time when Statement No. 748 was published, as a result of sourcing more material from the site preparation works on Barrow Island and shipping pre-cast construction components
- ◆ reduction in the number of 'stick-build' components for construction, replaced by larger and pre-constructed 'modules'.

Although the number of on-island construction workers may decrease with modularisation, and volumes of individual items and raw materials have decreased in a more modularised construction approach, the GJVs do not seek to reduce or compromise on their commitments for preventing NIS introductions in the QMS.

It is notable that the personnel and luggage, sand and aggregate, and food and perishables pathways will not involve increased numbers of construction workers or quantities of materials and supplies, as these pathways were identified as the most challenging to assess by the QEP and were acknowledged as such in community consultation. The risk of introduction for all pathways for the Revised Proposal remains Low, and does not warrant re-assessment. Opportunities to further reduce risk will be identified through the performance monitoring and continuous improvement aspects of the QMS.

The Approved Development was based on the shipment of a large quantity of building materials to construct much of the Gas Treatment Plant 'from the ground up' (otherwise called a 'stick-build' construction approach). Some of the larger components of the Gas Treatment Plant were to be pre-fabricated as large modules and shipped to Barrow Island on heavy lift vessels. As the engineering design of the Approved Development and the (subsequent) Revised Proposal has matured, opportunities to perform additional off-island construction tasks have been adopted, resulting in larger and more complete pre-fabricated modules for the Revised Proposal.

It is recognised that pre-fabricated modules are exposed to the possibility of infection, particularly by invertebrates, at the fabrication yard. Independent experts who assessed the risk of introduction on the pre-fabricated modules pathway pointed out that the upper limit of risk 'is due to the possibility of a rare episodic event occurring during the transport of a module at sea' (E-Systems 2006). A rare episodic event (e.g. swarm of flying invertebrates offshore) does not increase the risk of contamination to any individual module shipped over a marginally longer construction period (three to six months longer for the Revised Proposal). Hence, the risk of exposure to these rare episodic events remains unchanged.

The quarantine barriers developed in the risk assessment process included specific inspection and treatment (wash down and remediation) of the modules on arrival at Barrow Island, in case of a rare episodic event of invertebrate contamination at sea. Larger and more complete modules in the Revised Proposal are subject to the same potential infection modes and the corresponding set of quarantine barriers adopted in the Approved Development to reduce risk to 'a slight chance of infection' are therefore equally applicable. These approved barriers include:

- ◆ inspection of modules by the Australian Quarantine Inspection Service (AQIS) at the fabrication yard prior to departure for Australia
- ◆ final cleaning and treatment of the module immediately prior to departure
- ◆ a Voyage Management Plan including daily quarantine checks which are formally recorded
- ◆ inspection of modules by AQIS upon arrival at Barrow Island
- ◆ following release of the module as compliant by AQIS, a wash down of the module in a secure holding area
- ◆ a 'release' inspection of the module prior to movement to the construction site
- ◆ contingency plans for further treatment in the event of detecting contamination.

### **8.3 Management of Quarantine Risk for the Revised Proposal**

A Quarantine Hazard Analysis (QHAZ) conducted by experts found that the Revised Proposal does not increase the risk of introducing weeds to Barrow Island over the Approved Development because the revised proposal has no impact on the effectiveness of the assessed barriers that are designed to prevent the introduction and

proliferation of species not native to Barrow Island. The barriers assessed form the basis of the quarantine management on the island which is detailed in the Quarantine Management System.

The Quarantine Management System is focused on preventing introductions, detecting the presence of non-indigenous species on Barrow Island and in the waters surrounding Barrow Island and controlling or eradicating non-indigenous species from Barrow Island that were introduced or which proliferated as a result of the activities of the project on the island. Managing new and existing weeds is a core component of this focus.

