VOLUME 1: EIS PROCESS OVERVIEW

EXECUTIVE SUMMARY

VOLUME 2:	PROJECT DESCRIPTION	
Chapter 1		
1	INTRODUCTION	1
1.1	STRUCTURE OF PROJECT DESCRIPTION CHAPTERS	1
Chapter 2		
2	UPDATING THE EIS REFERENCE CASE	1
2.1	BG GROUP'S VALUE ASSURANCE FRAMEWORK	1
Figures		
2.2.1 2.2.2	EIS REFERENCE CASE PROCESS THE QCLNG PROJECT EIS WITHIN BG GROUP'S VALUE ASSURANCE FRAMEWORK	1 2
Chapter 3		
3	SUMMARY OF PROJECT COMPONENTS	1
3.1 3.2	AMENDMENT TO DESCRIPTION OF PROJECT COMPONENTS AMENDMENT TO DESCRIPTION OF ANCILLARY INFRASTRUCTURE	1 5
Figure		
2.3.1	LOCATION OF PROJECT COMPONENTS	2
Tables		
2.3.1	AMENDMENTS TO PROJECT COMPONENTS	3
2.3.2	AMENDMENTS TO PROJECT ANCILLARY INFRASTRUCTURE	5

Chapter 4

4		LOCATION OF PROJECT COMPONENTS	1
4.1		GAS FIELD COMPONENT	1
	4.1.1	Regional Context	1
4.2	4.2.1	PIPELINE Regional Context	5 5
4.3	7.2.1	LNG FACILITY	5
4.5	4.3.1	Regional Context	5
	4.3.2	Local Context	6
Figu	ures		
2.4.	1	QCLNG PROJECT STUDY AREA	2
2.4.	2	LOCATION OF THE LNG FACILITY AND ASSOCIATED INFRASTRUCTURE	3
2.4.	3	LOCATION OF GAS FIELD PETROLEUM TENURES	4
2.4.	4	CADASTRAL BOUNDARIES ON CURTIS ISLAND AND THE MAINLAND	7
Tab	ole		
2.4.	1	COUNCILS INTERSECTED BY THE PIPELINES	5
Cha	apter 5		
5		PROJECT TIMING AND SCHEDULE	1
Figu	ıre		
2.5.	1	INDICATIVE APPROVAL AND CONSTRUCTION PROGRAM FOR THE QCLNG PA	ROJECT1
Cha	apter 6		
6		WORKFORCE	1
6.1		CONSTRUCTION	1
	6.1.1	LNG Facility Construction	1
	6.1.2	Pipeline and Gas Field Component Construction	2
	6.1.3	Total QCLNG Project Construction Workforce	3
6.2		OPERATIONS WORKFORCE	3
6.3		MITIGATION	3

Chapter 7

7	GAS FIELD OPERATIONS	1
7.1	Introduction	1
7.2	SUBMISSIONS RECEIVED	1
7.3	PROJECT AREA	2
7.4	OVERVIEW OF CHANGES TO PROJECT DESCRIPTION	4
7.5	DETAILS OF CHANGES TO PROJECT DESCRIPTION	11
7.5.1	Well Sites	11
7.5.2 7.5.3	Gas-Gathering Lines Gas Trunklines	13 14
7.5.4	Field Compressor Stations	16
7.5.5	Central Processing Plants	18
7.5.6	Associated Water Infrastructure	21
7.5.7	Beneficial Uses of Associated Water	30
7.5.8 7.5.9	Accommodation Camps Water Supply and Management	31 32
7.5.9 7.5.10	Water Supply and Management Waste Disposal	32
Figures		
2.7.1	GAS FIELD AREAS AND MAJOR FACILITIES	3
2.7.2	TRUNKLINE EASEMENT	15
2.7.3	Example FCS Layout (Maximum Number of Compressors)	17
2.7.4	TYPICAL CPP LAYOUT	20
2.7.5	ASSOCIATED WATER INFRASTRUCTURE	22
Tables		
2.7.1	RESPONSES TO SUBMISSIONS ON THE DRAFT EIS	1
2.7.2	SUMMARY OF PROJECT DESCRIPTION CHANGES TO GAS FIELD OPERATIONS	5
2.7.3	COMPARISON OF GAS FIELD PONDS	25
2.7.4	COMPARISON OF RAW WATER PONDS	25
2.7.5	COMPARISON OF BRINE STORAGES	27
2.7.6	POND MONITORING AND INSPECTIONS	29
2.7.7	ENERGY REQUIREMENTS	33
2.7.8	INDICATIVE WATER REQUIREMENTS FOR THE GAS FIELD (OPERATIONS)	34

