

Heytesbury Underground Gas Storage (HUGS) Pipeline

Attachment Q

Safety Management Plan

Attachment Q



Heytesbury Underground Gas Storage Project

HUGS Pipeline Safety Management Plan

PRM-0021-UGS-HP-0048

Rev 0

This is the preliminary proof of concept HUGS Pipeline Safety Management Plan to support license application for the proposed HUGS Pipeline – PL007732

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1. ABBREVIATIONS, TERMS AND ACRONYMS

Table 1-1: Abbreviations, Terms and Acronyms

Abbreviation or Term	Description
3D	Three (3) Dimensional
ALARP	As Low As Reasonably Practicable
APGA	Australian Pipelines and Gas Association
ВАС	Blood Alcohol Concentration
Brownfield	Term that describes a project, work or location that has established existing equipment, infrastructure, processes and systems in place
ССТV	Closed Circuit Television
CEMP	Construction Environment Management Plan
СНМР	Cultural Heritage Management Plan
CHSMP	Construction Health and Safety Management Plan
СР	Cathodic Protection
CSMP	Construction Safety Management Plan
DCS	Distributed Control System
DEECA	Department of Energy, Environment and Climate Change Action
DVCG	Direct Current Voltage Gradient
EMAC	Eastern Maar Aboriginal Corporation
EMAC	Emergency Management Assistance Compact
EMP	Environmental Management Plan
EPA	Environment Protection Authority
ERP	Emergency Response Plan
ESD	Emergency Shutdown
ESV	Energy Safe Victoria
F&G	Fire and Gas
FAT	Factory Acceptance Testing
FIC	Field Inspection Checklists
FOC	Fibre Optic Cable
FSA	Formal Safety Assessment
Greenfield	Term that describes a project, work or location that has no existing equipment, infrastructure, processes or systems in place

Abbreviation or Term	Description
HAZID	Hazard Identification
HAZOP	Hazard Operability Study
HDD	Horizontal Directional Drilling
НР	High Pressure
HPU	Hydraulic Power Unit
HSE	Health, Safety and Environment
HSEMP	Health, Safety and Environment Management Plan
HSEMS	Health, Safety and Environment Management System
HUGS	Heytesbury Underground Storage Project
IGSF	Iona Gas Storage Facility The Iona Gas Storage Facility includes the Iona Gas Facility under Petroleum Production Licence PPL-2, the remote sites under Petroleum Production Licence PPL-1 that include North Paaratte, Wallaby Creek, Grumby fields and their associated flowlines and gathering pipelines, and the remote sites under Petroleum Production Licence PPL-4, 5, 6, 7, 9, and 10 that include the Heytesbury well sites
ILI	Inline Inspection
IMS	Integrated Management System
I/O	Input/Output
IOM	Installation, Operation and Maintenance
JHA, JSA	Job Hazard Analysis, Job Safety Analysis
КР	Kilometre Post
КРІ	Key Performance Indicator
LER	Local Equipment Room
LOPA	Layers of Protection Analysis
m	metre
МАОР	Maximum Allowable Operating Pressure
Maximo	Lochard Energy electronic system for recording HSE observations and incidents
MCA	Multi Criteria Analysis
МСР	Manifolded Cylinder Pack
MDR	Master Document Register

Abbreviation or Term	Description
MEG	Mono-ethylene Glycol
Meridian	Lochard Energy electronic document management system
MFCT	Mylor, Fenton Creek and Tregony
ND	Nominal Diameter
NDT	Non Destructive Testing
NP	North Paaratte
NP-4&5	North Paaratte-4&5 wells/wellsite
NPPS	North Paaratte Production Station
OEM	Original Equipment Manufacturer
онѕ	Occupational Health and Safety
OHS Act	Occupational Health and Safety Act 2004
OHS Regs	Occupational Health and Safety Regulations 2017
P&ID	Piping and Instrumentation Diagram
PLC	Programmable Logic Controller
POS	Person on Site
PPE	Personal Protective Equipment
PPL	Production Petroleum License
PSV	Pressure Safety Valve
PTW	Permit to Work
PWV	Production Wing Valve
Principal Contractor	The appointed entity under the Occupational Health and Safety Regulations 2017, VIC, Reg 333 – who Lochard Energy authorises as the Principal Contractor to manage or control the workplace to the extent necessary to discharge the duties imposed on a Principal Contractor (Owner)
QMP	Quality Management Plan
Remotes	North Paaratte and Wallaby Creek wellsite facilities, gathering lines, MEG supply lines, NPPS and NPPS
RoW	Right of Way
RTA	Required Time of Arrival
RTU	Add (per section 3.9.5.2 Control)
SAT	Site Acceptance Testing
SDS	Shutdown System

Abbreviation or Term	Description
SDV	Shutdown Valve
SFARP	So Far As is Reasonably Practicable
SIL	Safety Integrity Level
SIMOPS	Simultaneous Operations
SMS	Safety Management Plan
SMS	Safety Management System
SOP	Standard Operating Procedure
SWMS	Safe Work Method Statement
ТВЕ	Technical Bid Evaluation
ТМР	Traffic Management Plan
TRSV	Tubing Retrievable Safety Valve
UHF	Ultra-High Frequency
UMV	Upper Master Valve
WC	Wallaby Creek
WC-2	Wallaby Creek-2 well/wellsite
WHS	Work Health and Safety
ХМТ	(Wellhead) Christmas Tree

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2. INTRODUCTION

Lochard Energy is the proponent of the Heytesbury Underground Gas Storage (HUGS Project), which will expand the storage capacity of the Iona Gas Storage Facility (IGSF). The HUGS Project will provide additional security of supply and reliability to the growing demands for energy storage in the eastern Australian energy market, which will help support the transition to a lower carbon future.

Underground storage capacity of the IGSF will be increased through the development of the existing Heytesbury depleted gas fields The HUGS Project will develop a new wellsite which will access three depleted gas fields being Mylor, Fenton Creek, and Tregony (referred to as the MFCT wellsite). The current plan is to develop the Mylor field with 1-2 new gas storage well(s).

In order to connect the MFCT wellsite to the Iona Gas Storage Facility, a new pipeline is required. This proposed new 5.3 km pipeline ('HUGS Pipeline') will transport gas and potentially hydrogen in the future, to and from the proposed new wellsite and underground gas storage fields. The HUGS Pipeline will be an extension to Lochard Energy's existing pipeline network from North Paaratte Production Station (NPPS) see Figure 2-1.





The proposed HUGS Pipeline route will be a 5.3 km, 300mm (DN300) nominal diameter underground pipeline that will run from the NPPS site via the North Paaratte wellsite to the new MFCT wellsite location. The HUGS Pipeline will then connect into the existing NPPS – Iona DN300 gathering line. The HUGS Pipeline will be bi-directional, which allows gas to be injected into wells for underground storage, and then to the Iona Gas Storage Facility (IGSF) for reprocessing and export.

Pipeline application PL007732 has been submitted to Department of Energy, Environment and Climate Action (DEECA) under the Victorian Pipelines Act 2005 [Ref: 1]. The Pipelines Act requires proponents to prepare and submit a Safety Management Plan (SMP) to Energy Safe Victoria (ESV) prior to commencing any pipeline operations. The Pipelines Regulations 2017 [Ref: 2] specifies that the pipeline must be designed, constructed, maintained, and operated in accordance with Australian Standard (AS) 2885 [Ref: 3].

This document will demonstrate how Lochard Energy will meet the above requirements.

2.1 **PURPOSE AND SCOPE**

The purpose of this Safety Management Plan is to support the Lochard Energy licence application PL007732 for the new HUGS Pipeline that forms part of the overall HUGS Project as described in Section 2.2 ('HUGS Pipeline').

Lochard Energy has developed this Safety Management Plan using the recommendations made in the Australian Pipelines and Gas Associations (APGA) – Onshore Pipeline Projects – Construction Health and Safety Guidelines [Ref: 4] as recommended by ESV in the Safety Management Plan Guidelines [Ref: 5]. The document will be updated as the project moves through its design and regulatory approval phases.

The objectives of this Safety Management Plan are to:

- Describe the processes and systems that will be implemented to maintain and not compromise the safety of the public, construction personnel, adjacent property, and the pipeline (new and existing) as required by AS 2885 Part 1 [Ref: 3].
- Ensure statutory requirements are understood, documented, and communicated to project teams.
- Outline the Safety Management System that will be used to communicate the projects safety expectations and how safety management will be conducted by Lochard Energy and their contractors.
- Describe the relationship between Lochard Energy's HSE processes and systems and those of their appointed Principal Contractor.

Environmental considerations are covered in the HUGS Pipeline Environmental Management Plan [Ref: 6].

2.2 PIPELINE OVERVIEW

The HUGS Pipeline is described as:

- 5.3 km buried high pressure (DN300) 300mm nominal diameter gas pipeline between the North Paaratte Production Station (NPPS) and the Mylor, Fenton Creek and Tregony (MFCT) wellsite
- Bi-directional and convey natural gas, hydrogen or a blend of both to and from the MFCT Wellsite and NPPS.
- Includes a buried fibre optic cable to connect the MFCT Wellsite control and monitoring system
- Includes a buried (DN50) 50mm nominal diameter mono-ethylene glycol (MEG) pipeline to supply MEG to inhibit hydrate formation and prevent internal pipeline corrosion.

- Include a DN300 pig launcher located at the MFCT Wellsite
- Include an offtake at the NP4/5 Wellsite to provide enhanced operability of the NP4/5 wells.

Lochard Energy has considered potential future hydrogen conveyance as a consideration in the design of the HUGS Pipeline. A hydrogen-ready design has been proposed, which primarily addresses the requirements of ASME B31.12 Hydrogen Piping and Pipelines.

The SMS assessed the enhanced safety requirements when full (100%) hydrogen is introduced to the pipeline operation and the following measures will be progressed:

- Increased pipeline specification wall thickness to ASME B31.12;
- Upgraded pipeline material and hardness testing;
- Upgraded hydrostatic testing procedures;
- Specific weld testing procedures and welder testing qualifications;
- Upgraded quality assurance and review practices.

2.3 LICENSEE AND CONTACT DETAIL

2.3.1 **Contact Details**

Licensee details for the pipeline license are provided in Table 2-1.

Table 2-1: Licensee Details

Site Owner	Site Location
Lochard Energy (Iona Operation) Pty Ltd	464 Boundary Road,
Level 10, 2 Southbank Boulevard	Timboon West,
Southbank, Victoria 3006	Victoria, 3268

2.4 CONTRACTUAL RELATIONSHIPS AND RESPONSIBILITIES

All Contractors engaged for the HUGS Pipeline will be done so in compliance with Lochard Energy's Contractor Management & HSE Evaluation procedure [Ref: 24].

Contractors are assigned a contractor category based on the engagement arrangement and the risk level associated with the type of activities they will conduct.

- Category 'A' Contractor's are those that work under the Iona Integrated Management System [Ref: 7].
- Category 'B' Contractor's work under their own approved Management System.
- Category 'C' covers suppliers not required to attend Lochard Energy sites.
- Category 'D' covers Training providers only.

The Principal Contractor will be engaged as a Category 'B' contractor working under their own approved management system having control over the designated work area.

2.4.1 **Project Execution Phases**

Lochard Energy project delivery model utilises a series of delivery stages to steward the completion of projects. Projects will be developed and delivered using a series of "gates" utilising front end loading (FEL) project management principles.

Project delivery stages are defined as follows:



Figure 2: Lochard Energy Project Delivery Stages

As a project moves through the development cycle, the level of cost certainty will increase as more investment is progressively made in developing and defining the scope as noted in the table below.

Project Stage	FEL1	FEL2	FEL3	Execute
Project Definition	0 – 2%	1 – 15%	10 – 40% (LE typically 30%)	30 – 100%
Use and class AACE of estimate	Strategic planning, screening (Class 5)	Concept selection & economics (Class 4)	Sanction (Class 3)	Controlled during execution (Class 2 to 1)
Accuracy (high side)	+30% to +100%	+20% to +50%	+10% to +30%	+3% to +15%
Accuracy (low side)	-50% to -20%	-30% to -15%	-20% to -10%	-10% to -3%
Typical spend of TIC	<1%	1 – 4%	3 – 6%	
Estimate type	Order of Magnitude	Budget (top down)	Detailed Budget (bottom up) MTO's, quotes, detailed estimates	Controlled. Full detail, firm pricing
Contingency	Nominal (30 – 50%)	Nominal (15 - 30%)	Montecarlo using uncertainties and risks	Montecarlo using uncertainties and risks

The HUGS Project has completed FEL 3 and currently moving into the Execute Phase.

2.4.2 **Project Phases and Contractor Scope of Work**

Lochard Energy will use a variety of contractors over the different phases of the HUGS Pipeline project. These have been summarised in Table 2-2 below and may be subject to change through the next phase of the HUGS Pipeline project.

Project Phase/Scope	Contractor	Scope of Work and Management	
Detailed Design	Long Energy and Resources Pty Ltd	Detailed engineering and design of the project	
Safety Management Study, HAZOP, SIL/LOPA Studies, Hazard and Risk Studies	Long Energy and Resources Pty Ltd	Safety studies as part of the detailed design scope for the project.	
Pipeline Construction	ТВС	All elements associated with the construction of the HUGS Pipeline	
Pipeline Construction Right of Way Rehabilitation	ТВС	Rehabilitation of disturbed ground as a result of construction of the pipeline.	
Pipeline Commissioning	Lochard Energy and TBC	Introduction of hydrocarbon	
Pipeline Operation	Lochard Energy	Bi-directional operational of the pipeline between NPPS and MFCT wellsite.	

Table	2-2:	Project	Phases	and	Contractor	Scope	of Work
							••••••

2.4.3 Pipeline Principal Contractor

Details for the Principal Contractor will be provided on award of the contract and engagement of Lochard Energy preferred contractor.

A Construction Health and Safety Management Plan (CSMP) will be prepared by the Principal Contractor and will be approved prior to mobilisation to ensure all elements of this SMP and the Iona IMS have been addressed and that resources and systems are in place to ensure all requirements can be executed. Lochard Energy will also develop a series of audit and assurance activities to ensure all obligations are addressed by the Principal Contractor, these are discussed further in Section 6.

2.5 **STATUTORY APPROVALS AND NOTIFICATIONS**

All regulatory notifications, approvals and inputs will be included in the project schedule.

Table 2-3 outlines the approvals summary for the HUGS Pipeline.

Stage of Project	Approvals and Notifications
Pre-Licence Process	Notice of intention to enter land for survey (Pipeline Regulation 6) Notice of pipeline corridor (Pipeline Regulation 7)
Pipeline Licence Application	Application for licence to construct and operate a pipeline (Pipeline Regulation 8)

 Table 2-3: Approvals and Notifcations Summary Table

Stage of Project	Approvals and Notifications		
	Notice of application for a licence (Pipeline Regulation 10)		
	Pipeline Environment Management Plan draft		
	Pipeline Safety Management Plan draft (this document)		
Prior to the commence of pipeline construction	Pipeline Environment Management Plan (for construction) accepted by DELWP		
	Pipeline Safety Management Plan (for construction) accepted by Energy Safe Victoria		
	Consent to construct a pipeline from the Minister		
Prior to commencement of pipeline operation	Pipeline Environmental Management Plan (for operation) accepted b DELWP		
	Pipeline Safety Management Plan (for operation) accepted by Energy Safe Victoria		
	Consent to operate a pipeline from the Minister		

2.5.1 Review and Revision

Lochard Energy has prepared this SMP to support the pipeline licence application. The document will be updated to support further approval stages, however there are several circumstances that would also trigger a review and possible resubmission for approval. These include:

- Change of regulatory requirements;
- Significant changes to project scope including design or route changes and sequencing/ scheduling changes; and
- Post consultation with regulators.

Lochard Energy will use the ESV Safety Management Plan Guide [Ref: 5] to ensure all required documents are prepared for the required approval stages.

2.5.2 Conditions of Licence

In accordance with Regulation 11 (1) I of the Victorian Pipeline Regulations 2017, the Licensee will provide a report to the Minister and ESV within ninety (90) days of the end of each financial year on the performance of the Licensee in maintaining the safety and integrity of the pipeline.

2.6 SPECIFIC HEALTH AND SAFETY ISSUES

2.6.1 Overall Construction Program

Lochard Energy has carefully considered the project timeline and in consultation with landowners and occupiers and will attempt to schedule activities to have the least impact possible on their operations and the environment. The project will be developed in stages, with the first major stage being the construction of the well pad for drilling of the gas storage well(s) targeted for 2024. Pipeline construction will follow during the summer of 2024/2025. Summer construction is preferred to minimise impact to the land and environment and, where possible, avoid wet ground conditions.

The completed and proposed timing for the key activities of the HUGS Project is shown in the table below. The timeline is subject to negotiation with landowners and occupiers and regulatory approvals.

