# 11 COASTAL ENVIRONMENT

# 11.1 Response To Submissions on Draft EIS

Submissions and QGC's responses relating to coastal environment issues, and in particular to the Queensland Curtis LNG (QCLNG) draft environmental impact statement (EIS) *Volume 5, Chapter 11: Coastal Environment,* are summarised in *Table 5.11.1* below. This table also covers issues raised in the associated appendices of the draft EIS (*Appendix 5.9 - Marine Water Quality Assessment, Appendix 5.10 - Coastal Processes and Modelling; Appendix 5.11 - Initial 3D Hydrodynamic Assessment, and Appendix 5.12 - Coastal Legislation and Policy Assessment).* 

## Table 5.11.1 Response to Submissions on Draft EIS

Issue Raised	QCLNG Response	Relevant Submission(s)
Volume 5, Section 11.5.7.3 (Tidal Flushing Impacts) of the draft EIS states that the required definitive "e- folding" value was not reached in modelling undertaken. The supplementary EIS should provide good estimates of e-folding times for any parts of Port Curtis affected by the Project.	Additional hydrodynamic modelling has been undertaken for the Project, considering a range of Project specific and cumulative scenarios. These are reported in detail in <i>Appendix</i> 5.4 of this supplementary EIS. A summary of modelled "e-folding" values (E-folding time is the time required to reduce the tracer concentration by a factor of 1/e, e (or to about 37% of its initial concentration), and thus is a measure of the exponential decay time of the tracer concentration) for Port Curtis are provided in <i>Section 11.2</i> below.	32

### 11.2 AMENDED HYDRODYNAMIC MODELLING AND E-FOLDING

Additional hydrodynamic modelling for the Project has been undertaken to reflect the changes to the Project description as summarised in *Volume 2, Chapters 9, 12* and 13 of this supplementary EIS, with the full modelling report provided as *Appendix 5.4*<sup>1</sup>. Modelling was undertaken covering all major aspects of the Project within the Port of Gladstone, as well as potential cumulative impacts arising from non-Project specific dredging and reclamation activities proposed by other proponents in the port. As such, the modelled scenarios included the following:

• Scenario 1 – Existing Environment: This scenario represents existing conditions in Port Curtis, including the current dredging program being undertaken by the dredge, *Wombat*.

<sup>1</sup> BMT WBM, 2009. QCLNG Supplementary EIS – Hydrodynamics and Coastal Processes DRAFT Report. Unpublished Report, R.B17671.001.00.doc

- Scenario 2a: This scenario includes the temporary access works (coffer dams) associated with the construction of the proposed QCLNG pipeline across the Narrows.
- Scenario 2b Project Case: This scenario includes proposed features specifically associated with the QCLNG Project, including:
  - Materials Offloading Facility (MOF) and associated dredging
  - Construction dock near the southern LNG boundary, and associated dredging
  - RG Tanna vehicle ramp structure extending approximately 60 m from the shoreline
  - GPC offshore dredge spoil disposal (approximately 2 Mm<sup>3</sup> deposited evenly in an area within a 500 m border from the outer spoil ground boundary)
  - Scenario 2b also includes the Clinton Bypass Channel dredging and QCLNG swing basin and approach channel, to be undertaken by others as described in *Volume 6*.
- Scenario 3 Project cumulative case, including all elements described above, as well as the dredging works associated with:
  - the proposed Wiggins Island Coal Terminal Project
  - the proposed Santos (GLNG) swing basin and approach channel
  - the Targinie Extension Stage 1B.
- Scenario 4 Full Cumulative: This scenario is similar to Scenario 3, with the addition of the proposed Western Basin strategic dredging and disposal project.

The configurations of these scenarios are shown in *Figure 5.11.1* to *Figure 5.11.5*.

Outcomes of this modelling in terms of potential water quality impacts (including tidal hydraulics, current velocity and flushing rates) are described in *Volume 5, Chapter 8* of this supplementary EIS as part of the updated discussion of marine ecology impacts. A summary of the modelling outcomes showing Project-related tidal flushing and e-folding is provided below in *Figure 5.11.6* to *Figure 5.11.8*, with:

- *Figure 5.11.6* showing existing e-folding across the modelled domain
- *Figure 5.11.7* showing e-folding times for Scenario 2b (Project Case)
- *Figure 5.11.8* showing the difference in e-folding time between Scenario 2b as relative to the existing case.