Chapter 8

8	PIPELINE OPERATIONS	1
8.1	Introduction	1
8.2	SUBMISSIONS RECEIVED	1
8.3	TRANSPORT REQUIREMENTS AND INFRASTRUCTURE	1
Chapter 9		
9	LNG COMPONENT OPERATIONS	1
9.1	RESPONSE TO SUBMISSIONS ON DRAFT EIS	1
9.2	AMENDMENTS TO DESCRIPTION OF PROJECT ELEMENTS	2
9.2.1	Proposed Operations Phase Marine Terminal, RG Tanna Coal Terminal	8
Figures		
2.9.1	REVISED LNG FACILITY LAYOUT	3
2.9.2	AMENDED LAYOUT OF MARINE OPERATIONS TERMINAL	9
Tables		
2.9.1	RESPONSE TO SUBMISSIONS ON DRAFT EIS: LNG COMPONENT OPERATIONS	1
2.9.2	AMENDMENTS TO PROJECT ELEMENTS	4
Chapter 10		
10	MARINE FACILITIES OPERATIONS	1
Chapter 11		
11	GAS FIELD CONSTRUCTION	1
11.1	INTRODUCTION	1
11.2	SUBMISSIONS RECEIVED	1
11.3	OVERVIEW OF CHANGES TO PROJECT DESCRIPTION	2
11.3.1	Changes to Project Footprint	2
11.4 11.4.1	DETAILS OF CHANGES TO PROJECT DESCRIPTION	5
11.4.1 11.4.2	Ramp Gas Associated Water Storage Ponds	5 6
11.4.3	Brine Ponds and Brine Evaporation Basins	9
11.4.4	Salt Disposal Landfill	9
11.4.5	Material Requirements and Borrow Pits	10

QUEENSLAND CURTIS LNG

11.4.6 11.4.7 11.4.8 11.4.9	Accommodation Camps Transport Requirements Electricity and Energy Requirements Water Requirements	11 14 14 15
Figures		
2.11.1	RAMP GAS FORECAST	5
2.11.2	CONSTRUCTION WORKFORCE HISTOGRAM	13
Tables		
2.11.1	RESPONSES TO SUBMISSIONS ON THE DRAFT EIS	1
2.11.2	SUMMARY OF PROJECT DESCRIPTION CHANGES TO GAS FIELD CONSTRUCTION	3
2.11.3	CHANGES TO PROJECT FOOTPRINT	4
2.11.4	MATERIAL REQUIREMENTS	11
2.11.5	TRANSPORT REQUIREMENTS	14
2.11.6	INDICATIVE WATER REQUIREMENTS FOR THE GAS FIELD DURING CONSTRUCTION	16
Chapter 12		
12	PIPELINE CONSTRUCTION	1
12.1	SUBMISSIONS RECEIVED	1
12.1.1	, ,	3
12.1.2	Road Infrastructure Works	3
12.1.3	Water and Sewage	3
12.2	CHANGES TO PROJECT DESCRIPTION	4
12.2.1 12.2.2	Route Selection Process Desktop Studies	4 6
12.2.3	Field Reviews	6
12.2.4	Selection of Preferred Route	6
12.2.5	Detailed Studies	6
12.2.6	Assessment of Pipeline Route Options	6
12.2.7	Preferred Route	9
12.2.8	Gas Transmission Pipeline Specifications	10
12.3	THE NARROWS CROSSING PIPELINE	15
12.3.1	Overview	15
12.3.2	Route Selection Process	16
12.3.3	Pipeline Construction Methods	17
12.4	CONSTRUCTION ACTIVITIES	22

Figures		
2.12.1	QCLNG PIPELINE REVISION OVERVIEW	7
2.12.2	GAS COLLECTION HEADER	7
2.12.3	EXPORT PIPELINE ROUTE	8
2.12.4	EXPORT PIPELINE INTERACTION WITH PROPOSED RAIL WORKS	11
2.12.5	THE NARROWS CROSSING PIPELINE	16
2.12.6	STANDARD AND OPTIMISED OPEN-CUT METHODS – MARSHLAND	18
2.12.7	TYPICAL ONSHORE/MARSHLAND JET TRENCHER	19
2.12.8	TYPICAL OFFSHORE JET TRENCHER (POST-LAY TRENCHER)	19
2.12.9	TYPICAL HORIZONTAL DIRECTIONAL DRILLING ENTRY SITE	21
Tables		
2.12.1	RESPONSES TO SUBMISSIONS ON THE DRAFT EIS	1
2.12.2	PIPELINE LENGTHS	4
2.12.3	PIPELINE DESIGN PARAMETERS	12
2.12.4	CONSTRUCTION PROGRAM CHARACTERISTICS	22
Chapter 13		
13	LNG COMPONENT CONSTRUCTION	1
13.1	RESPONSE TO SUBMISSIONS ON DRAFT EIS	1
13.2	AMENDMENT TO DESCRIPTION OF PROJECT ELEMENTS	3
13.3	DETAILED DESCRIPTION	16
13.3.1		16
13.3.2 13.3.3	Construction Methodology Description Construction Workforce	17 23
13.3.4	Workforce Source and Accommodation	25
13.3.5	Transport Requirements and Infrastructure	28
13.3.6	Water Supply and Management	35
Figures		
2.13.1	Amended LNG Facility Site Layout Showing Spoil Disposal Areas	4
2.13.2	Indicative Layout of LNG Facility Construction Dock	22
2.13.3	Total Site Population	24
2.13.4	Direct Hire Workforce by Trade (Including LNG Tanks)	24
2.13.5	Indicative Layout Auckland Point Staging Area	29
2.13.6	Auckland Point Marine Facilities Layout	30
2.13.7	RG Tanna Bulk Materials Marine Facilities Layout	31
2.13.8	Indicative Breakdown – Total Trucks through Auckland Point, by Construction Month	34