Year	Month	Activity	
2021	April - December	Completed HUGS concept phase studies and introduce the project to landowners and occupiers	
2022 - 2023	January - December	Surveys completed via agreement with landowners and occupiers	
2024	Q1 -Q3	Ongoing surveys for Pipeline design and approval Pipeline Licence application process	
	Q3 – Q4	Well pad construction for drilling	
	Q4	Commence pipeline, wellsite and IGP works	
2025	Q1 – Q2	Pipeline construction	
	Q1 – Q2	Drilling of gas storage well(s)	
	Q4	Complete construction of well site and IGP upgrades	
2026	Q1	Commissioning of Pipeline	
	Q1-Q2	Gas storage facility and pipeline operational	

2.6.2 Hazards Associated with Construction in Regional Victoria in Summer

Summer is the preferred construction time in Southwest Victoria due to ground conditions during the winter months. The wet winters make ground conditions challenging for construction equipment and remediation of the pipeline easements. There will be health and safety issues that arise as a result of conducting work during the summer months and these will be considered and detailed in the project risk assessment once completed and summarised within this document.

2.6.3 HUGS Pipeline Easement/RoW Hazards

Hazard and risk identification workshops will assess specific pipeline easement and RoW hazards. Lochard Energy's Principal Contractor will be required to facilitate these risk workshops with key Lochard Energy HUGS Project personnel present. Once appointed, the key review areas as a minimum are as follows:

- Open excavation crossing of existing third party live high-pressure gas pipeline and electrical cables
- Open excavation crossing of Lochard Energy live high-pressure gas lines
- Horizontal Directional Drilling (HDD) crossings of roads
- Deep excavation construction of bell holes

2.6.4 North Paaratte Production Station Hazards

Hazard and risk identification workshops will assess specific hazards with working within the boundaries of NPPS associated with the Iona Gas Storage Facility. To reduce the number of

pipeline contractor personnel accessing the pipeline ROW via the NPPS site a project site will be established to allow pipeline construction work to be managed and controlled by Lochard Energy's Principal Contractor. Lochard Energy's Principal Contractor will be required to facilitate these risk workshop with key Lochard Energy HUGS Project and Iona Operations personnel present. Once appointed, the key review areas as a minimum are as follows:

- Working in a reduced ROW (approximately 10m) within the NPPS site
- Working in close proximity to live operating gas assets.

2.6.5 Heytesbury Site Office and Laydown Area Hazards

Hazard and risk identification workshops will assess specific hazards with working within the boundaries of the Heytesbury Gas Facility Site. The site is decommissioned and is currently being utilised as a hardstand area which is owned and controlled by Beach Energy. Lochard Energy's Principal Contractor will be required to facilitate these risk workshop with key Lochard Energy HUGS Project personnel present. Beach Energy's HBWS Pipeline runs through the site below ground. Once appointed, the key review areas as a minimum are as follows:

- HBWS Pipeline asset protection to heavy vehicle movements
- Hazards associated with workshop, pipe handling and storage of equipment.

2.7 APPLICABLE LEGISLATION AND CODES

2.7.1 General

All design and installation work shall be carried out in accordance with the relevant Australian Standards and Lochard Energy standards. Should any conflict arise between an Australian Standard and a Lochard Energy standard, the higher-level requirements shall be complied with, and Lochard Energy shall be notified of the conflict.

The following order of precedence shall be applied:

- 1. Project Specific Codes and Standards.
- 2. Lochard Energy Standards.
- 3. Australian Standards.
- 4. International Standards.

2.7.2 International Standards

The relevant International Standards are detailed in Table 2-4

Table 2-4: International Standards

Reference	Description
AS 1170.0	Structural design actions – Part 0: General principles
AS 1170.4	Structural design actions – Part 4: Earthquake actions in Australia
AS 1319	Safety signs for the occupational environment
AS 1330	Metallic materials- Drop weight tear test
AS/NZS 1518	External extruded high-density polyethylene coating system for pipes
AS 1544.2	Method for impact tests on metals – Part 2: Charpy V-notch

Reference	Description
AS 1726	Geotechnical site investigations
AS 1855	Methods for the determination of transverse tensile properties of round steel pipe
AS/NZS 2312.1	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings – Part 1: Paint coatings
AS/NZS 2312.2	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings – Part 2: Hot dip galvanizing
AS/NZS 2648.1	Underground marking tape – Part 1: Non-detectable
AS 2832.1	Cathodic protection of metals – Part 1: Pipes and cables
AS 2885.0	Pipelines- Gas and liquid petroleum- Part 0: General requirements
AS/NZS 2885.1	Pipelines- Gas and liquid petroleum- Part 1: Design and construction
AS/NZS 2885.2	Pipelines- Gas and liquid petroleum- Part 2: Welding
AS/NZS 2885.3	Pipelines- Gas and liquid petroleum- Part 3: Operation and maintenance
AS/NZS 2885.5	Pipelines- Gas and liquid petroleum- Part 5: Field Pressure testing
AS/NZS 2885.6	Pipelines- Gas and liquid petroleum- Part 6: Pipeline safety management
AS/NZS 3000	Electrical Installations
AS 3862	External fusion-bonded epoxy coating for steel pipes
AS 3894.0	Site testing of protective coatings – Part 0: Introduction and list of test methods
AS 3894.1	Site testing of protective coatings – Method 1: Non-conductive coatings – Continuity testing – High voltage ('brush') method
AS 3894.3	Site testing of protective coatings – Method 3: Determination of dry film thickness
AS 3990	Mechanical equipment - Steelwork
AS 4100	Steel structures
AS 4822	External field joint coatings for steel pipelines
AS/NZS 4853	Electrical hazards on metallic pipelines
AS 5100.2	Bridge design- Design loads
ISO 1000	The international system of units (SI) and its application

2.7.3 **Principal Contractor Obligations**

The Principal Contractor will be responsible for developing and demonstrating that their Construction Health & Safety Management Plan (CSMP) [Ref: 8] meets the requirements of the Occupational Health and Safety Act 2004 [Ref: 9] and the aligns to the APGA Construction Health and Safety Guidelines – Onshore Pipeline Projects [Ref: 4].

On appointment of the Principal Contractor a concordance table of applicable OHS legislation and the Contractors CSMP will be provided.

3. **PIPELINE DESCRIPTION**

The following section outlines the limits of the pipeline licence and provides an overview of the pipeline route, key design elements, configuration, and operation.

3.1 **PIPELINE LOCATION AND ENVIRONMENT**

The following section outlines the limits of the pipeline licence and provides an overview of the route and conditions.

3.1.1 HUGS Pipeline Battery Limits

The limits of the pipeline licence for the DN300 HUGS Pipeline are from the tie-in point at the NPPS - Iona DN300 gathering line within the NPPS compound to the isolation valve upstream of the pipeline barred tee branch at the MFCT wellsite, inclusive of the pig launcher. There is a barred tee offtake from the HUGS Pipeline to connection to the NP-4/5 Wellsite piping. The license battery limit will be the first above ground flange upstream of the MIJ. Figure 2-1 below depicts the license battery limits.



Figure 3-1: HUGS Pipeline License Battery Limits

The DN50 MEG pipeline is not a licensed pipeline and is considered an appurtenant to the HUGS Pipeline. The MEG pipeline runs parallel to the HUGS Pipeline between the two locations and is installed in the same trench during construction.

3.1.2 Pipeline Location and Route

The HUGS Pipeline extends approximately 5.3 km between the MFCT wellsite in Timboon West to NPPS in Paaratte, near Port Campbell in south-western Victoria.

The pipeline route can be described as:

• KP0 – KP0.737: NPPS – Iona DN300 Gathering Line Tie-in to Timboon-Peterborough Road

The pipeline commences at the NPPS – Iona DN300 gathering line tie-in and runs in a north-westerly direction. This section of pipeline connects into the NP-4&5 wellsite (KP0.66). The Timboon-Peterborough Road crossing (KP0.737) will be a Horizontal Directional Drill (HDD).

• KP0.737 – KP3.456: Timboon – Peterborough Road to Boundary Road

The pipeline continues in a north-westerly direction and crosses Beach Energy Halladale Pipeline (KP1.699), APA's Paaratte to Allansford Pipeline (KP1.970), Skull Creek (KP2.372) and Leech Creek (KP2.872). All crossings in this section will be constructed in open excavations. Leech Creek crossing area will have a reduced construction right of way due to a 'No-Go Zone' to the north of the pipeline route. Boundary Road crossing (KP3.456), including an adjacent minor watercourse, will be a HDD.

• KP3.456 – KP5.263: Boundary Road to MFCT Wellsite

The pipeline continues in a westerly direction and bends north (KP4.096). This section of pipeline crosses Epic Energy's buried High Voltage line (KP4.588) and APA's Paaratte to Allansford Pipeline (KP4.693) and terminates at the MFCT wellsite (KP5.263). These crossings will be constructed in open excavations.

An overview of the HUGS Pipeline route is shown in Error! Reference source not found..



Figure 3-2: Detailed HUGS Pipeline Route Overview

3.1.3 Coordinate System

All coordinates supplied are referenced to the Geocentric Datum of Australia (GDA) 2020 Universal Transverse Mercator (UTM) Zone 54. All Kilometre Post (KP) designations have been specified to start at the downstream flange of the tie-in point at the NPPS – Iona DN300 gathering line (KP 0.0), increase towards NP-4/5 Wellsite and terminate at the pipeline shutdown valve at the MFCT wellsite.

3.1.4 **Pipeline Corridor and Easement**

The pipeline corridor refers to the area of land within which the pipeline will be constructed encompassing all ground disturbance areas, Horizontal Directional Drilling (HDD) crossings and access points. The pipeline corridor includes all required land for the construction, commissioning, reinstatement and safe operation of the pipeline. The pipeline corridor consists of the following:

- A permanent 12m wide pipeline easement with an additional 13m wide temporary construction zone. Together this provides a 25m construction right of way (RoW) which will be utilised for the safe and efficient construction of the pipeline. There are two (2) planned HDDs within the pipeline corridor.
- Additional work areas, stockpile locations, vehicle turnarounds and access tracks.

The width of the pipeline corridor reduces from KP2.83 to KP2.88 due to the presence of a 'no-go zone' described in CHMP 18865 [Ref: 11] (Attachment A).

The pipeline corridor intersects ten (10) freehold land parcels and two (2) Crown land parcels.

The pipeline corridor has been refined iteratively through engagement with stakeholders and following specialist assessment and in-field inspections.

3.1.5 MEG Pipeline

The DN300 HUGS Pipeline trench will also accommodate the DN50 MEG Pipeline and fibre optic cable (FOC) installed in a conduit system. The HUGS Pipeline and MEG Pipeline will be offset a minimum of 300mm. The FOC will be offset a further 50mm from the MEG Pipeline.

3.1.6 Third Party Assets and Infrastructure

Installation of the HUGS Pipeline will require crossing a number of operating pipelines and services and roads. The planned crossings and method of construction are detailed in Section 3.5.

In development of the preliminary alignment, discussions with third party asset owners crossed by the HUGS Pipeline has not been completed. Preliminary design conditions required by the third-party asset owners have been considered in crossing designs with regard to the separation distance and burial depth. However, further discussions with third party asset owners to finalise crossing designs will be progressed during detailed design, with the main parties identified as follows:

- APA Group (Paaratte to Allansford Pipeline).
- Beach Energy (HBWS Pipeline).
- Epic Energy (buried High Voltage Powerline).
- Powercor (power assets).
- Telstra (copper and fibre communications cables).

The HUGS Pipeline crosses two (2) sealed public roads managed by the Corangamite Council:

- Timboon-Peterborough Road.
- Boundary Road.

3.1.7 Surrounding Land Use and Landholder Requirements

The HUGS Pipeline corridor is located within the Corangamite Shire in the rural parishes of North Paaratte and Timboon West. The closest townships are Timboon (6.8km north east; population 830) and Port Campbell (7.4km south south east; population 440).

Land use is dominated by dairy and pasture crops with some intermittent forestry and shelter belts for cattle.

The HUGS pipeline corridor comprises a total area of 14.76ha and is predominantly located within freehold farmland, bounded by rural roads and crosses four small, ephemeral watercourses that form a part of the Otway Coast drainage basin. The pipeline corridor is largely flat with some small depressions that slope towards the watercourses.

There are seven directly affected landholders who have been actively consulted in accordance with the Pipeline Consultation Plan. Each property will have specific property management plan that will describe the landholders requirements throughout the construction and rehabilitation process.

3.1.8 Environmental, Traditional Owner and Cultural Heritage Requirements

3.1.8.1 Environmental Requirements

S133 of the Pipelines Act 2005 requires Lochard Energy to prepare an Environmental Management Plan (EMP) that identifies the risks to the environment arising from the pipeline operation and specifies what Lochard Energy will do to eliminate or minimise those risks.

Regulation 44-48 of the Pipelines Regulation 2017 refers to the form and content of the EMP. Lochard Energy have prepared an Environmental Management Plan (EMP) in accordance with the Pipelines Act and Regulations which will be active from the date of acceptance by DEECA until 24 months after consent to operate the pipeline has been granted, which will enable the completed reinstatement to rehabilitate with any defects being monitored, identified and rectified.

The purpose of the EMP is to establish an effective environmental management framework that clearly defines the effective management controls for the construction of the HUGS Pipeline. The Principal Contractor will required to develop a Construction Environmental Management Plan complying with the requirements outlined in this document.

3.1.8.2 Traditional Owners

The pipeline is located with the Eastern Maar Aboriginal Corporation (EMAC) Traditional Owner and Registered Aboriginal Party (RAP) jurisdiction.

Engagement with EMAC has been undertaken to understand the cultural sensitivities of the land and the pipeline route has been altered on the basis of artefact locations and in agreement with EMAC.

3.1.8.3 Cultural Heritage

A mandatory Cultural Heritage Management Plan (CHMP) has been prepared for the HUGS Pipeline in accordance with the Aboriginal Heritage Act, 2006. CHMP 18865 (prepared by Ochre imprints, a specialist archaeology consultant) was approved by EMAC on 10 November, 2023.

Two (2) Aboriginal places occur in the activity area: Victorian Aboriginal Heritage Register (VAHR) 7420-0031, a previously registered artefact scatter and a LDAD, VAHR 7420-0063, which comprises three subsurface stone artefacts identified during the fieldwork undertaken to inform the CHMP.

Whilst VAHR 7420-0031 is located within the activity area, it is outside of the pipeline route and will be avoided by construction and operation of the HUGS Pipeline.

Compliance and contingency requirements are provided in section 1 of CHMP 18865.

3.2 TRANSPORTED FLUID AND PIPELINE SERVICE

3.2.1 Production Fluids Composition

Production fluids are expected to be a mixture of reservoir native gas, associated liquids and formation water. The Mylor reservoir composition (dry basis) detailed is based on previous production from the Mylor-1 well.

Note: Over future injection/withdrawal cycles, the original native gas will be replaced with gas compositions representative of sales quality gas. At the end of the withdrawal cycle, gas withdrawn may be mixed with a small percentage of native gas that was remaining in the Mylor reservoir.

Component	2	s I Gas 2]
	Mylor [Ref: 1]	Remote Injected [Ref: 1]
CO ₂	0.25	1.62 ⁽¹⁾
Nitrogen	1.82	2.15
Methane	86.65	92.56
Ethane	5.54	2.56
Propane	2.39	0.66
i-Butane	0.6	0.12
n-Butane	0.79	0.14
i-Pentane	0.3	0.04
n-Pentane	0.25	0.03
Hexane	0.36	0.04
Benzene	0.00	0.00
Cyclohexane	0.00	0.02
Heptanes	0.41	0.03
Methylcyclohexane	0.00	0.02
Toluene	0.00	0.00
Octanes	0.64 ⁽³⁾	0.01
Ethylbenzene/Xylene	0.00	0.00
Nonanes (C9)	0.00	0.00

Table 3-1: Reservoir & Injected Compositions (mol%, Dry Basis)

Component	Mylor [Ref: 12]	Remotes Injected Gas [Ref: 12]
Decanes (C10)	0.00	0.00
Undecanes (C11)	0.00	0.00
Dodecanes (C12)	0.00	0.00
Tridecanes (C13)	0.00	0.00
Tetradecanes (C14)	0.00	0.00
Total	100	100

<u>Note:</u>

1. Injected gas may contain a maximum of 5.0 mol% CO₂

3.2.2 Impurities

No hydrogen sulphide or mercury is expected from the remnant native reservoir gas based on previous production from Mylor-1.

No sand production is expected from the Mylor wells based on operating experience from Iona, Seamer-2 and Remote wells.

Injected gas may contain odorant in range 7 - 14 mg/m³.

3.2.3 **Produced Water**

Produced formation water is the combination of formation water (i.e. free water within the reservoir which is generally saline in nature) and condensed water.

Free formation water is not planned to be produced during any phase of the injection/withdrawal cycle. Arrival of formation water would result in the affected well being immediately shut-in.

Condensed water formed from high reservoir temperatures (approximately 66 °C) to low ground temperatures (approximately 12 °C) has been assessed in the HUGS Pipeline BoD [Ref: 13].