The management of weeds will be fully described in a Weed Management Plan (WMP) for Barrow Island. The WMP will address a number of factors including personnel and vehicle hygiene management, the control and eradication of existing weeds, management of soil stockpiles and rehabilitation of disturbed areas. In addition, a Detection Program will form part of a long term commitment to observation, surveillance and ecological monitoring which will endeavour to understand the invasive ecology of the known weeds on the island, as well as the potential invading weeds that are present in the areas from which the project will mobilise on the mainland and from international marshalling yards.

In addition to the quarantine barriers adopted in the Approved Development, the GJVs have well-advanced plans to license a Quarantine Approved Premises (QAP) on Barrow Island to facilitate direct shipments of material and modules and avoid potential cross-contamination in other Australian first ports of entry. The additional safeguard of the QAP at the point of arrival for all material delivered to Barrow Island by sea was not incorporated into the quarantine risk assessment process for the Approved Development, and therefore this approach represents an important additional layer of protection to prevent introductions and reduce risk for the Revised Proposal.

Important features of the QAP that will reduce the likelihood of NIS introductions, prior to releasing modules and other material to the construction site, are:

- ◆ Australian government-licensed facility incorporating all biosecurity measures required for a first port of entry to Australia, manned by experienced AQIS inspectors who will have overall authority for direct shipments of material and modules from foreign ports to Australia
- ◆ operation of the QAP at all times as a secure facility where all material shipped by sea enters Barrow Island, with strictly limited access to appropriately trained and qualified persons
- ◆ on-site diagnostic and laboratory facilities, including web-based imaging systems for rapid identification of any contamination that may be detected
- ◆ perimeter fencing which incorporates proven biosecurity designs and materials (e.g. invertebrate mesh barrier, 'inverted-J' barrier to rodents and reptiles)
- ◆ purpose-built secure wash down facility designed to accommodate the size of the largest modules
- ◆ purpose-built fumigation facilities to be used as a treatment contingency in the event of discovering contaminated materials.

These risk management measures required under Statement No. 748 will be implemented in the Quarantine Management System for the Revised Proposal.

## 8.4 Predicted Environmental Risk

The environmental risks posed by the Revised Proposal are no greater than the risks identified in the Approved Development, which were found to be environmentally acceptable, subject to implementation of prescribed conditions (Statement No. 748 and EPBC Reference: 2003/1294) (Appendix A). These conditions include the establishment of a QEP to provide advice to the GJVs and to the Minister on the development and implementation of the QMS. Furthermore, there are no unacceptable cumulative risks related to quarantine as a result of the Gorgon Gas Development.

The construction approach for the Revised Proposal relies more heavily on 'modularisation', requiring decreased volumes of construction supplies and raw materials to be shipped to Barrow Island; therefore a lower exposure of quarantine risk will result, compared to the Approved Development. The quarantine barriers developed for pre-fabricated modules in the Approved Development are scalable, i.e., they apply to modules regardless of size, and continue to result in a low risk of introduction for larger modules in the Revised Proposal. Similarly, the Statement No. 748 conditions relating to quarantine for the Approved Development are applicable and relevant to the Revised Proposal (refer to Appendix A, Condition 10), and do not have any diminished effect regarding the proposed construction of a third LNG Train (or any of the Associated Terrestrial Infrastructure) on Barrow Island. Finally, the licensed QAP provides an additional layer of protection to prevent introductions, over and above the barriers adopted for Approved Development.

The development of the QMS for the Approved Development, in accordance with Statement No. 748 and EPBC Reference: 2003/1294 is well advanced, meeting all of the commitments made by the GJVs. All risk-based pathway barriers have been developed and are being trialled and implemented to ensure that the risk of introduction is low. The quarantine detection program is progressing toward completion, and is being developed to address the Ministerial Condition for statistical power. Progress is being made to develop on-island diagnostic, response and eradication capabilities in the event of an incursion. The QMS will be made available for review by the DEC and the Western Australian Minister for the Environment as required by Statement No. 748, and the Federal Minister for the Environment as required by Condition 1 of EPBC Reference: 2003/1294, prior to commencement of construction of the Gorgon Gas Development. All quarantine-related approaches that have been advanced for the Approved Development are equally applicable to the Revised Proposal.