QGC LIMITED PAGE 6 JANUARY 2010

2.13.9	Indicative Breakdown – Bulk Material Tonnage for LNG Facility Construction	35
2.13.10	Indicative Water Utilisation Curve for Curtis Island (Construction)	37
Tables		
2.13.1	Response to Submissions on Draft EIS: LNG Component Construction	1
2.13.2	Amendments to Project Elements	5
2.13.3	Indicative Major Modules for Construction	16
2.13.4	Industry Standards Applicable to Construction of Marine Facilities	18
2.13.5	Workforce Shift Rosters	25
2.13.6	Workforce Accommodation Options: Assessment Criteria	27
2.13.7	Indicative Peak Personnel Ferry Transits	33
Chapter 14		
14	DREDGING FOR MARINE FACILITIES	1
14.1	INTRODUCTION	1
14.2	RESPONSE TO SUBMISSIONS ON DRAFT EIS	1
14.3	OTHER DREDGING AND DREDGED MATERIAL DISPOSAL PROJECTS	2
14.3.1	Port of Gladstone Western Basin Master Plan	2
14.3.2 14.3.3	Fisherman's Landing Northern Expansion Port of Gladstone Western Basin Dredging and Disposal Project	2 3
14.3.4	Gladstone LNG Project EIS	3
14.3.5	Fisherman's Landing LNG Project	3
14.3.6	East Banks Dredge Spoil Disposal Permit Application	4
14.4	APPROACH TO ENVIRONMENTAL ASSESSMENT AND ADMINISTRATIVE	
	PROCESSES FOR REVISED QCLNG DREDGING AND DISPOSAL WORKS	4
14.4.1	Construction Dock, MOF and Pipeline Components	6 7
14.4.2	Components included in the WBDD EIS	
14.5 14.5.1	DESCRIPTION OF DREDGING REQUIREMENTS Construction Dock Dredging Requirements	7 7
14.5.1 14.5.2	Dredged Material Disposal	11
14.5.3	MOF Dredging Requirements	12
14.5.4	Spoil Disposal	13
14.6	PIPELINE NARROWS CROSSING DREDGING REQUIREMENTS	14
14.7	RG TANNA FACILITIES DREDGING REQUIREMENTS	15
14.8	SUMMARY	15
Tables		
2.14.1	Response to Submissions on Draft EIS	1
2.14.2	Revised Overall Scope of Dredging Works Required for the QCLNG Project and Proposed EIS, Post-EIS Permitting, Dredging Works Responsibilities	t 5

QGC LIMITED PAGE 7 JANUARY 2010

Chapter	15
---------	----

15	REHABILITATION AND DECOMMISSIONING	7
15.1	INTRODUCTION	1
15.2	SUBMISSIONS RECEIVED	1
15.3	SUPPLEMENTARY INFORMATION ON REHABILITATION AND DECOMMISSIONING	1
15.3.1	3	1
15.3.2	Salt Disposal Landfills Decommissioning	3
15.3.3	Progressive Rehabilitation	3
Tables		
2.15.1	Responses to Submissions on the Draft EIS	1
2.15.2	Disturbance Before and After Progressive Rehabilitation	4
Chapter 16		
16	PIPELINE REHABILITATION AND DECOMMISSIONING	1
16.1	INTRODUCTION	1
16.2	RESPONSES TO SUBMISSIONS	1
16.3	DECOMMISSIONING	1
1010		•
Chapter 17		
17	LNG FACILITY REHABILITATION AND DECOMMISSIONING	1
17.1	RESPONSE TO SUBMISSIONS ON DRAFT EIS	1
17.2	AMENDMENTS TO DESCRIPTION OF PROJECT ELEMENTS	1
VOLUME 3:	ENVIRONMENTAL ASSESSMENT OF GAS FIELD COMPONENT	
VOLUME 4:	ENVIRONMENTAL ASSESSMENT OF PIPELINE COMPONENT	
VOLUME 5:	ENVIRONMENTAL ASSESSMENT OF LNG COMPONENT	
VOLUME 6:	ENVIRONMENTAL ASSESSMENT MARINE FACILITIES	
VOLUME 7:	GREENHOUSE GAS MANAGEMENT	

VOLUME 8: SOCIAL, CULTURAL AND ECONOMIC IMPACT ASSESSMENT

VOLUME 9: GAS FIELD COMPONENT ENVIRONMENTAL MANAGEMENT PLAN

VOLUME 10: NO UPDATE TO VOLUME 10 (REFER TO DRAFT EIS)

VOLUME 11: LNG COMPONENT ENVIRONMENTAL MANAGEMENT PLAN

VOLUME 12: STAKEHOLDER CONSULTATION

VOLUME 13: EPBC ASSESSMENT REPORT

APPENDICES