3.2.4 MEG Composition

In withdrawal mode (only), MEG is continuously injected at the wellhead (upstream flowline choke valve) to inhibit the formation of hydrates within the pipeline system and also provide internal corrosion protection. MEG injection rates are dependent on gas withdrawal flow rate and the lowest temperature in the pipeline (either at the MFCT wellsite or to a fixed arrival temperature of 10 °C at IGSF).

Lean (low water concentration) MEG is transported by tanker from IGSF to dedicated storage tank located at NPPS. Dedicated pumps distribute the MEG to the Remote wellsites.

Injected MEG is ultimately swept through the pipeline system and received at IGSF where pipeline liquids are separated from the gas stream and directed to further separation equipment. Rich MEG 40wt% MEG is directed to MEG regeneration equipment to convert it back to 80-90wt% MEG and then dedicated storage.

The MEG pipeline system is considered to be a negligible corrosive service.

3.3 **PIPELINE DESIGN, CONFIGURATION AND OPERATION**

3.3.1 Pipeline Design and Operating Conditions

The DN300 HUGS Pipeline will be designed as a bi-directional pipeline, which allows gas to be transported between the MFCT wellsite and NPPS.

The DN50 MEG pipeline will be designed to supply lean MEG from NPPS to MFCT wellsite for injection downstream of the wellhead(s) for the purposes of hydrate management and corrosion inhibition.

The operating conditions of the pipelines is summarised in Table 3-2 below taken from the Pipeline Basis of Design.

Table 3-2: Design and Operating Conditions

Item	DN300 MFCT Wellsite to NPPS Pipeline	DN50 NPPS to MFCT Wellsite MEG Pipeline
Design Pressure (max)	16,000 kPag	16,000 kPag
Operating Pressure (min/max)	5,000 / 14,100 kPag	9,000 / 14,550 kPag
Design Temperature (min/max)	-20 / 70°C	0 / 70°C
Operating Temperature (min/max)	10 / 40°C	10 / 40°C

3.3.2 Pipeline Materials and Wall Thickness

The line pipe material and wall thickness of the pipelines is summarised in Table 3-3 below.

Table 3-3: Materials and Wall Thickness

Item	DN300 MFCT Wellsite to NPPS Pipeline	DN50 NPPS to MFCT Wellsite MEG Pipeline
Product	Raw production gas and liquids	MEG and corrosion inhibitor
Diameter	DN300	DN50
Pipe Specification	API 5L PSL2	API 5L PSL2
Material Grade	X65	Gr B
Design Factor (Pipeline / Assemblies)	0.72 / 0.67	0.72 / 0.67
Wall Thickness	12.7 mm	5.53 mm
Corrosion Allowance	1.5 mm	1.0 mm

3.3.3 Corrosion Management

External corrosion is primarily controlled by application of modern pipe coating and application techniques. A cathodic protection (CP) system provides a secondary control for locations where the coating fails. The CP system is common for the two (2) pipelines and will be surveyed on a six-(6) monthly basis to confirm that it is providing voltage, in the correct range, all along the pipeline. Coating defects will be detected by direct-current voltage gradient surveying (DCVG).

HUGS Pipeline corrosion may be detected by in-line intelligent inspection tools.

The MEG pipeline is not expected to be pigged but the design includes provision for future installation of pig barrels.

Lochard Energy has a Pipeline Integrity Management Plan [Ref: 15] which details Lochard Energy's pipeline integrity approach in managing existing gathering pipelines installed in PPL1.

Table 3-10 summarises Lochard Energy's approach to pipeline corrosion threats and mitigation strategies.

Hazard / Threat	Threat Mitigation	
DN300 HUGS Pipeline		
Internal Corrosion	Continuous MEG injection.	
External Corrosion	 Underground – high integrity external pipeline coating system. Aboveground – painting. CP impressed current system if coating system fails. CP 6 monthly surveys. Direct Current Voltage Gradient (DCVG) 5 yearly surveys. Intelligent pigging survey conducted year 1 (post construction) and then 10 yearly intervals. MIJ installation to electrically isolate from above-ground facilities. 	
DN50 MEG Pipeline		
Internal Corrosion	Non-credible threat.	
External Corrosion	 Underground high integrity external pipeline coating system. Aboveground – painting. CP impressed current system if coating system fails. CP 6 monthly surveys. Direct Current Voltage Gradient (DCVG) 5 yearly surveys. MIJ installation to electrically isolate from above-ground facilities. 	

Table 3-4: Corrosion Threats and Mitigation

3.3.4 **Power Surges and Lightning Protection**

The HUGS Pipeline system will be protected against lightning and power surges with pipeline earthing and installed monolithic insulating joints (MIJ).

3.3.5 **Pipeline Operation and Control**

The following section outlines the key elements of operation and control for the HUGS Pipeline.

3.3.5.1 Overview of HUGS Pipeline Operation

There are several connection points associated with the HUGS Pipeline which are described below:

- DN300 HUGS Pipeline from MFCT wellsite to NPPS. The HUGs Pipeline:
 - Has an offtake to the NP-4/5 Wellsite
 - Ties into the DN300 NPPS to Iona Gathering Line.

• DN300 NPPS to Iona Gathering Line terminates at a Pig Receiver within the Iona Gas Plant boundary.

The DN300 HUGS Pipeline and the DN300 NPPS to Iona Gathering Line will operate at the same pressure.

3.3.5.2 Control

Key equipment items at the remote sites including wells and valving are remotely monitored and controlled from Iona Control Room which is continuously manned (i.e. 24 hours a day, 7 days a week).

The MFCT wellsite is connected via buried fibre optic cable to existing communication infrastructure installed at NPPS LER. The LER is connected to the IGSF via a microwave radio communication link. A back-up communication link is available in the event of the primary communication link failure to ensure safety critical equipment can still function. Control and protective functions are provided by three (3) systems:

- Process Control is implemented by local control RTUs installed at the various sites to monitor and control the normal operation of the process and raises alarms when parameters go beyond their normal range.
- Shutdown System (SDS) is implemented by TUV approved and certified Safety PLCs installed at the various sites the SDS reacts to abnormal process conditions or manual initiation by shutting down the process system to prevent hydrocarbon releases or equipment damage.
- Fire & Gas (F&G) System is incorporated into the SDS Safety PLC at the various sites it reacts to hydrocarbon releases, fire or manual initiation by shutting down the facilities and starting fire protection systems.

A MFCT and NP-4/5 wellsite boundary ESD isolation valves will be installed at the interface between the MFCT wellsite, NP-4/5 wellsite and HUGS Pipeline which is activated on low pressure and low temperature trip conditions.

MFCT wellsite CCTV coverage and site access control system will be installed to provide general security and verification monitoring to meet the critical infrastructure nature of the facilities.

Overall MFCT wellsite interface with HUGS Pipeline and Iona Control Room is essentially a replication of existing operation facilities installed at NP-4&5 and WC-2 wellsite's.

The Remote sites are subject to fortnightly visitations by Iona operations personnel to walk around each site to verify equipment integrity and conduct routine operations including minor maintenance, sampling and inspections.

3.3.6 External Interference Protection

HUGS Pipeline external interference protection controls will be similar to those in place for the existing Remote sites gathering lines and supply pipelines which are detailed in Table 3-11.

Physical Controls	Procedural Controls
Depth of burial	Landowner liaison and easement agreements
Wall thickness for resistance to penetration	'Before You Dig Australia' (BYDA) service

Table 3-5: External Interference Protection Controls

Physical Controls	Procedural Controls
Increased depth of burial at road and creek crossings	Permit to Work, work procedures, risk assessment processes
Separation distances between other pipelines and utility services	Lochard Energy Community Liaison Committee awareness program
Exclusion barriers	Liaison with local councils, utility service providers and contractors
Protective slabs	Lochard Energy 3 monthly 'vantage' patrolling
Pipeline marker posts and signs	Lochard Energy 12 monthly patrolling
Marker tape	

Marker tape will be placed over the trench excavation and will include both pipelines and FOC throughout the entire length of the route except for sections constructed by HDD. Protective slabs may be installed as additional protection in some locations – typically at foreign crossings or drains.

Pipeline route will be designated with marker posts and signs positioned at roads, water crossings, bends (i.e. changes in alignment direction) and will be visible from one to another in both directions along the RoW (inter-visible).

HUGS Pipeline easement will not be fenced except where entering the MFCT wellsite, NP-4&5 wellsite and IGSF boundary fence-lines.

3.4 **PIPELINE CONSTRUCTION PROGRAM**

Pipeline construction will follow during the summer of 2024/2025. Summer construction is preferred to minimise impact to the land and environment and, where possible, avoid wet ground conditions. When Lochard Energy's Principal Contractor is appointed, a detailed construction schedule will be provided from the contractor to Lochard Energy's HUGS Project Team.

3.5 **PIPELINE CONSTRUCTION METHODS**

The HUGS Pipeline is to be predominantly installed by open trenching providing a minimum depth of cover of 750mm to the top of the DN300 HUGS Pipeline. The typical pipeline construction right of way layout is shown in Figure 3-5.





The MEG Pipeline and fibre optic cable are to be installed in the same trench as the HUGS Pipeline, as indicated in Figure 3-6.

Figure 3-4: Typical Trench Layout



The depth of cover is expected to be typically 1000mm with 1200mm at road crossings.

All crossings will be designed in accordance with AS 2885.1. Vehicle loadings will be in accordance with API RP 1102.

The trenchless construction (HDD) is planned to be undertaken for the following crossings:

- Timboon-Peterborough Road
- Boundary Road.

All other crossings are planned as open cut including:

- APA Paaratte to Allansford Pipeline
- Beach Energy HBWS Pipeline
- Epic Energy buried High Voltage Powerline
- Skull Creek
- Leech Creek
- Various farm tracks.

3.6 **PIPELINE TESTING AND COMMISSIONING**

The steel line pipe will be subject to both rigorous factory inspection and on-site testing. All construction welds will be subject to 100% radiographic inspections prior to burial.

Both the HUGS Pipeline and MEG Pipelines will be hydrostatically tested in situ prior to operations. Detailed procedures will be developed for hydrotesting operations.

Following installation of the buried pipeline system and prior to commissioning the pipeline system will be maintained as per the operational requirements. This will involve:

- Patrolling; and
- Monitoring the cathodic protection system (note temporary sacrificial anode installed after construction to protect the pipe until the impressed current system is functional).

Gas will be introduced into the pipeline from the Iona Gas Facility end via the NPPS – Iona DN300 gathering line. Once pressurised, gas will flow from the MFCT wellsite back to IGSF during withdrawal, and in the reverse for injection.

Detailed procedures will be developed for all HUGS Pipeline commissioning activities.

3.7 PIPELINE CONSTRUCTION SECURITY AND CONTROL OF ACCESS

3.7.1 Security

HUGS Pipeline Principal Contractor is essentially responsible for ensuring general site safety, security and verifying authorised access arrangements for HUGS Pipeline project personnel and visitors. Security arrangements for both the MFCT wellsite and HUGS Pipeline easement during construction will be developed with the Contractor and will be detailed in the Contactor Safety Management Plan [To Be Developed] [Ref: 8].

A project office(s) / yard will be set-up and a single point of entry maintained throughout the project. All personnel entering the contractor premises will be required to report to the site office and sign an attendance register. All personnel leaving the site are required to sign-out of the site attendance register.

All operating equipment is secured from trespassers/vandals, office doors and windows are padlocked, and appropriate vandal covers installed where left overnight.

All open excavation(s) are secured from trespassers / public / landholders and all areas under excavation will be sign-posted and secured by electrical fencing appropriate for livestock protection.

3.7.2 Access Control

A project office(s) / yard will be set-up and a single point of entry maintained throughout the project. All personnel entering the contractor premises will be required to report to the site office and sign an attendance register. All personnel leaving the site are required to sign-out of the site attendance register.

3.7.2.1 General

All accessible areas of an excavation of more than 1.5 metres below grade level whether temporary or permanent will be adequately signposted and/or protected to identify the hazard.

No person will enter any excavation or trench until the responsible supervisor has granted permission to enter and has checked and ensured that the excavation or trench complies with the following:

- Excavation/trench is stable and secure.
- Trench is not flooded.
- Shoring, battering and/or benching has been carried out and complies with the applicable legislation for all excavations and trenches 1.5 metres or more in depth.
- Safe access and egress has been provided in the form of ladder(s), ramp(s) or stairs; and
- Other personnel are present at all times any person is in an excavation or trench.

All excavated areas will have adequate facilities to enable personnel to enter and exit the excavation in a safe manner, including but not limited to:

- Use of a suitable length ladder; and/or
- Excavation of an inclined ramp to allow safe entry and exit.

All excavations will be constructed with appropriate stock crossing points and access ramps to provide for the safe release of wildlife.

All personnel accessing the pipeline easement will be required to wear full PPE including hivisibility clothing.

3.7.2.2 Barricading

Materials to be used for barricading will be made available prior to commencing any excavation and erected progressively.

Suitable materials will be used for erecting barricading taking into account third party presence in the area/region, depth of the excavation, duration of the excavation remaining open, etc. Excavated materials may be used to establish a windrow as a barricade.

Barricading must be constructed to a height of not less than 1 metre and, with the exception of windrow barricades, positioned no less than 1 metre from the edge of an excavated area (Public safety barriers must be in place where required) (Note: barriers to be at least 900mm "paraweb" mesh installed a minimum of 100mm from ground level).

To control any stock from entering the construction zone, discussions with the landowners will take place to set out the best controls for any stock entering the construction area. Relocating stock into separate paddocks with adequate pre-existing stock control fencing will be the primary control.

3.7.2.3 Warning Signs

Where an excavation may not be immediately visible to personnel approaching the site, hazard warning signs will be displayed. (This applies to excavations that may be obscured by buildings or equipment).

4. FORMAL SAFETY ASSESSMENT

Lochard Energy has developed this SMP to support the Pipeline Application PL007732 for the new HUGS Pipeline. In line with the requirements of AS 2885 [Ref: 3] the plan will demonstrate how Lochard Energy will safely design, construct, maintain and operate a licenced pipeline. The Formal Safety Assessment (FSA) will outline key risk assessment and treatment methodologies that will be implemented.

Lochard Energy has engaged Long Energy and Resources to facilitate the Formal Safety Assessment that will continue to be refined through the Detailed Design stages and on appointment of the Principal Contractor.

4.1 FORMAL SAFETY ASSESSMENT PROCESS

Lochard Energy will lead the completion of the FSA with participation of the Principal Contractor. The scope of the FSA will include pipeline construction activities across their different locations, this will include.

- Work within the MFCT wellsite.
- Work along the RoW;
- Work within Iona Gas Facility controlled areas including.
 - o Iona Gas Facility.
 - NPPS; and
 - NP-4&5 wellsite.

The purpose of the FSA is to document hazards and controls to eliminate or minimise risk to SFARP. The Lochard Energy HUGS Pipeline project team will require the Principal Contractor and other key stakeholder to participate in workshops, along with the Lochard Energy Iona Operations team where relevant.

This document will be updated with the key findings and analysis on completion of the FSA workshops.

4.1.1 Hazard Identification and Risk Assessment

All risk assessments will be undertaken in accordance with the Lochard Energy Hazard and Risk Assessment procedure [Ref: 16] and Risk Assessment Matrix ('matrix') [Ref: 17]. The matrix is applied to all functions of the organisation to ensure consistency in assessment and management of risk and is endorsed by the Lochard Energy Board of Directors. These documents sit within the Iona Gas Facility Integrated Management System [Ref: 7] and incorporate Lochard Energy's corporate risk assessment approach, criteria and management level for risk acceptance. Lochard Energy's risk management framework is consistent with the Australian and New Zealand Standard for Risk Management (AS/NZS ISO 31000:2018, Risk Management – Principles and Guidelines) [Ref: 18].

The Lochard Energy Risk Matrix [Ref: 17] includes the several aspects and provides a defined scale of consequence severity across several categories, which are:

- People, Health and Safety.
- Public Health and Safety.

- Environment which includes Public Amenity, Aboriginal & Cultural Heritage, Land and Land Use / Services and Petroleum Source or Reservoir.
- Production.
- Cyber.
- Financial.
- Regulatory & Compliance; and
- Reputation.

Throughout the design phase, hazard and risk analysis process's such as safety studies and risk workshops will be performed and will continue to be updated throughout the remaining phases and into construction as required, these will include for example.

- AS 2885 Safety Management Studies and reviews.
- Hazard and Operability Studies (HAZOP);
- Safety Integrity Level Studies (SIL);
- Layers of Protection Analysis (LOPA);
- Design and Constructability workshops using 3D models.
- Simultaneous Operations (SIMOPS) assessments; and
- Project Risk Register Workshops.

The outputs from these activities will be used to develop the HSE considerations and requirements for the project. Risk treatment plans will be developed, and actions assigned to individuals. The project risk register will be used to track and close out these action plans. The Lochard Energy Project Manager will be responsible for chairing regular project risk register reviews and ensuring this document is updated were necessary with the new information.