As shown in *Figure 5.11.6* to *Figure 5.11.8*, the existing e-folding time along the waterfront of LNG Facility is approximately 34 to 38 days (higher very close inshore), with the Project case showing e-folding times increasing by five or more days in very close proximity to the MOF, and up to three days more broadly along the LNG Facility foreshore. The effects of these e-folding times upon the fate of discharges from the LNG Facility are considered in *Volume 5, Chapter 8*.



	Project Quee	ensland Curtis LNG Project	Title Scenario 1 "Existing" Configuration
A BG Group business	Client QGC	- A BG Group business	
	Drawn Jł	sEIS Volume 5 Figure S5.11.1	Disclaimer:
ERM	Approved R	G File No: 00861655_SUP_CDR001_S5.11.1	Maps and Figures contained in this Report may be based on Third Party Data, may not to be to scale and are intended as Guides only.
Environmental Resources Management Australia Pty Ltd	Date 30/12/0	9 Revision 0	ERM does not warrant the accuracy of any such Maps and Figures.



	Project Queer	nsland Curtis LNG Project	Title Scenario 2a Configuration
A BG Group business	Client QGC -	A BG Group business	
	Drawn JB	sEIS Volume 5 Figure S5.11.2	Disclaimer:
ERM	Approved RS	File No: 0086165b_SUP_CDR002_S5.11.2	Maps and Figures contained in this Report may be based on Third Party Data, may not to be to scale and are intended as Guides only.
Environmental Resources Management Australia Pty Ltd	Date 30/12/09	Revision 0	ERM does not warrant the accuracy of any such Maps and Figures.



	Project Que	ensland Curtis LNG Project	⊤tte Scenario 2b "Project Case"
A BG Group business	Client QGC	- A BG Group business	
	Drawn J	S sEIS Volume 5 Figure S5.11.3	Disclaimer:
ERM	Approved R	S File No: 0086165b_SUP_CDR003_S5.11.3	Maps and Figures contained in this Report may be based on Third Party Data, may not to be to scale and are intended as Guides only.
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	JEENSLAND Project Queensland Curtis LNG Project		Title Scenario 4 "Full Cumulative" Configuration
A BG Group business	Client QGC -	A BG Group business	
	Drawn JB	sEIS Volume 5 Figure S5.11.5	Disclaimer:
ERM	Approved RS	File No: 0086165b_SUP_CDR005_S5.11.5	Maps and Figures contained in this Report may be based on Third Party Data, may not to be to scale and are intended as Guides only.
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Source:

BMT WBM, 2009 QCLNG Supplementary EIS – Hydrodynamics and Coastal Processes FINAL Report. Unpublished Report for QGC R.B17671.001.01.doc



	Project Que	ensland Curtis LNG Project	Title Scenario 1 e Folding Time
A BG Group business	Client QGC	- A BG Group business	
6	Drawn J	S SEIS Volume 5 Figure S5.11.6	Disclaimer:
ERM	Approved R	S File No: 0086165b_SUP_CDR006_S5.11.6	Maps and Figures contained in this Report may be based on Third Party Data, may not to be to scale and are intended as Guides only.
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Source:

BMT WBM, 2009 QCLNG Supplementary EIS – Hydrodynamics and Coastal Processes FINAL Report. Unpublished Report for QGC R.B17671.001.01.doc



	Project Queer	Island Curtis LNG Project	Title Scenario 2b e Folding Time
A BG Group business	Client QGC -	A BG Group business	
	Drawn JB	sEIS Volume 5 Figure S5.11.7	Disclaimer:
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Source: BMT WBM, 2009 QCLNG Supplementary EIS – Hydrodynamics and Coastal Processes FINAL Report. Unpublished Report for QGC R.B17671.001.01.doc Note: e folding time differences are relative to the existing case. (Scenario 1)



	Project Queer	Island Curtis LNG Project	Title Scenario 2b e Folding Time Differences
A BG Group business	Client QGC -	A BG Group business	
	Drawn JB	sEIS Volume 5 Figure S5.11.8	Disclaimer:
ERM	Approved RS	File No: 0086165b_SUP_CDR008_S5.11.8	Maps and Figures contained in this Report may be based on Third Party Data, may not to be to scale and are intended as Guides only.
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