4.1.2 Objectives of the Formal Safety Assessment

The objectives of the FSA will be outlined in the terms of reference developed for the workshop and will include for example, the requirements and objectives too:

- Identify all specific hazards and credible incidents relating to construction of the pipeline.
- Identify all specific hazards and credible incidents relating to the construction of the HUGS Pipeline; and
- Assess, analysis and validate all identified hazards and credible incidents in terms of;
 - Their nature and likelihood.
 - Magnitude of severity of their consequences to people, public and the environment.
 - o Consideration of risk control measures, both preventative and mitigative; and
 - Demonstrate that the control measures, both preventative and mitigative adequately meet the principals of SFARP and are fit for purpose and practicable to implement.

This document will be further updated upon completion of the FSA workshops.

4.1.3 Construction HAZID Methodology

Lochard Energy with their appointed Principal Contractor and other key stakeholders will complete construction HAZID workshops as part of the planning scope for the project. The HAZID
workshops are a pivotal risk management tool as they ensure all key stakeholder involved in the design, construction and planning program come together to identify and where possible eliminate risks.

4.1.4 Risk Acceptance Criteria

The Lochard Energy Risk Matrix [Ref: 17] outlines the risk matrix levels and acceptance criteria.

Table 4-1 Lochard Energy Risk Acceptance Criteria

Risk Level	Action Required	Risk Escalation
Extreme	Risk to be communicated immediately. Risk treatment to be identified as soon as possible. Risk to be escalated to Enterprise Register. Risk and controls reviewed monthly at a minimum.	Board of Directors Audit & Risk Committee
High	Risk and appropriate treatment to be identified as soon as possible and documented on the relevant risk register. Risk and controls to be reviewed: Risk score-59 biannually at a minimum Risk score ≥10 - quarterly at a minimum	Risk score 5 -9: Appropriate level of Management (Project, Production, E&M, etc.) Risk score 10 -11: Relevant member of Leadership Management Team Risk score >12: CEO and Risk Function
Medium	Consider risk treatment if not already SFARP. Identify gaps and action plans, and seek approval via Management. Risk documented on the relevant risk register. Risk and controls reviewed annually at a minimum.	Appropriate level of Management (Project, Production, E&M, etc.)
Low	No additional risk treatment required. No ongoing review required unless risk level increases.	Activity manager/person conducting assessment

4.2 SAFETY IN DESIGN

Lochard Energy will complete a range of safety studies and risk analysis workshops relating to the HUGS Pipeline construction, commissioning, operation and maintenance. **Error! Reference s ource not found.** outlines the activities that will be undertaken for each discrete scope.

Project Work Scope	Safety Studies and Hazard Analysis Activities
MFCT Wellsite Connection	HAZOP Study
	• SIL /LOPA
	 Layout and Model Reviews (30%, 60% and 90%)
HUGS Pipeline Construction	Constructability Workshop
	Safety Management Study
	 HAZOP Study (as part of the facilities HAZOP)
	• SIL/LOPA (as part of the facilities SIL/LOPA)
Modifications to NPPS	Fire Safety Study
	Safety Case Review
	HAZOP/HAZID
	SIMOPS

Table 4-2: Safety Studies and Hazard Analysis Scopes

Project Work Scope	Safety Studies and Hazard Analysis Activities
Prior to Construction Works	Construction Readiness Reviews
	Construction HAZID
	Construction Risk Assessments

4.2.1 AS 2885 Safety Management Studies

Lochard Energy engaged Long Energy and Resources to facilitate a Safety Management Study [Ref: 31] in accordance with AS 2885. Part 6: Pipeline safety management, which requires that a robust Safety Management Study [Ref: 31] (SMS) is prepared for the pipeline, addressing any threats to the pipeline integrity and identifying how they are controlled.

The report [Ref: 19] documented the pipeline SMS as prepared at the time of early FEED design. The SMS focused on threats related to conditions that apply to the pipeline – external interference, natural events, and corrosion. Future revision of the SMS will also address the other categories of threats defined in AS 2885, which are: intentional damage, pipeline materials, and design, construction, operation, maintenance, and management of the pipeline.

The SMS identified seven uncontrolled failure threats post completion of a risk assessment. Two of these, vertical augering for installation of power-poles and cable-ploughs for installation of fibre-optics were assessed as having a potential 'Major' consequence due to the potential for fatality of the equipment operator. These events were the most significant consequences identified for the pipeline.

The likelihood of the threats was also assessed, due to a 'Hypothetical' likelihood of occurrence, the risk from auguring was determined to be 'Low'. However, the use of cable ploughs for fibreoptics was designated a 'remote' likelihood by preliminary assessment and hence an 'Intermediate' risk. These risks will be reviewed in future as further work progresses through the design phase of the project.

4.3 PROJECT HAZARD AND RISK IDENTIFICATION

The hazard identification and risk assessment workshop outputs have been captured in a project risk register. Workshop reports detail the scope of the assessment, participants, key risks identified, and controls assigned to either eliminate the risk or reduce the risk level to SFARP.

Items requiring further information or actions will be tracked to resolution as part of the risk management process, refer Section 4.5.1.

4.4 **RISK ASSESSMENT**

A project construction risk assessment will be completed by the HUGS Pipeline Principal Contractor to assess risks relating to the workforce, public and environment from construction and HDD activities.

The risk assessment is considered to be a live document and will be reviewed and updated throughout the project's life cycle as they relate to the day-to-day construction risks. The risk assessments will be referenced when preparing SWMS and JHAs to ensure all necessary/identified controls have been appropriately captured.

4.5 HAZARD AND RISK REDUCTION AND CONTROL MEASURES

Lochard Energy requires that all risk reduction and control measures are based upon the principals of the hierarchy of control, that all control measures must be fit for purpose and able to be executed in their intended way.

The hierarchy of control assigns the highest priority to the elimination of risk, and after which prioritisation of controls is undertaken ending with the least effective control measures to minimise the risk. The Hazard and Risk Assessment procedure [Ref: 16] requires risks to be assessed against the most likely outcome however throughout the risk workshops, events across a range of consequence and likelihood scenarios, including high severity/low likelihood events, will be considered.

4.5.1 Risk Control Action Tracking

Lochard Energy will require across all hazard analysis/risk workshops that a process for tracking actions is maintained. This includes ensuring.

- Actions for specific hazards/risks are assigned to a single responsible person.
- Action timeframes are specified and tracked; and
- Action registers are regularly reviewed.
- The Formal Safety Assessment Action Management procedure [Ref: 20] outlines further requirements for the management of action racking in relation to FSA items.

4.6 ASSESSMENT OF RESULTS

Once the construction hazard identification and risk assessment process has been completed the results will be assessed to demonstrate a comprehensive and systematic process has been followed to identify and manage risks associated with pipeline construction works.

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5. SAFETY MANAGEMENT PLAN

This Safety Management Plan (SMP) has been developed to support Lochard Energy's application to construct the HUGS Pipeline, under the Pipelines Act 2005 [Ref: 1].

The SMP outlines the application of suitable controls based on risk assessments completed to date for the construction of the HUGS Pipeline. The SMP will undergo further revision subsequent to further hazard identification activities that will occur as part of the detailed design phase. Relevant information and updates will then be included in this SMP.

The SMP provides the basis for which the Principal Contractor will develop their Construction Health and Safety Management Plan (CHSMP) [Ref: 8]. All requirements within this SMP are mandatory for all personnel involved in the construction of the HUGS Pipeline.

5.1 MANAGEMENT SYSTEM OVERVIEW

The following section describes the Iona Integrated Management System (IMS) and its linkages with the requirements for the Principal Contractor.

5.1.1 Iona Integrated Management System

The Iona Gas Facility IMS has been developed to ensure that a sound framework exists to facilitate a quality approach to all health, safety and environmental (HSE) aspects of all Iona Operations including the HUGS Project.

The Lochard Energy Integrated Management System Description [Ref: 7] has been developed to demonstrate implementation of a comprehensive and integrated management system for all risk control measures adopted, as well as compliance to relevant legislation that require documented safety management system to be in place. The IMS provides a framework for Lochard Energy's commitment to effective:

- Occupational health and safety management.
- Major hazards safety management.
- Environmental management; and
- Pipeline integrity management.
- The IMS is further supported by the Lochard Energy HSSE Policy, refer Appendix A.

5.1.2 Pipeline Management System

With specific regard to pipelines the IMS details elements of the Pipeline Management System (as required by AS 2885 Part 3 [Ref: 21] and describes the function and relationships of these elements. Table 5-1 summarises the relevant IMS Elements that fulfills the AS 2885 Pipeline Management System requirements.

AS 2885 Pipeline Management System Element		Relevant Lochard Energy IMS Element
Management	Policy and Commitment	Element 1 Integrated Management System Policies and Objectives
	Organization structure Responsibilities and	Element 2 Organisation and Responsibility

Table 5-1: Relevant IMS Elements to meet AS 2885 Requirements

AS 2885 Pipeline Management System Element		Relevant Lochard Energy IMS Element
	accountabilities	
	Training and competency	Element 7 Employee Selection, Competency and Training
	Resourcing	Element 2 Organisation and Responsibility
	Change management	Element 13 Change Management
	Management review	Element 18 Performance Audit and Review
Risk Management Planning	Safety Management Study	Element 11 Design, Construction and Commissioning Element 4 Risk Assessment and Risk Management
	Hazard Identification and Mitigation	Element 4 Risk Assessment and Risk Management
	Planning for normal/abnormal Operations	Element 11 Design, Construction and Commissioning
	Emergency Planning	Element 14 Emergency Response
Implementation	Operational Requirements	Element 5 Operating Procedures
	Site Safety Management	Element 5 Operating Procedures Element 8 Employee Health
	Environmental Management	Element 16 Managing Materials, Waste and Discharge
	Pipeline Integrity Management, including maintenance and repair	Element 12 Maintenance, Inspection and Testing
	Project Management, including commissioning and decommissioning	Element 17 Decommissioning and Abandonment Element 11 Design, Construction and Commissioning
	Emergency Response	Element 14 Emergency Response
	Records Management	Element 3 Information Management and Document Control
Measure and Evaluation	Data acquisition and analysis	Element 4 Risk Assessment and Risk Management Element 11 Design, Construction and Commissioning Element 18 Performance Audit and Review
	Accident incident investigation and reporting	Element 15 Incident Reporting and Investigation
	System Audits including corrective and preventative actions	Element 18 Performance Audit and Review

AS 2885 Pipeline Management System Element		Relevant Lochard Energy IMS Element
Communication and Consultation	Consultation, communication and reporting	Element 6 Employee and Community Involvement

5.1.3 **Project HSE Management Plan**

The HUGS Project HSE Management Plan [Ref: 22] will be the overarching plan for the HUGS Project and will provide the HSE context and requirements of the IMS which guide the planning and execution of the HUGS Pipeline.

The HUGS Project HSEMP references all the applicable IMS documentation for the project and outlines key HSE items such as:

- Interface arrangements between pipeline, drilling and Iona operational areas.
- Describing the battery limits and span of control for each work site.
- Outlining the PTW, HSEMP, ERP requirements for each work area; and
- Describing the minimum criteria for items such as training, risk management, HSE policy, objectives and targets.

Where there is any conflict between policies, plans and procedures, Lochard Energy's HSE policies and procedures will take precedence.

5.1.4 Site Safety Rules

The Lochard Energy Site Safety Rules [Ref: 23] describes the mandatory operating standard requirements for safety in the workplace. This also includes management aspects of work such as planning, competency, documentation and record keeping requirements.

The Site Safety Rules [Ref: 23] articulate the minimum standards of control expected from everyone. Where a contractor is working under their own HSE Management System their procedures and systems must meet or exceed the requirements of the Site Safety Rules.

The nine elements of the Site Safety Rules [Ref: 23] are shown in Figure 5-1.

It will be a requirement of Lochard Energy that all contractors adopt the Lochard Energy Site Safety Rules [Ref: 23].





5.2 PRINCIPAL CONTRACTOR HSE MANAGEMENT SYSTEM

Lochard Energy will engage a principal contractor as a Category 'B' contractor under the Contractor Management and HSE Evaluation procedure [Ref: 24]. As part of the HSE Pre-Qualification process, all Category B contractors are required to complete the Lochard Energy HSE Questionnaire and participate in a HSE Audit.

• A Lochard Energy representative will complete the audit of the principal contractors HSEMS/IMS, which will include the key HSE documentation required for the HUGS Pipeline.

Prior to mobilisation further activities are completed to ensure the principal contractors HSEMS is robust, fit for purpose and aligned with Lochard Energy's requirements, this includes ensuring all bridging documentation is approved and all necessary training and inductions are completed prior to mobilisation.

5.3 LEADERSHIP AND COMMITMENT

5.3.1 Policy and Statement of Commitment

As noted previously, the Lochard Energy Health, Safety, Sustainability and Environmental Policy has been attached to this document as Appendix A.

The HSSE Policy is a framework for Lochard Energy's commitment to:

• Occupational health and safety management.

- Environmental management and sustainability.
- Hazard identification and risk management; and
- Commitment to implementation of the IMS elements.

Application of Lochard Energy HSSE Policy applies to all workers, contractors and visitors sharing responsibility for implementation.

The HUGS Pipeline HSE objectives will be outlined in the HUGS Project HSEMP [Ref: 22] and will be consistent with the Lochard Energy HSSE Policy.

The HSE objectives will be developed to ensure the following:

- Providing a healthy and safe workplace.
- Protecting members of the public potentially affected by the project.
- Minimising environmental impacts.
- Compliance with government acts and regulations, and standard.
- The project management team is committed to the delivery of the HUGS Pipeline HSE objectives and will ensure they are achieved by:
 - embedding HSE planning into project plans and decision-making processes.
 - o ensuring resources are allocated appropriately.
 - o provision of appropriate training and education, including inductions.
 - leading by example and supporting positive HSE behaviours.
 - o developing and tracking HSE targets in consultation with contractors and work crews.
 - management of contractors to ensure that HSE standards are practises are consistent with Lochard Energy's requirements.
 - Reporting, recording and investigating incidents, hazards, near misses and concerns and taking steps to prevent reoccurrence; and
 - ensuring all steps are taken to support recovery and rehabilitation of injured workers.

5.3.2 Stop Work Authority

The project 'Stop Work Authority' will be detailed in the HUGS Project HSE Management Plan [Ref: 22]. The Stop Work Authority gives all personnel regardless of role the ability to stop any work they believe is unsafe. The Principal Contractor will be required to implement a 'Stop Work Authority' policy and process for the duration of the HUGS Pipeline project.

5.4 ORGANISATION AND RESPONSIBILITY

5.4.1 Management of Work Sites

Lochard Energy has identified several interfacing work fronts that may occur during the early design phase of the project. These may be subject to change during the detailed design phase and will be updated in this document accordingly.

Site layout drawings will also be developed to demonstrate clearly to all parties the battery limits of control.

Work Site/Zone	Boundary	Controlling Party	Governing HSE Management System / PTW System
MFCT wellsite	MFCT wellsite as delineated by boundary fence	Drilling Contractor	Drilling Contractor PTW and HSEMS
Pipeline Sections	As defined by easement/RoW	Pipeline Principal Contractor	Pipeline Principal Contractor PTW and HSEMS
NP-4&5 wellsite	NP-4&5 wellsite as delineated by boundary fence	Iona Operations	Iona Operations PTW and Lochard Energy IMS
NPPS	NPPS compound as delineated by boundary fence	Iona Operations	Iona Operations PTW and Lochard Energy IMS

Table 5-2: Management of Work Sites for Pipeline Construction Activities

Note: the table above is subject to change upon firming of the program schedule.

5.4.2 Role and Responsibilities

Figure 5-2: Organisational Chart



Key roles and responsibilities for health and safety are detailed in Table 2-1. The organisational structure is summarised in **Error! Reference source not found.**

Table 5-3: Role and Account	tability, Respon	sibility and Authority
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Role	Accountability, Responsibility and Authority
Chief Executive	Accountability
Officer (CEO)	Accountable to Lochard Energy Board of Directors.
	Responsibility
	Ultimately responsible for the HSE performance of all activities within Lochard Energy.
	Ensuring a system is in place for the ongoing identification and control of HSE risks.
	Setting corporate targets for HSE performance and reviewing performance against these targets.
	Reviewing the implementation of management systems to ensure that HSE performance evolves to meet the changing needs of Lochard Energy.
	Reporting to the Board regarding performance against the HSE targets. Authority
	Authority to assign the financial and personnel resources to complete the project.
Head of Projects	Accountability
	Accountable to the Lochard Energy Chief Executive Officer.
	Responsibility
	Ensure the project meets the commitments and requirements as specified in the Iona IMS and applicable Lochard Energy HSE Standards.
	Ensuring compliance with all environmental regulations and the environmental management plan.
	Ensuring implementation of and compliance with this operations plan.
	Authority
	Authority to assign the financial and personnel resources for completion of the HUGS Pipeline Works program.
HUGS Project	Accountability
Manager	Directly accountable to the Head of Projects.
	Responsibility
	Ensuring compliance with all environmental regulations and the environmental management plan.
$\langle \rangle \langle$	Ensuring an effective audit campaign is in place for compliance with this Operations Plan.
	Ensuring communication/consultative systems internal/external are in place and are effective.
	Management representative interface with IGSF Operations Management.
	Ensuring sufficient resourcing for effective emergency response arrangements for all HUGS Pipeline works.
	Review this environmental management plan, rehabilitation plan, regulatory submissions and other HSE documents.
	Notifying Lochard Energy Management team and relevant authorities of all reportable incidents within the specified time frames.
	Perform periodic management visits.
	Authority

Role	Accountability, Responsibility and Authority
	Authority to assign the financial and personnel resources for completion of the HUGS Pipeline works.
	Authority to cease operations in the event of an unsafe situation or with unacceptable environmental risk/exposure.
HUGS Pipeline	Accountability
Construction	Accountable to the Lochard Energy HUGS Project Manager.
Engineer	<u>Responsibility</u>
	Provide management oversight, support and input as required.
	Ensuring communication/consultative systems internal/external are in place and are effective.
	Ensuring incident investigations are completed per procedure and corrective actions tracked to implementation.
	Perform periodic management leadership visits.
	Ensure compliance with all environmental regulations.
	Authority
	Authority to cease operations in the event of an unsafe situation.
HUGS	Accountability
Wellsite/Remote	Accountable to the HUGS Pipeline Construction Engineer
Superintendent	<u>Responsibility</u>
	Day to day responsibility for management of site Pipeline works and subsequent rehabilitation works.
	Manage on-site HUGS Pipeline project team and contractors.
	Implementation of and compliance with this Operations and associated plans.
	Reporting any event or incident which may result in a release of contaminant and/or impact upon the environment in relation to the HUGS Pipeline project.
	Ensuring incident investigations are completed per procedure and corrective actions tracked to implementation.
	Ensuring all required plans, audits and reviews are undertaken in accordance with the regulatory requirements and as required by Lochard Energy management plans.
	Ensuring records are kept in accordance with Lochard Energy documentation and records management procedures.
	Ensure compliance with all environmental regulations.
\bigcirc	Provide and maintain effective emergency response arrangements for all operations where there is potential environmental risk.
	Ensure all personnel are inducted and are aware of their environmental responsibilities.
	Authority
	Authority to cease operations in the event of an unsafe situation or with unacceptable environmental risk/exposure.
HUGS Project	Accountability
HSE Lead	Accountable to the HUGS Project Manager and indirectly to the HUGS Project Manager
	Responsibility
	Ensure all workers comply with HSE requirements.
	Monitoring, review and reporting on performance against HSE requirements.

Role	Accountability, Responsibility and Authority
	Undertake relevant inspections and audits to confirm compliance with management
	plans.
	Provide and maintain effective emergency response arrangements for all operations where there is potential environmental risk.
	Update and maintain environmental logs during HUGS Pipeline Works program activities.
	Report all environmental incidents to the HUGS Project Manager.
	Assist in undertaking HSE inspections and audits.
	Keep all environmental records.
	Ensure HUGS Pipeline works program activities adhere to management and mitigation measures.
	Lead incident investigations and prepare reports.
	Authority
	Authority to cease operations in the event of an unsafe situation or with unacceptable environmental risk/exposure.
Stakeholder &	Accountability
Regulatory	Accountable to the HUGS Project Manager.
Approvals	Responsibility
Manager	Provide management oversight, support and input as required;
	Manage the personnel withing the Stakeholder and Approvals team;
	Ensuring communication/consultative systems internal/external are in place and are effective.
	Interface with key regulatory agencies and stakeholders and to ensure consultation and approvals are in accordance with project plans.
	Undertake relevant inspections and audits to confirm compliance with management plans.
	Authority
	Authority to cease operations in the event of an unsafe situation or with unacceptable environmental risk/exposure.
Project Land	Accountability
Liaison Officer	Accountable to the Stakeholder & Regulatory Approvals Manager.
	Responsibility
	Responsible for all interfaces with landowner and near neighbours.
	Check compliance with PMP.
	Authority
	Authority to cease operations in the event of an unsafe situation or with unacceptable environmental risk/exposure.
Principal	Accountability
Contractor	Accountable to the Lochard Energy HUGS Project Manager
Project Manager	<u>Responsibility</u>
	Ensuring compliance with all regulations and management plans prepared for the HUGS Pipeline project.
	Ensuring an effective inspection and audit program is in place.
	Ensure all incidents and high potential hazards are reported to the HUGS Project Manager and HUGS Project HSE Lead within the required timeframe.

Role	Accountability, Responsibility and Authority
	Ensure all contactor personnel have appropriate training and competency for their roles; and
	Ensure sufficient resourcing for effective emergency response arrangements for all HUGS Pipeline works.
	Authority
	Authority to assign the financial and personnel resources for completion of the HUGS Pipeline works.
	Authority to cease operations in the event of an unsafe situation or with unacceptable environmental risk/exposure.
Principal	Accountability
Contractor	Accountable to the Principal Contractor Project Manager
Project Managers	Responsibility
	Ensure Principal Contractor project team members comply with HSE requirements 24/7.
	Ensure all necessary occupational health and safety (OHS) related systems are developed, implemented, and maintained.
	Ensure all contractor personnel are inducted and are aware of their responsibilities; and
	Ensure emergency response equipment is maintained and available for use.
	Authority
	Authority to cease operations in the event of an unsafe situation.
Principal	Accountability
Contractor HSE	Accountable to the Principal Contractor Project Manager
Manager	Responsibility
	Responsible for maintaining the CHSMP and ensuring compliance with the HSE management system requirements including leading risk assessment workshops, health and safety inspections and incident investigations.
	Provide the required HSE reports per the agreed delivery schedule.
	Assist the Principal Contractor Project Manager in recording and reporting incidents within the required timeframe.
	Lead and/or assist incident investigation as and when required; and
	Support the Project HSE Lead as required.
	Authority
	Authority to cease operations in the event of an unsafe situation.
All Employees	Accountability
and Contractors	Accountable to the designated person in charge unless otherwise specified.
	<u>Responsibility</u>
	Undertake all relevant project inductions prior to works commencing.
	Carrying out work safely and without harm to themselves, others, equipment or the environment and in accordance with their training, operating procedures and work instructions.
	Seeking assistance from their supervisor to undertake a task that they believe they are not competent to perform.
	Stopping any activities that they believe to be unsafe.

Role	Accountability, Responsibility and Authority
	Reporting any hazards observed in the workplace or deficiencies observed in work practice or procedures to their supervisor.
	Participating in training and development activities and competency reviews as and when required.
	Authority
	Authority to cease operations in the event of an unsafe situation or with unacceptable environmental risk/exposure.

5.5 EMPLOYEE INVOLVEMENT AND COMMUNICATION

5.5.1 Lochard Energy Employee Involvement and Communication Systems

Lochard Energy has several participation and consultative mechanisms that promote active communication and involvement of all personnel in the management of HSE. Element 6 Employee and Community Involvement in the IMS details the mechanisms for involvement and communication in HSE matters.

Development of a positive health and safety culture on the project will be achieved through the following:

- completion of the HUGS Pipeline project induction.
- regular health and safety toolbox and job start meetings.
- involvement in hazard identification workshops and job hazard analysis preparation.
- incident investigations and feedback.
- procedure reviews.
- HSE alerts; and
- site HSE Meetings in accordance with HSE meeting procedures.

Lochard Energy has established processes for election of health and safety representatives and establishment of health and safety committees. Health and safety representatives are appropriately trained and competent to perform their duties. Health and Safety Representatives (HSRs) are elected by their respective workgroups to represent company employees and contractors (members of the workforce) at the facilities. The role of the HSR is outlined in IMS Element 2 Organisation and Responsibility.

Lochard Energy will require the Principal Contractor to a have a process in place for the management of HSRs and HSE Committees, this process must align with the requirements of the Occupational Health and Safety Act 2004 [Ref: 9].

Employees/members of the workforce are encouraged to raise any HSE concerns directly with their immediate supervisor.

During the HUGS Pipeline project, personnel will be consulted on matters that may affect their health and safety and HSE information will be communicated by various means including the following:

- health and safety alerts, posters, and notice boards.
- morning pre-start meetings.
- performance reports including accident, incident and near miss reporting.

- involvement in preparing and reviewing health and safety plans and procedures.
- involvement in conducting and reviewing a risk assessment; and
- access to technical operating manuals, and safety data sheets.

Regular HSE toolbox meetings are used for ongoing reinforcement of key information. Regular scheduled meetings, and where necessary, unscheduled meetings will be held to communicate health and safety issues to all levels of the workforce throughout the HUGS Pipeline project.

5.5.2 Contractor Employee Involvement and Communication Systems

Lochard Energy will require the Principal Contractor to have arrangements in place that either meet or exceed those of the Lochard Energy IMS for employee involvement and communication. These arrangements will be subject to approval prior to mobilisation and follow up assurance will occur as part of Lochard Energy's audit program that will occur throughout the HUGS Pipeline project.

5.6 EXTERNAL STAKEHOLDER COMMUNICATIONS AND COMPLAINTS

All external stakeholder management including communications with regulators is managed by Lochard Energy. All media enquiries related to the HUGS Pipeline project will be directed to the Lochard Energy Corporate Service Manager, in line with the company Media Policy [Ref: 26].

In accordance with the Victorian Pipelines Act 2005 [Ref: 1], Lochard Energy has developed a Pipeline Consultation Plan [Ref: 27] for the HUGS Pipeline project. The Pipeline Consultation Plan [Ref: 27] documents how Lochard Energy will consult with stakeholders, landowners, and occupiers about construction of the proposed pipeline and how any objections, concerns or claims will be managed. The Pipeline Consultation Plan [Ref: 27] provides an overview of the pipeline construction process.

Community engagement activities undertaken in support of the HUGS Pipeline project are documented in the Stakeholder Engagement Plan [Ref: 28].

5.7 HSE RESOURCES

Financial planning and resourcing for HSE is agreed during the early stages of the project to ensure resource requirements are appropriately budgeted. External and internal resourcing requirements have been assessed for the HSE deliverables at each stage of the project.

The project planning process has included an assessment of the need for direct and indirect health and safety resources such as first aid trained personnel and specialist risk and safety management consultants to assist with risk management, risk auditing and rehabilitation providers.

Lochard Energy has engaged Long Energy Resources Australia (LERA) as specialist risk and safety management consultants to assist with conducting AS 2885 Safety Management Studies and project risk assessments as required.

Lochard Energy will ensure that all HSE team members engaged by the Principal Contractor will be suitably qualified health and safety personnel who are experienced in the implementation of safety management plans. IMS Element 7 Employee Selection, Competency and Training outlines the requirements for selection, competency, and training of staff, including contractors.

5.8 **PLANNING**

5.8.1 Hazard Identification and Risk Assessment

Lochard Energy has processes for the identification of hazards and risks, the subsequent assessment of likelihood, consequence and the assignment of controls to either eliminate the risk or reduce to SFARP. The Hazard and Risk Assessment procedure [Ref: 16] outlines the minimum requirements for the completed of risk assessments and task-based risk management process's such as Job Hazard Analysis.

Hazard and risk analysis process's such as safety studies and risk workshops will be performed through-out the design phase and will continue to be performed throughout the remaining phases and into construction as required, this will include for example.

- AS 2885 Safety Management Studies and reviews.
- Hazard and Operability Studies (HAZOP).
- Design and Constructability workshops using 3D models.
- Simultaneous Operations (SIMOPS) assessments.
- Project Risk Register.
- Layers of Protection Analysis (LOPA) as required.
- Safety Integrity Level Studies (SIL) as required.

The outputs from these activities will be used to develop the HSE considerations and requirements for the Project. Risk treatment plans will be developed, and actions assigned to individuals, the Project Risk Register will be used to track and close out these action plans. The Lochard Energy Project Manager will be responsible for chairing regular project risk register reviews and ensuring documentation is updated were necessary with new information.

The Lochard Energy Risk Matrix [Ref: 17] outlines the risk management and acceptance criteria, this is discussed in Section 4 Formal Safety Assessment.

5.8.2 Pipeline Construction HAZID

Section 4 of this document outlines a summary of the Formal Safety Assessment process. During the detailed design phase construction hazard identification (HAZID) assessments will be completed with the Principal Contractor for their work scope, this will form the basis of the project risk register and will be required to be maintained, current and accessible to all personnel onsite for the purposes of developing the task-based documentation such as SWMS/JHA.

5.9 HAZARD AND RISK COMMUNICATION

At the site level, the primary means of communicating risks and controls will be via the SWMS/JHA process. The Contractor Health, Safety and Environmental Plan will be required to.

- document how the SWMS/JHA are to be developed, reviewed, deployed and updated.
- describe how the risk register is considered when developing SWMS/JHA.
- detail the training required for personnel to be sufficient in the development and deployment of SWMS/JHA; and
- detail how the contractor will make the information available to the workforce.

These requirements will be outlined in the HUGS Project HSEMP [Ref: 22].

5.10 OBJECTIVES, PLANS AND PERFORMANCE STANDARDS

5.10.1 Lochard Energy Project Objectives, Plans and Performance Standards

The HSE Objectives for the HUGS Pipeline project will be detailed in the HUGS Project HSEMP [Ref: 22]. These objectives will be the minimum agreed HSE performance indicators that will be measured for the HUGS Pipeline project and for all contractors involved. HSE performance will be discussed weekly in contractor meetings and will form part of the required reports.

The indicators detailed in Table 5-4 may be updated as the HUGS Pipeline project progresses through detailed design phase.

Leading Indicator	Target	Lagging Indicator	Target
Compliance to Audit and Inspection Program	100%	Recordable Injuries	0
Compliance to Emergency Exercise Schedule	100%	Spill to grade greater than >5 L	0
Compliance with Leadership Site Visit Schedule	100%	Community Complaints	0
Compliance to training plan/induction requirements	100%		
Compliance to weekly toolbox session	100%		

Table 5-4: HUGS Pipeline project HSE Performance Indicators

5.10.2 Contractor Project Objectives, Plans and Performance Standards

The Principal Contractor will be required to adopt the HSE Objectives and Targets listed in Table 5-4 as a minimum. Performance standards will be developed further during detailed design and will be communicated to the Principal Contractor via this document and the HUGS Project HSEMP [Ref: 22]. These requirements will then be required to be included in the Principal Contractor's CHSMP [Ref: 8] and communicated to personnel via their induction process and toolbox sessions.

5.11 SOURCES OF INFORMATION (LEGISLATIVE AND OTHER STANDARDS)

Lochard Energy is responsible for ensuring all elements of the project comply with the applicable legal requirements and approvals obligations. As such, Lochard Energy has developed a Compliance Register [Ref: 51] to assist with the identification of legislative obligations and standards that need to be followed.

The HUGS Project team will have access to the HUGS Compliance Register [Ref: 51] from the SharePoint site. Other stakeholders that may be impacted or required to dispense on obligation will be made aware through direct communication.

Obligations relating to all personnel on the project will be communicated via the Project Induction.

Compliance with the obligations will be monitored throughout the duration of the project. Lochard Energy will require the Principal Contractor to incorporate these requirements through their systems and processes and to undertake periodic audits and inspections to ensure they are being met.

5.12 MANAGEMENT SYSTEM DOCUMENTATION

5.12.1 Lochard Energy Document Management System

Lochard Energy IMS Element 3 Information Management and Document Control outlines how Lochard Energy manages information and different types of documentation. The Information Management procedure [Ref: 32] details the requirements for identifying and controlling IMS documents. Documents are reviewed for adequacy as part of document review processes and are revised as necessary and subsequently approved by authorised personnel for issue. Critical HSE documents are identified and managed in accordance with the HSE Critical Document procedure [Ref: 33].

Records are controlled and maintained for designated periods to ensure compliance with regulatory and corporate requirements. The web-based document management system Meridian ensures documents are held securely and remotely.

Documents and records are stored/managed as follows:

- controlled documents managed via Meridian document management system.
- risk registers and other 'live' documents are managed through the SharePoint site; and
- records of communication with regulators are stored on the SharePoint and Consultation Manager.

5.12.2 Contractor Document Management System

The Principal Contractor will be required to demonstrate they have established systems for the management of documents. All documentation relating to HSE matters will need to be made accessible to the work force. All HSE documentation generated by the project, whether hard copy or electronic must be controlled as described in the HUGS Project HSEMP [Ref: 22].

5.13 PURCHASING, CONTRACTORS AND IMPORTERS

5.13.1 Contractor Management

Element 9 of the IMS, Contractor and Support Services outlines the minimum requirements in regard to contracting and procurement activities. The system ensures that all contractors perform work in a healthy, safe and environmentally sound manner and are compatible with Lochard Energy policies and expectations.

Processes are in place to effectively manage the HSE aspect of contractors engaged to work on Lochard Energy sites and/or equipment. Such processes will cover all aspects of managing the HSE aspects of contractor work including:

- Planning.
- Selection.
- Implementation.
- Monitoring.
- Review and close-out.

All major contractors involved with the Iona Facilities are assessed according to the Contractor Management and HSE Evaluation procedure [Ref: 24] to determine the appropriate contractor level and associated risk management strategy, refer IMS Section 0 Element 7 Employee Selection, Competency and Training.

The selection of the appropriate contractor level and associated HSE management strategy is based on factors specific to the work, the inherent risk of the work to be conducted, site/location, contractor capacity/capability, work complexity, duration, technologies and risk. The key aspects of the contractor management process are:

- contractor pre-qualification prior to contract award.
- auditing of contractor HSE performance; and
- proof of competency sighted and retained.

HSE requirements and deliverables will be provided to the contractor as part of the tender package and will be included in the contract. Lochard Energy will review and approve the Principal Contractor's HSEMPs, EMPs, HAZIDs, constructability reviews, and insurances prior to works being carried out.

Premobilisation verification via a series of 'kick off meetings' will be completed to ensure competency, equipment readiness and close-out of outstanding actions from risk assessments.

Assurance of contractor HSE performance will take place throughout the duration of the works in line with the HSE objective and KPI monitoring. Lochard Energy will maintain a site presence throughout the duration of the project and the Principal Contractor will need to demonstrate their commitment and compliance with the HSE specifications of the contract, the HSE requirements document.

The Principal Contractor will be required to outline the procedures for the selection, management, and evaluation of their sub-contractors in their CHSMP [Ref: 8].

5.14 IMPLEMENTATION

5.14.1 Design, Construction and Commissioning

Lochard Energy project developments are guided through the various phases by a dedicated suite of documents which detail the objectives, standards and detailed requirements for each phase from initial concept selection through to final commissioning and handover to Iona Operations team.

HSE risks associated with new facilities are identified, assessed and mitigative controls implemented to ensure risks are to SFARP.

Key documents include the following:

- HUGS Project Basis of Design [Ref: 13].
- HUGS Pipeline Basis of Design [Ref: 29];
- HUGS Project Execution Plan [Ref: 30].
- Lochard Energy Capital Projects Completion and Handover Plan [Ref: 55Error! Reference source not found.].

Threats to the project design, specification, procurement, construction and commissioning activities are identified and appropriate levels of audit and QA activities applied to ensure integrity is maintained to meet regulatory and industry standards and practice.

5.14.2 Identification of Design, Construction and Commissioning Risks

The processes for hazard identification and risk assessment is detailed in Section 5.8.1. Key techniques to eliminate or reduce design, construction and commissioning risks include:

- pipeline and facilities design and model reviews.
- AS 2885 Safety Management Studies and reviews.
- pipeline and facilities hazard and operability (HAZOP) studies.
- design and constructability workshops using 3D models.
- pipeline and facilities simultaneous operations (SIMOPS) assessments.
- project risk register development and review.
- safety integrity level (SIL) studies as required.
- layers of protection analysis (LOPA) as required.

Project risk assessments will consider other relevant items including:

- HSE issues associated with each project phase.
- internal Lochard Energy risks associated with personnel resourcing, procurement, cost, schedule and quality.
- regulatory approvals and permits.
- design competency.
- information management including documentation review and approval processes.
- audit and quality assurance.
- project integration with existing facilities, processes and organisation; and
- management of change throughout the project including design change, procurement, construction and commissioning.

5.14.3 Quality Management and Assurance Processes

Quality management and assurance processes are critical in ensuring all components are fit for their design service. Lochard Energy has a documented process for managing assurance requirements detailed in Lochard Energy project assurance requirements document [Ref: 57]. Assurance process elements include:

- project drawings and documents including plans, procedures, work instructions, datasheets, lists are reviewed by internal stakeholders and approved by qualified project personnel.
- fabrication of components by external suppliers are reviewed and approved through mechanisms as:
 - pre-qualified third-party inspections (TPI).
 - o pre-approved weld procedures, qualifications and certifications.
 - o material procurement review, approval and certifications.
 - \circ non-destructive testing (NDT) techniques where required.
 - destructive testing where appropriate.

- Construction reviews including:
 - field installation checklists (FIC) for civil, SMP and electrical and instrumentation (E&I) components; and
 - tri-party 'Punchlist' walkdowns to identify non-complying installations or items requiring additional work.
- Commissioning processes including:
 - Factory acceptance testing (FAT) and site acceptance testing (SAT) acceptance reviews.
 - pre-commissioning SMS review.
 - loop checking; and
 - o commissioning checklists.

HUGS Pipeline system will be subject to a range of quality related processes including:

- procurement technical bid evaluation (TBE) and required time of arrival (RTA) processes based on supplier history, reliability, competence and technical capacity.
- documentation relating to material quality, testing and uniformity.
- factory inspection and testing.
- final certification to ensure compliance with all technical requirements.
- transportation requirements to ensure all materials are delivered to project laydown area as per project requirements.
- construction inspections, 100% radiography testing prior to pipeline burial; and
- hydrostatic testing to verify integrity compliance with MAOP requirements.

5.14.4 Management of Commissioning and Hand Over to Operations

Lochard Energy has a documented process for managing Pre-commissioning and Hot Commissioning and handover to Operations which form part of the Lochard Energy Project Delivery Process [Ref: 55].

The Lochard Energy Completions and Handover Process [Ref: 55] references a range of forms / checklists to guide the commissioning effort and forms a comprehensive dossier of all commissioning activities and is subject to review as part of the handover process.

5.14.4.1 Pre

Pre-commissioning

Pre-commissioning of the project facility involves a wide range of activities to provide assurance before the introduction of gas, chemicals, oils and electricity and include:

- instrument and calibration checks.
- loop testing.
- stroke valves.
- functional checks of distributed control system (DCS), programmable logic controller (PLC) and safety systems.
- input/output (I/O) point checks.
- live emergency shutdown (ESD) testing.

- completion by system using field inspection checklists (FIC) and inspection test plans (ITP); and
- service testing with air / nitrogen.

A final safety review is conducted between project and Iona teams to review that project deliverables have been satisfactorily completed prior to introduction of energy including hydrocarbons, process fluids or electricity. Key focus areas are:

- completion of risk assessment, HAZID and HAZOP identified actions.
- verification of datasheets, design calculations, material and test certification, instrument calibration and hydrostatic test certificates; and
- verification of vendor supplied installation, operation and maintenance (IOM), master document register (MDR) and specialised procedural documentation.

5.14.4.2 Commissioning

Following provisional acceptance by operations and regulatory authorities (ESV), this effectively allows for commissioning to occur. Pipeline commissioning will only occur once all the precommissioning activities associated with the facility equipment has been completed and consent to operate has been received from ESV. Overall control is transferred to Iona Operations with support from the project team including provision of a full suite of procedures for commissioning the new project assets including interfaces with existing facility operations.

Project Commissioning involves the following:

- introduction of hydrocarbons, process fluids and electricity.
- final live ESD testing.
- performance testing.
- control loop tuning; and
- provisional handover to Iona Operations.

5.14.4.3 Handover and Close-out

Final handover of HUGS Pipeline and facilities to Iona Operations is subject to review of and satisfactory completion of:

- Punch-list items.
- operations assurance deliverables including operational and maintenance procedures, maintenance schedules, 'As-built' documents and spare parts placement into Iona Stores; and
- resolution of issues arising from commissioning and/or early operation.

5.14.5 HUGS Pipeline Operation and Assurance

Following handover to Iona Operations, the HUGS Pipeline system will be managed as defined with the Pipeline Integrity Management Plan (PIMP) [Ref: 15] which will include:

- 100% inline inspection (ILI) survey within the first 12 months of operation.
- six (6) monthly cathodic protection monitoring.
- five (5) yearly direct current voltage gradient (DVCG) monitoring.

- three (3) monthly 'vantage' patrols; and
- 12 monthly annual pipeline walkdown.

5.15 MANAGEMENT OF CHANGE

5.15.1 Triggers for Management of Change

Triggers for management of change include:

- key personnel changes, including HSE critical roles or changes to organisational structure.
- material modification or additions.
- changes to chemicals used and stored on sites.
- design changes and modifications.
- changes to process equipment, piping, electrical and instrumentation.
- changes to process alarm, trip, control, and SDS.
- changes to approved operating procedure documentation; and
- emergency or temporary change.

5.15.2 Management of Change Process During Construction

Lochard Energy has a well-developed management of change process to cover organisational, engineering, emergency and temporary changes as detailed in Change Management procedure [Ref: 54].

Project changes are managed through a process of recording and justifying the proposed change through a Decision Record Form (DRF) [Ref: 58] which are reviewed / assessed and approved by appropriately project personnel following consultation with relevant stakeholders. The review / approval process will identify if additional risk assessment or other process safety related processes are required before acceptance.

Operational changes including potential impacts to control, alarm and trip settings will be subject to Lochard Energy engineering change management [Ref: 54] process which will assess the proposed change against a number of defined criterion before acceptance including any impact to the IGSF Safety Case or other regulatory documentation.

5.16 PURCHASING AND CONTROL OF MATERIALS AND SERVICES

5.16.1 Quality of Project Deliverables

The HUGS Project Manager will be accountable for quality and for the application of quality management principles and will ensure that all services conform to Lochard Energy's quality and regulatory requirements. The discipline leads will be responsible for assuring the quality of all their processes, deliverables, and outputs.

Quality assurance work may be assisted by engaging the services of specialist third-party agencies or contractors.

5.16.2 Quality Control

Inspection is fundamental to the assurance of product quality. Inspection requirements shall be based on best practice and the assessed risk. This ensures the involvement of qualified and competent personnel at the right time.

The differing project contracting strategies result in significant differences in responsibility for execution of inspection. Inspection resources will be covered by combinations of the project team, contractors, independent verification providers and third-party inspection agencies.

Project involvement in inspection activities shall be based on competence of the parties involved, irrespective of the length of the supply chain.

5.16.3 Quality Audits

The Project's quality representative assisted by the project team will develop a program of reviews and audits necessary to provide quality assurance throughout design, procurement, fabrication, iteration, installation, and commissioning / start-up. These audits will be recorded.

For the HUGS Pipeline construction contract, Lochard Energy will conduct surveillance and compliance audits on the contractor and their subcontractors throughout their works. The contractor and its subcontractors are required to cooperate during such activities.

5.16.4 Verification and Validation

The prime focus of validation is the design of the facilities in accordance with the Pipeline Basis of Design [Ref: 29]. Verification is a process of due diligence of the facility which includes design review, fabrication / construction surveillance and commissioning witnessing.

5.16.5 Management of Contractors

Effective and robust contractor quality management is essential. Key to this is setting out clear expectations about quality management prior to contract award. These requirements shall continue to be reinforced post contract award. In addition to the key aspects of the contractor management process, some of the key points regarding quality control are as listed:

- all contractors must comply with Lochard Energy's contractual quality requirements.
- Lochard Energy will review and approve contractor quality management plans (QMPs).
- review of contractors ITPs for all disciplines in line with quality management requirements prior to undertaking work whilst ensuring that ITP commitment and staged activities are adhered to.
- ensure that adequate and competent resources are available to fulfil both contractors and Lochard Energy's quality requirements and commitments.
- review and approve the nominated contractor procedures and deliverable documentation.
- plan and execute contract compliance surveillance and audits; and
- review and approve deliverable documentation as scheduled to ensure that these are established, in place, timely and meet contract / specification requirements.

5.17 **PERMIT TO WORK ARRANGEMENTS**

Lochard Energy permit to work (PTW) management arrangements are detailed in Element 5 Operating Procedures in the IMS and Permit to Work procedure [Ref: 34]. The PTW system:

- provides a method for ensuring that adequate safety checks and considerations are performed by appropriately qualified personnel for certain types of hazardous work.
- assigns the accountability, responsibility, communication and process for undertaking hazardous work; and
- describes the interaction between work groups and contractors when hazardous work is performed and manages SIMOPS.

The PTW address's the following elements also:

- Must be supported by JHA/SWMS to identify and control hazards associated with the works; and
- Include safety checks and considerations are performed by qualified personnel.

The PTW system will run the following PTW types.

- cold works, excavation for example and tasks that involve no source of ignition.
- hot work, such as welding.
- no flame hot work, such as use of diesel-powered equipment; and
- confined space entry.

Personnel are informed of PTW requirements and processes through training and inductions. The permit holder and the work party signed onto the permit are responsible for complying with the conditions.

The Principal Contractor will be required to demonstrate they have a sound and proven PTW system as part of the selection criteria. Details will need to be included in their CSMP.

The management of work sites is described in Table 5-2 table. This may be subject to change as the project moves through detailed design and further risk workshops are complete.

5.18 HIGH RISK WORK AND SAFE WORK METHOD STATEMENTS

The principal contractor will be required to implement their system for the development and management of safe work method statements (SWMS). This must be documented in their CHSMP [Ref: 8] and must take into consideration Lochard Energy's requirement to ensure SWMS are linked to the project risk register as detailed in Section 4.4.

The Principal Contractor will be expected to prepare SWMS for the following types of activities.

- all activities involving high risk construction work (HRCW) as defined by the Occupational Health and Safety Regulations 2017 [Ref: 25].
- all activities involving high risk work, including high risk plant (i.e., plant that requires a licence to operate);
- major hazards and critical controls applicable to the task as identified in the project risk registers.
- any activities involving:
 - mobile plant operation.
 - work in the vicinity of foreign services.

- electrical hazards working in the vicinity of overhead powerlines.
- excavations (any).
- welding and allied processes.
- abrasive blasting.
- hazardous chemical handling / use.
- o lifting.
- work that can produce harmful airborne contaminants (e.g., concrete / masonry cutting).
- o driving and traffic management.
- o use of pneumatic tools or regulated pressure equipment; and
- o use of powered cutting tools (e.g., chainsaw / demo saw).

5.19 SAFE OPERATING PROCEDURES

Lochard Energy has a suit of safe operating procedures, these documents describe how to safely conduct certain activities. Where a safe operating procedure doesn't exist for a task/activity a SWMS/JHA is developed and approved.

5.19.1 Review of Specialist Sub-contractor Safety Plans

During the construction of the HUGS Pipeline there will be a requirement for specialist contractors to be engaged for specific activities such as non-destructive testing (NDT) and horizontal directional drilling (HDD) activities. Each of these contractors will be required to develop HSE management plans for the execution of their work. These plans will be required approval from the Principal Contractor prior to the mobilisation of the specialist contractor.

5.20 MANUAL TASKS

The Principal Contractor will be required to demonstrate they have processes and systems for the identification of manual tasks and implementation of suitable controls. This may include ensuring the assessment of manual handling tasks as an important hazard and control measure as part of the job hazard analysis process. Monitoring the effectiveness of manual handling controls will also need to form part of the routine safety inspection and surveillance program implemented by the Principal Contractor.

5.21 MATERIALS HANDLING AND STORAGE

5.21.1 Pipe, Plant and Other Heavy Transport and Handling

The Principal Contractor will be required to develop a traffic management plan (TMP) that considers the impact of vehicle operations and their potential for adverse impacts on the local community. The TMP must include the curfew requirements detailed in the Iona Traffic Management Plan [Ref: 35]. This ensures that heavy vehicles are not travelling on local roads during school bus hours.

The Transport Management Plan or an addendum must cover the transport of pipe from the nominated pipe laydown area to the construction sites along the easement.

All loads carried on vehicles must be loaded and restrained as per the requirements of the latest version of the National Transport Commission Load Restraint Guide [Ref: 36]. The TMP must also detail the requirements for fatigue management and chain of responsibility obligations. The TMP will require Lochard Energy approval prior to mobilisation.

5.21.2 Pipe Handling and Other Lifting

The Principal Contractor will be required demonstrate they have documented processes and systems for Lifting Operations that meets or exceeds the Lochard Energy Control of Lifting and Lifting Equipment procedure [Ref: 37] and Site Safety Rules [Ref: 23] requirements for lifting.

Lifting is considered one of the highest potential activities that will take place during construction. The Principal Contractor will be required to demonstrate that training and licences are in place for all personnel involved in lifting activities.

5.21.3 Hazardous Chemicals Transport and Handling

The Principal Contractor will be required to ensure the management and transport of hazardous chemicals is covered in their CHSMP [Ref: 8]. At a minimum the following elements must be addressed.

- requirement for a register of hazardous chemicals onsite.
- training/induction requirements for those who will handle/transport hazardous chemicals.
- provision of safety data sheets to the workforce.
- assessment and provision of suitable PPE.
- how the storage and use of hazardous chemicals will be covered in JHA/SWMS.
- storage requirements including bunding and signage; and
- a program of inspections.

The Lochard Energy procedure for the Control of Dangerous Goods and Hazardous Substances [Ref: 38] describes the requirements for transport, storage and safe use of all dangerous goods, hazardous substances and materials.

5.22 MAINTENANCE AND REPAIR

The Principal Contractor will be required to ensure a program for the inspection and maintenance of equipment is developed for the project in line with the manufacture's guidelines. Examples of critical equipment to be included are.

- all safety equipment such as:
 - o safety harness
 - o gas monitors
- electrical equipment
 - o power leads
 - RCD devises
 - portable power tools
- construction equipment
 - vehicles light and heavy

- o cranes, lift trucks and side booms
- ladders and scaffolding
- o generators
- blasting and hydro testing equipment

The Principal Contractor must ensure records are maintained on the site for each piece of equipment. Furthermore, they must also be able to demonstrate a process is in place to ensure equipment arriving for the first time is inspected for damage and is fit-for-use on the project including being free from possible weed and seed contamination.

5.23 EMPLOYEE SELECTION, COMPETENCY AND TRAINING

Lochard Energy's IMS Element 7 Employee Selection, Competency and Training outlines employee's fitness for work, competence and behaviours that are required for the safe execution of work. Contractors are required to provide competent workers, refer also to section 5.23. The Principal Contractor appointed will need to demonstrate that they have appropriate processes and systems in place to manage employee section, competency and training. This will also need to include how they manage any sub-contractors.

The Principal Contractor site management and supervisors will be responsible for ensuring all personnel including contractors/sub-contractors are competent to conduct their activities safely and in a socially and environmentally responsible manner.

5.23.1 Needs Assessment and Employee Selection

The necessary qualifications, knowledge, skills, competencies and experience to undertake the assigned functions at the Iona Facilities are detailed within the position descriptions of all Lochard Energy employees. Documented job criteria are developed for all positions where personnel undertake HSE or business critical work.

Procedures exist for the specification, selection and placement of skilled personnel and involve a detailed assessment with reference to the position description and the identification of performance criteria required for the position.

Some positions require pre-employment medical examinations to be conducted. This is to ensure that any pre-existing conditions which may impact on a person's ability to perform their job safely are identified so that they can be managed. The Medical Checks and Health Monitoring [Ref: 39] procedure details the requirements for conducting on-going medical and health checks for Lochard Energy personnel. Also refer also Section 0 Element 8 Employee Health.

The Principal Contractor will be required to demonstrate that they have an implemented and robust process for assessing the training, knowledge and skill s requirement of their personnel and their sub-contractors. This assessment must also consider the need for pre-employment medicals or similar.

Key roles for the management team of the Principal Contractor will require approval from the Lochard Energy Project Management Team. Changes to key roles will also require Lochard Energy Project Management Team approval.

5.23.2 Induction

All personnel working on the project are required to complete the following inductions.

- Lochard Energy project induction, including cultural heritage awareness; and
- Principal Contractor induction

A visitor's induction will be developed by the Principal Contractor for personnel attending the project for less than day and who will not undertake any work activities. Visitors must be accompanied by a fully inducted site representative at all times and will be required to adhere to the PPE requirements of the site.

5.23.3 Training

HSE training is to be provided by means of either in-house training courses, or through the use of registered training organisations (RTO) conducting nationally accredited programs, when appropriate. Training requirements will be regularly reviewed so that personnel are competent prior to commencing the task or role unsupervised. Training requirements are covered under IMS Element 7. A full list of the training requirements for contractor personnel must be included in a project training needs analysis as part of the Principal Contractor CSMP.

Training requirements for the project include however are not limited to:

- inductions as outlined in section 5.23.2;
- HSE awareness, HAZID and risk management.
- first aid and emergency response.
- legislated training and licences.
- PTW system training.
- integrated management system.
- incident response and management.
- permit to work system.
- light vehicle driver training; and
- HSE leadership for supervisors and managers.

The Lochard Energy project team requires that contractors demonstrate appropriate competency of personnel where they plan to perform activities that impose a potential HSE risk. The training and competency of contractor personnel is required to be managed by the Principal Contractor's HSE management system as detailed in their CHSMP. Personnel are only permitted to perform tasks that they are deemed competent to perform and / or where certification of competence can be demonstrated. The Principal Contractor is required to ensure all personnel and their subcontractors have the relevant knowledge, training, qualifications and / or skills required to undertake their roles and responsibilities in a safe manner.

5.23.4 Qualifications

All personnel undertaking work are required to hold the applicable competency certificates, licences and/or tickets related to their specific trade/skill. A copy of the relevant licence, ticket or certificate is to held onsite by the Principal Contractor, including for all sub-contractors. The Principal Contractor is responsible for validating all licences, tickets and certificate and ensuring expiry dates have not been reached. The Principal Contractor must have a training plan in place to ensure all license, tickets and certificates remain current.

Lochard Energy will verify the competency of key contractor project roles through a review of the CVs prior to mobilisation.

5.23.5 Records

The Principal Contractor is responsible for maintaining a record of all training and qualifications on-site in a project training and induction register for the construction workforce. Training course materials, attendance and assessments records are to be reviewed both as part of the Project monitoring and audit program. Records of competency assessments and training records are filed electronically by a dedicated resource.

5.24 COMMUNICATION AND CONSULTATION

The Principal Contractor will be required to demonstrate how they will manage communication and consultation with the workforce. Details will be required to be documented in the Principal Contractor CHSMP [Ref: 8] and should include:

- daily pre-starts meetings.
- weekly toolbox meetings.
- HSE committee.
- provision of HSRs.
- noticeboards.
- safety alerts; and
- management meetings and senior management site visits.

5.25 WORKPLACE ENVIRONMENT

The Lochard Energy IMS Element 8 Employee Health provides the minimum expectations and controls for the management of hazards in the workplace environment.

Environmental, health and hygiene aspects are monitored by surveillance programs and regular workplace inspections. This element is further supported by documentation covering:

- Fatigue Management [Ref: 40].
- Drug and Alcohol Management [Ref: 41 and Ref: 42].
- Injury, Illness and Return to Work [Ref: 43, Ref: 44].
- Medicals and Health Monitoring [Ref: 45].

All workplaces will be maintained to a high standard of hygiene where the standards to be adopted will meet or exceed those required by local regulations.

The Principal Contractor is required to meet or exceed the documented Lochard Energy procedures and systems for management of the workplace environment.

5.25.1 Environmental Conditions

The Principal Contractor must have a program in place for the management of environmental conditions. The nominated Principal Contractor project HSE person will be responsible for the assessment of conditions such as.

• environmental dust.

- environmental noise.
- lighting and ventilation.
- occupational hygiene including:
 - o occupational noise.
 - radiation exposure.
 - heat stress.
 - o respirable dusts and other atmospheric contaminants; and
 - o chemical exposure.
- first-aid facility/equipment management.
- spill response and chemical management; and
- hazard identification and signage.

The Principal Contractor is required to have all the necessary equipment available for the management of occupational exposures as detailed in the risk register (noise monitoring, dosimeters for radiography etc).

5.25.2 Accommodation and Workplace Amenities

Lochard Energy requires workplace amenities to comply with the Worksafe Compliance Code: Workplace Facilities and the Working Environment [Ref: 47]. There will be no accommodation camp associated with the construction of the HUGS Pipeline.

5.25.3 Site Security and Public Safety

The Principal Contractor will be required to ensure office areas, laydown areas and construction areas are secured for the duration of the project. Controls will need to be identified as part of the Principal Contractor's risk assessment process and a process of verification and oversight will be completed by the Lochard Energy's HUGS Project management team.

Further to this, risks to the public from the project will be considered and controls identified during the Principal Contractor's risk assessment process. This is likely to include items such as.

- signage on entrance ways.
- public communication campaigns.
- security arrangements; and
- TMPs.

5.26 **PLANT**

The Principal Contractor will be required to demonstrate they have a preventative maintenance management system that ensures the integrity of equipment is suitable for its intended use.

All plant and equipment utilised for the pipeline construction by the Principal Contractor and their subcontractors must be designed, constructed, commissioned and operated in a manner such that HSE risks are effectively controlled. The quality and HSE integrity of plant and equipment being utilised is to be maintained by the application of the following principles:

• the design of equipment and system meets with service requirements.

- purchased products conform to specified requirements.
- materials and fabrication meet with the design specification.
- equipment is fit for purpose.
- equipment installation and ongoing operation is consistent with design specification and manufacturer's instructions; and
- ensuring the ongoing equipment integrity by the application of maintenance, testing and inspection procedures.

All plant and equipment shall comply with regulatory requirements and be maintained in accordance with the OEM's guidelines. Any equipment deemed unfit for use shall be tagged out and quarantined accordingly.

Plant hazard assessment are required for mobile plant and key risks associated with plant and equipment will be required to be included in all JHA/SWMS.

5.27 FIRST AID AND EMERGENCY RESPONSE

5.27.1 First Aid Facilities and Services

In line with the Worksafe Compliance Code; First Aid in the Workplace [Ref: 46] the Principal Contractor will be responsible for completing a first aid and emergency management risk assessment and ensuring suitable facilities and equipment are available across the different areas of the project, this will include ensuring an appropriate number of first aid trained personnel area available across all shifts and areas of the Project.

A mechanism must be implemented to ensure first aid trained personnel area easily identifiable on-site.

All work light vehicles will be required to have first aid kits as a minimum. The Principal Contractor's HSE team will be responsible for conducting weekly checks on all first aid and emergency equipment. Lochard Energy will provide assurance checks over key activities for the management of first aid and emergency response.

5.27.2 Emergency Management

Incident and emergency management will be managed by the Principal Contractor for all locations where they have jurisdiction over the physical work location. Incident and emergency management is aligned to the PTW System used for the area of work control, see Table 5-5 below.

Where work is completed on an Iona controlled asset the Iona Emergency Response Plan [Ref: 49] will be the governing document.

Work Site/Zone	Controlling Party	Governing HSE Management System / PTW System	Incident and Emergency Response Plan
MFCT wellsite Drilling Phase	Drilling Contractor	Drilling Contractor	Drilling Contractor Primary to LE Bridging ERP
MFCT wellsite Pipeline Connection Phase	Pipeline Principal Contractor	Pipeline Principal Contractor	Pipeline Principal Contractor to LE Bridging ERP

Table 5-5: Incident and Emergency Response Management

Work Site/Zone	Controlling Party	Governing HSE Management System / PTW System	Incident and Emergency Response Plan
Pipeline Easement	Pipeline Principal Contractor	Pipeline Principal Contractor	Pipeline Principal Contractor to LE Bridging ERP
NP-4&5 wellsite	Iona Operations	Iona Operations	Iona Gas Facility ERP
NPPS	Iona Operations	Iona Operations	Iona Gas Facility ERP

Note: - the table above is subject to change upon firming of the program schedule.

A HUGS Bridging ERP [Ref: 48] will be developed to ensure all parties impacted by a potential emergency are notified and protocols of action are defined. This includes ensuring an escalation pathway from site level to emergency management teams for all respective companies is in place with defined points of action for each.

5.27.2.1 Lochard Energy Emergency Management

Lochard Energy will be responsible for the development of the project bridging ERP for the HUGS Pipeline project. The HUGS Bridging ERP [Ref: 48] will detail the emergency response jurisdictions for respective parties involved in the project, actions required and the escalation pathways.

Lochard Energy operates a two-tier notification system for emergencies. Incidents that have the potential to escalate to an emergency if unable to be contained at the worksite are considered status 2 and incidents that can be managed by the onsite emergency response teams and resources are considered status 1. The HUGS Bridging ERP [Ref: 48] will maintain this philosophy of incident management.

Steps for raising an emergency alarm and initiating a response will be detailed in the HUGS Bridging ERP [Ref: 48]. In summary, the Lochard Energy HUGS Project team will follow the Lochard Energy Status 1 and Status 2 model for classifying and escalating an emergency scenario, as shown in Figure 5-3.



Figure 5-3: Lochard Energy Two Stage Emergency Classification

Status #1 emergencies are those that:

• can be controlled by site personnel and resources.

- require no external assistance; and
- have little or no potential to escalate into a Status #2 emergency.

Status #2 emergencies are those that:

- cannot be controlled by personnel or resources normally available at site; or
- require mobilisation of external emergency services and the Lochard Energy EMT; or
- have the potential to adversely impact Lochard Energy on a corporate level.

On site response will be managed by the HUGS Project Emergency Response Team (ERT) for both Status #1 and #2 emergencies, where Lochard Energy has control of the workplace. Where the Principal Contractor or another party has control of the workplace the HUGS Bridging ERP [Ref: 48 will define the actions required based on incident status level. The Lochard Energy On-Scene Commander (ERT role) will determine whether an emergency is Status #1 or #2 for emergencies where they have control of the workplace.

For Status #2 emergencies the Lochard Energy Emergency Management Team (EMT) is to be notified and the Lochard Energy HUGS Project Manager will take on the role of EMT Liaison.

EMT objectives are to provide strategic planning support and requested assistance to the Project ERT, while liaising with external groups such as media, community, relatives and regulatory bodies and managing the wider implications of the emergency.

Stand down and recovery processes for both levels will be detailed in the HUGS Bridging ERP [Ref: 48].

Personnel must be competent to respond to emergency situations. Training will include:

- responding to alarms.
- assembling at the Muster Points; and
- using emergency equipment.

Emergency response requirements, procedures and equipment, including spill response, will be outlined in the Project induction. Any person entering the project area will be required to attend the relevant project induction training, which includes information regarding the various alarms, actions to be taken in the event of an emergency or evacuation and the location of Muster Points.

The HUGS Project Manager (or their delegate) will ensure that an emergency response exercise(s) is conducted within 7 days of mobilisation to:

- assess the preparedness of personnel.
- provide an opportunity for personnel to practice emergency response actions; and
- verify the Bridging ERP suitability and improve overall emergency preparedness.

Emergency response exercises will also involve the Principal Pipeline Contractor, they will also be required to implement a program of drills and exercises for their scope of work.

Following completion of any drill or exercise, any identified improvements and corrective actions will be implemented when appropriate. Corrective actions may involve revision to plans, implementation of further training or improvement of safety equipment or facilities.

5.27.2.2 Principal Contractor Emergency Management

The Principal Contractor for the pipeline will be responsible for the development of an emergency response plan covering the areas of the project where they have jurisdiction. The emergency response plan must be fit for purpose and cover the possible emergency scenarios identified in the first aid and emergency management risk assessment and must interface with the HUGS Bridging ERP [Ref: 48].

5.28 MONITORING AND EVALUATION

5.28.1 Workplace Inspection, Testing and Monitoring

Lochard Energy will work with the Principal Contractor to determine a suitable workplace inspection and monitoring program. Lochard Energy will then be responsible for conducting field inspections and reviews of the results from inspections completed by the Principal Contractor.

A weekly summary of completed inspections will be documented and shared with work teams. Section 6 provides further details on HSE Audit program.

5.29 HEALTH MONITORING SYSTEMS

Appropriate health monitoring systems will be implemented in line with health risks identified in risk workshops and regulatory requirements, for example a pipeline program may have items such as;

- occupational noise / hearing surveillance.
- dust monitoring.
- dosimeter use where radiography/sources are used as part of NDT programs; and
- drug and alcohol testing regimes.

The Principal Contractor will be responsible for identifying and implementing health monitoring programs, as well as communicating the risks and control actions to personnel.

5.30 WORKERS COMPENSATION, REHABILITATION AND RETURN TO WORK PROGRAM

A description of the Lochard Energy workers compensation, rehabilitation and return to work process can be found in the IMS Element 8 Employee Health. All Lochard Energy workers are covered under the Lochard Energy Policy arrangements.

The Principal Contractor will be required to demonstrate they have processes in place for the management of workers compensation, rehabilitation and return to work arrangements for their personnel and subcontractors.

5.31 INCIDENT REPORTING AND INVESTIGATION

Observations and incident management is reported and investigated through the Maximo HSE module of Lochard Energy's maintenance management system (Maximo). The initial report may be through an observation card or similar for entry into the Maximo HSE module.

The HSE Advisor records the hazard or incident report, investigation details and agreed actions into the HSE database where they are tracked until closed out.
Where appropriate, supervisors table the observations and/or incidents at daily meetings for general discussion and information. Incidents involving serious injury, significant environmental damage or asset/business loss will be immediately reported to the relevant regulatory authorities in accordance with the Safety Observations and Incident Management procedure [Ref: 50].

The Principal Contractor will be required to demonstrate the implementation of a system that meets the criteria of the Safety Observations and Incident Management procedure [Ref: 50]. Prior to mobilisation a matrix of reporting based on incident severity will be established between Lochard Energy and the Principal Contractor.

5.32 TYPES OF INCIDENTS AND REPORTING

The following table outlines the types of incidents and their reporting jurisdictions.

Incident Type	Definition	Reportable to
Fatality	Incident involving the death of a person	Police - <i>Ph; 131 444 (Non urgent, 000 urgent)</i> Worksafe Victoria – <i>Ph:132 360</i>
Serious Injury or Illness	 a person needing medical treatment within 48 hours of being exposed to a substance. a person needing immediate treatment as an in-patient in a hospital; or a person needing immediate medical treatment for one of the following injuries: amputation, serious head injury or serious eye injury, removal of skin (example: de-gloving, scalping), electric shock, spinal injury, loss of a bodily function, serious lacerations (example: requiring stitching or other medical treatment) 	Worksafe Victoria – Ph:132 360
Dangerous Good Incident	 an uncontrolled escape, spillage or leakage of any substance, including dangerous goods within the meaning of the Dangerous Goods Act 1985. 	Worksafe Victoria – <i>Ph:132 360</i> Port Campbell CFA – <i>Ph:0438 983 421</i> Police <i>Ph; 131 444 (Non</i> <i>urgent, 000 urgent)</i>
Dangerous Occurrence / Near miss	 incident that exposes a person in the immediate vicinity to an immediate risk to the person's health and safety, for example due to: registered or licensed plant collapsing, overturning, failing, or malfunctioning. collapse or failure of an excavation, or shoring supporting an excavation. collapse of a building or structure. implosion, explosion, or fire. escape, spillage, or leakage of any substance including dangerous goods; and plant or objects falling from high places. 	Worksafe Victoria – Ph:132 360 Port Campbell CFA - 0438 983 421 (For DG incident only)

Table 5-6: Types of Incidents and Reporting

Incident Type	Definition	Reportable to
Pipeline related reportable safety incident	 incident arising out of a pipeline operation that causes or has the potential to cause: (a) any person to suffer a serious injury or to die; or (b) substantial damage to, or destruction of, property or the pipeline; or (c) an ignition or escape of anything being conveyed in a pipeline (loss of containment) 	Energy Safe Victoria Ph- 03 9203 9700
Pipeline Environmental Incident	 incident arising out of a pipeline operation that causes or has the potential to cause: (a) substantial damage to the environment; or (b) has significant potential impact on the environment. 	Energy Safe Victoria Ph- 03 9203 9700
Wellsite related reportable incident including environment	 incident arising out of a petroleum operation that: (a)causes or could have caused substantial damage to the environment, the integrity of petroleum operation or the immediate area of the operation (whether above or below ground); or (b) is indicative of a possible future incident of that kind; or (c) occurs in circumstances where the operation has not been carried out in accordance with the operation plan. 	Earth Resources Regulation – <i>Ph: 0419 597 010</i> Worksafe Victoria – <i>Ph:132 360</i> Port Campbell CFA – <i>Ph:0438 983 421</i> Police <i>Ph; 131 444 (Non</i> <i>urgent, 000 urgent)</i>
Cultural Heritage Incident	 Any of the following matters occurring. Human remains uncovered. Aboriginal Cultural Heritage artefacts discovered 	Eastern Maar Aboriginal Corporation (EMAC) - 0452 350 728 Police - Ph; 131 444 (Non urgent, 000 urgent) – For human remains discovery only
Regulatory	• Any event that is likely to result or results in the issuance of an, Improvement Notice, Notice of Prohibition or other notice of action from a regulator.	As required

5.33 INCIDENT INVESTIGATION AND MANAGEMENT OF CORRECTIVE ACTIONS

All incidents relating to work areas controlled by Lochard Energy and will be managed inline with the Safety Observation and Incident Management procedure [Ref: 50] and will be entered into MAXMO for tracking and closure. Incidents involving serious injury, significant environmental damage or asset/business loss will be immediately reported to the relevant regulatory authorities in accordance with the Safety Observations and Incident Management procedure [Ref: 50].

Lessons learnt will be communicated via 'Safety Alerts' and will be disseminated amongst the contractor and Lochard Energy teams. All incidents will be reviewed against the Project Risk Register and other key documentation for possible updates.

The Principal Contractor is required to have a process in place for the management of incident investigation and corrective actions, were the incident falls within a workplace they control. See Table 5-2: Management of Work Sites for Pipeline Construction Activities.

Where appropriate, supervisors table the observations and/or incidents at daily meetings for general discussion and information. Incidents involving serious injury, significant environmental damage or asset/business loss will be immediately reported to the relevant regulatory authorities and to the Lochard Energy HUGS Management Team.

5.34 HEALTH AND SAFETY INFORMATION AND REPORTS

Lochard Energy uses an electronic document management system for the management of HSE records, this ensures that records are held for the statutory period and that they are legible, traceable, identifiable and able to be retrieved. There is a process in place for the management of confidential medical records.

Electronic data and files are stored on a centralised server that is backed up regularly while uninterruptable power supply facilities are used to power both the server and essential document access points so that access to such documents is not interrupted by normal power outages.

The Principal Contractor will be required to demonstrate that they have a system in place for the management of HSE records that meets all legislative requirements, including privacy laws.

5.35 COMPLIANCE MONITORING

Lochard Energy has developed a HUGS Compliance Register [Ref: 51] for the project. The compliance register will be regularly checked against scheduled activities to ensure all requirements are meet prior to the activity taking place.

Lochard Energy will require the Principal Contractor to have a process in place to track compliance also.

5.36 RISK MONITORING

Risk Registers will be reviewed regularly for duration of the project, open action items will be reviewed and closed before their nominated due date. Risk Registers are considered live documents and may be amended/updated at any time should circumstances require.

6. AUDIT AND REVIEW

A program of HSE Audits will be implemented for the project. This will include the requirement for the Principal Contractor to implement a program for their work scope, with Lochard Energy developing a program of HSE oversight Audits.

Non-conformances/corrective actions will be managed via a corrective action register complying with the requirements detailed in Lochard Energy procedure for Registering and Close Out of Corrective Action [Ref: 52].

6.1 **PROJECT HSE AUDITS**

Lochard Energy has a developed the HSE Audit procedure [Ref: 53] that outlines the requirements for internal and external audits. Various HSE audits and review programs will be implemented for the duration of the project. This will include for example:

- premobilisation audits and assurance activity to ensure all HSE elements are in place and complying with the requirements detailed in this document.
- continual and regular review of risk register, and risk register actions.
- review of the compliance register.
- review and update of key documentation as required, including this document.
- audit of key HSE processes.
- HSE field audits and inspections.
- management site visits; and
- pre hand over and post mobilization inspection and assurance reviews.

Corrective actions and non-conformances will be managed via a corrective action register maintained by the Principal Contractor.

6.2 MANAGEMENT REVIEW AND IMPROVEMENT

Lochard Energy has review processes in place as part of the IMS. The Principal Contractor will be required to demonstrate that they have a similar process in place for the review of key project outputs this includes items such as:

- site / field visit schedule for senior management.
- senior management review of HSE KPI's.
- dedicated management review meetings; and
- lessons learnt workshop with senior management representation.

7. EMERGENCY RESPONSE

As described in Section 5.27.2 the Principal Contractor will be responsible for developing an emergency response plan for the construction of the pipeline. Lochard Energy will be responsible for the development of a bridging emergency response plan to link the contract and Lochard Energy emergency management systems. Both plans will be held by the respective parties in hard copy on site and electronically.

These plans will be developed based on the outputs of the safety study's, hazard analysis and risk assessments completed by the project teams.

The Principal Contractor must ensure personnel are competent to respond to emergency situations. Training/inductions will include:

- responding to alarms.
- assembling at the Muster Points; and
- using emergency equipment.

Emergency response requirements, procedures and equipment, including spill response, will be outlined in the relevant project induction. The Principal Contractor will ensure any person entering the project area attends the relevant project induction training, which includes information regarding the various alarms, actions to be taken in the event of an emergency or evacuation and the location of muster points.

The Principal Contractor 's Project Manager (or their delegate) will ensure that an emergency response exercise(s) is conducted within 7 days of mobilisation to:

- assess the preparedness of personnel.
- provide an opportunity for personnel to practice emergency response actions; and
- verify the ERP suitability and improve overall emergency preparedness.

Emergency response exercises, including regular musters will also be held during the works program as works permit and will be documented.

Following completion of any drill or exercise, any identified improvements and corrective actions will be implemented when appropriate. Corrective actions may involve revision to plans, implementation of further training or improvement of safety equipment or facilities.

Emergency response plans will be reviewed when:

- there is a significant operational change.
- after an incident.
- when improvements are identified from drills or exercises.
- learnings from safety alerts or bulletins; and
- changes to policy or standards.

8. **REFERENCES AND ASSOCIATED DOCUMENTS**

- Ref: 1 Victorian Pipelines Act 2005 <u>https://www.legislation.vic.gov.au/in-</u> <u>force/acts/pipelines-act-2005/018</u>
- Ref: 2 The Pipelines Regulations 2017 <u>https://www.legislation.vic.gov.au/in-force/statutory-</u> rules/pipelines-regulations-2017/001
- Ref: 3 Australian Standard (AS) 2885:2018 Pipelines Gas and Liquid Petroleum https://www.saiglobal.com/pdftemp/previews/osh/as/as2000/2800/2885.0-2008.pdf
- Ref: 4 Australian Pipelines and Gas Associations (APGA) Onshore Pipeline Projects Construction Health and Safety Guidelines - <u>https://apga.org.au/guidelines-and-codes-practice</u>
- Ref: 5 Energy Safe Victoria, Safety Management Plan Guidelines, -<u>https://www.esv.vic.gov.au/sites/default/files/2023-01/Safety-Management-Plan-</u> <u>Preparation-and-Submission-for-Pipelines.pdf</u>
- Ref: 6 UGS-HP-0049 HUGS Pipeline Environment Management Plan
- Ref: 7 HSE-GEN-RP012 Iona Facilities Integrated Management System Description Safety Case Part 3
- Ref: 8 [HOLD], HUGS Project Contractor Construction Health and Safety Management Plan (CHSMP)
- Ref: 9 Occupational Health and Safety Act 2004 Health and Safety Act 2004 (Act Number 107/2004), retrieved from www.legislation.vic.gov.au
- Ref: 10 PRM-0021-UGS-ZE-0142 Pipeline Route Assessment
- Ref: 11 CHMP 18865 HUGS Project Cultural Heritage Management Plan, Ochre Imprints Pty Ltd, October 2023
- Ref: 12 UGS-ZE-0026 Project 570 Phase 3C, FEED IGSF Waare Geotechnical Investigation Report
- Ref: 13 UGS-ZD-0021 HUGS Project Basis of Design
- Ref: 14 UGS-HP-0055, HUGS Pipeline Traffic Management Plan
- Ref: 15 ENG-DSN-PLA-0002 Pipeline Integrity Management Plan
- Ref: 16 HSE-GEN-PC023, Hazard and Risk Assessment Procedure
- Ref: 17 SP-CPL-REG-0007, Lochard Energy Risk Matrix
- Ref: 18 AS/NZS ISO 31000:2018 Risk Management Principles and Guidelines
- Ref: 19 UGS-MU-0171 HUGS Pipeline Safety Management Study Report
- Ref: 20 HSE-GEN-PRC-0008, Formal Safety Assessment Action Management
- Ref: 21 AS/NZS 2885.3, Pipelines- Gas and liquid petroleum- Part 3: Operation and maintenance
- Ref: 22 [HOLD] HUGS Project HSE Management Plan
- Ref: 23 HSE-OHS-RP001 The Lochard Energy Site Safety Rules
- Ref: 24 HSE-GEN-PC044 Contractor Management and HSE Evaluation

- Ref: 25 Occupational Health and Safety Regulations 2017 (S.R. No. 22/2017), retrieved from www.legislation.vic.gov.au
- Ref: 26 BA-HR-POL-0019 Media Policy
- Ref: 27 UGS-ZP-0006 Pipeline Consultation Plan
- Ref: 28 UGS-ZP-0126 Stakeholder Engagement Plan
- Ref: 29 UGS-ZE-142 Pipeline Basis of Design
- Ref: 30 TBC [HOLD] Project Execution Plan
- Ref: 31 Long Energy and Resources Safety Management Study [Attachment B]
- Ref: 32 SP-DOC-PRC-0001, Information Management
- Ref: 33 HSE-GEN-PC040 HSE Critical Document
- Ref: 34 GP-PS-PC030 Permit to Work
- Ref: 35 HSE-GEN-PC045 Iona Traffic Management Plan
- Ref: 36 National Transport Commission Load Restraint Guide -

https://www.ntc.gov.au/sites/default/files/assets/files/Load-Restraint-Guide-2018.pdf

- Ref: 37 MN-PLN-PRC-0006 Control of Lifting and Lifting Equipment
- Ref: 38 HSE-OHS-PC001 Control of Dangerous Goods and Hazardous Substances
- Ref: 39 BA-HR-PRC-0002 Medical Checks and Health Monitoring Procedure
- Ref: 40 HSE-GEN-PC050 Fitness for Work
- Ref: 41 BA-HR-POL-0001 Drug and Alcohol Policy
- Ref: 42 BA-HR-PRC-0001 Lochard Energy Drug and Alcohol Testing Procedure
- Ref: 43 HSE-OHS-POL-0001 Injury Management
- Ref: 44 HSE-OHS-PRC-0002 Injury Management and Rehabilitation
- Ref: 45 BA-HR-PRC-0002 Medicals and Health Monitoring
- Ref: 46 Worksafe Compliance Code: First Aid in the Workplace (2021) https://www.worksafe.vic.gov.au/resources/compliance-code-first-aid-workplace
- Ref: 47 Worksafe Compliance Code: Workplace Facilities and the Working Environment (2023)
- https://www.worksafe.vic.gov.au/resources/compliance-code-workplace-facilities-and-workingenvironment
- Ref: 48 [HOLD] HUGS Bridging ERP
- Ref: 49 HSE-GEN-PLA-0001 Emergency Response Plan
- Ref: 50 HSE-GEN-PC002, Safety Observations and Incident Management
- Ref: 51 UGS-QL-0025 HUGS Compliance Register
- Ref: 52 HSE-GEN-PC020 Registering and Close Out of Corrective Actions
- Ref: 53 HSE-QA-PRC-0001 HSE Audits
- Ref: 54 HSE-GEN-PRC-0002, Change Management
- Ref: 55 PM-PCO-PLA-002 Lochard Energy Completions and Handover Process

- Ref: 56 [HOLD] Lochard Energy Project Delivery Process
- Ref: 57 PRM-0000-PM-REP-001, Lochard Energy Project Assurance Requirements
- Ref: 58 PM-PRO-FRM-0006, Lochard Energy Project Management Decision Record Form (DRF)

Appendix A – Health, Safety, Sustainability and Environment Policy

SP-CPL-PD001 Health, Safety, Sustainability and Environment Policy Rev 20



Health, Safety, Sustainability and Environment Policy

Lochard Energy recognises the responsibility and accountability for health, safety, social responsibility and environment lies with every Executive, Manager, Employee and Contractor, and this responsibility forms an integral part of our leadership and management of all tasks at every level of the organisation.

Lochard Energy is committed to providing a safe working environment for all personnel at our workplace and to the principles of sustainable development and environmental stewardship. Through proactive and systematic management of risk, and sustained commitment to health and safety, we will endeavour to eliminate workplace injuries and illnesses.

Good corporate governance is central to our approach to enhance the sustainability of our business and underpins all that we do. We are committed to upholding strong corporate governance principles and practices in the way we govern our operations.

This will be underpinned by the following Policy Commitments, in which Lochard will:

- Work to continue to develop and foster a strong culture of safety, environmental sustainability and social
 responsibility.
- Implement and maintain Management System Standards that incorporate health, safety and environmental plans
 and procedures to provide a safe place of work and minimise the impact on people and the environment
- Operate our sites and business responsibly, whilst respecting and engaging our neighbours, local communities, customers, suppliers and the regulatory environment we operate in. We are committed to appropriate engagement with our stakeholders on a regular and proactive basis, to ensure we understand, address and minimise issues should they arise
- Ensure a systematic approach to proactively identify hazards and manage the risks to as low as reasonably
 practicable to ensure sustainable business and social outcomes
- Provide our employees with and ensure our contractors have the training and resources necessary to meet our
 commitments and continuously enhance knowledge, awareness, behaviours and competency in safety, health, social
 responsibility and environmental management.
- Sharing and exchanging knowledge, and experience with suppliers, contractors, business partners and the local
 community, with the aim of mutually enhancing health, safety, social responsibility and environmental performance.
- Actively pursue continuous improvement on all aspects of health, safety and environmental management.
- Target defined safety and environment initiatives by establishing challenging measurable objectives and targets and
 regularly reviewing performance.
- Comply with and where appropriate, exceed all health, safety and environmental laws and any other requirements committed to by Lochard Energy.
- Continue to focus on prevention of pollution by managing impacts associated with: noise, loss of containment, waste management, lighting and emissions.
- Endeavour to understand the potential impact of climate risk on our business and develop effective mitigants and
 responses to minimise any impact.
- In all our interactions, we will be ethical and transparent in our dealings.
- Where appropriate we will source products and services from local suppliers.
- Ensure business decisions will be made with consideration of environmental and social issues to ensure long-term sustainable operations.

January 2020

UNCONTROLLED WHEN PRINTED

Appendix B – Safety Management Study (SMS) Report