

Delimara LNG Terminal and CCGT Power Plant Safety Management System

REV 05

ENEM-AEC-E0-00-RP-SE-00021

NON-CONFIDENTIAL DOCUMENT

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ElectroGas Malta Ltd Major Accident Prevention Policy (MAPP)

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Document Revision History			
Revision	Summary of Changes	Date	Approval
Rev 00	DRAFT Issued for review	14 April 2016	KGA
Rev 01	Issued for Review; Regas Plant Added	17 April 2016	KGA
Rev 02	FSU SMS added	1 June 2016	KGA
Rev 03	General update to all section to incorporate COMAH Competent Authorities' comments	22 July 2016	KGA
Rev 04	FSU Update Only. CMAPP included and additional referenced documentation included	23 July 2016	KGA
Rev 05	Updated to take into account additional comments from Authorities' Safety Advisor.	19 Sept 2016	KGA


Introduction

This Safety Management System document is for use within the Delimara LNG Terminal and CCGT facility. It has been split into three parts; Delimara 4 CCGT, the Regas Plant and the FSU. This split is due to the fact that there are be different safety consideration and thus different procedures between the three sections of the facility.

For instance the CCGT has natural gas, major rotating equipment and hot gases; the regas plant has natural gas and cryogenic LNG and BOG and the FSU is a floating vessel with cryogenic LNG and working over water.

The operations of the facility can be split into two phases, Phase one being for when the FSU has an operational propulsion system and then after this time when the FSU is connected to the storm mooring and the propulsion system will be taken out of service.

This Safety Management System will apply to both modes of operation, ie to both Phase One and Phase Two.

	Doc. No: EGM-HSE-POL-005		Major Accident Prevention Policy		
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Major Accident Prevention Policy

Rev No.	Date	Issue Description	WRITTEN BY	REVIEWED BY	APPROVED BY
0	01/06/16	First version	Stephane Hartz Safety Consultant	Matthew Grech HSE Manager	Franz Dörfler CEO

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Rev. No: 0

ElectroGas Malta <small>LIMITED</small>		Doc. No: EGM-HSE-POL-005		Major Accident Prevention Policy	
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ElectroGas ensures the safe and efficient operation of its facilities. We seek to prevent accidents, injuries and occupational diseases, and protect the environment. The nature of our business is such that our activities may give rise to major accident hazards. However we are fully committed to minimising the risk and harm to personnel, contractors, visitors and the environment. Our ambition is to reduce major accident risk associated with our activities to As Low as Reasonably Practicable (ALARP)

ElectroGas aims not only to be compliant with all regulatory and legal requirements but to incorporate as well Best Available Techniques and Practises adopted within relevant European or world-wide industries, in particular storage of liquefied gas and large combustion plants

To achieve these goals, we conduct a policy which includes the following aspects.

- Promote Health, Safety, Security and Environment (HSSE) at all levels within our organization, and manage these aspects in the same way as all other important operational activities;
- Be prepared to react quickly and adequately against potential emergencies, in order to limit the damage and the consequences;
- Respect all laws and requirements, and use appropriate International codes and standards;
- Design, build, operate and maintain facilities and services so as to avoid any risk to people and the environment;
- Apply a well-structured HSSE Management System, where the skills, responsibilities and channels of communication are clearly defined;
- Offer learning and training specific to all workers, according to standards, procedures and internal instructions;
- Provide a healthy and safe work to all our workers and contractors, providing appropriate facilities and adequate safety devices;
- Ensure that necessary resources are provided and made available to minimise and control major accident hazards;
- Use efficiently the energy resources, prevent pollution and educate workers in order to minimise as possible adverse effects on the environment;
- Identify and analyze threats and potential hazards, and take measures to avoid, prevent, control and reduce the identified risk;
- Set targets and assess results for continuous improvement and compliance with the standards in force.

The Company Management will support the Implementation of and compliance with this policy in a rigorous and highly visible way. We expect participation without reserve of all workers, contractors and third parties who work with us. We have to act in the field of HSSE, so as to preserve the confidence of our customers, neighbours and community as a whole


Franz Dörfler CEO

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PART 1

Delimara 4 CCGT

Safety Management System

This procedure is a key element in the Business Management System which drives continual improvement in all aspects of our business including Quality, Health & Safety and Environment.

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Health & Safety Management System (SMS)

D4-41-DP-001

Title	Health & Safety Management System (SMS)		
Document no.	D4-41-DP-001	Rev. No.	0.00
Process Owner	Nominated Safety Engineer (Production Manager)		
Doc Author	E.M. O'Toole	Created Date	02/06/2016
Doc Review	Production Manager	Reviewed Date	14/06/2016
Doc Approval	Plant Manager	Approved Date	17/06/2016
Review Period	1 year	Effective Date	17/06/2016

Document Revision History			
Revision	Summary of Changes	Date	Approval

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1. Purpose and Scope

1.1 Purpose

This document will set out how Delimara 4 shall establish, document, maintain and continually improve the Health and Safety Management System. In order to deliver ESB International Corporate Safety Policy, Delimara 4 Management and staff will implement, maintain and regularly review this Safety Management System in full accordance of the requirements of ISO 45001 and Maltese Health & Safety Legal & Statutory requirements.

1.2 Scope

Delimara 4 is an Independent Power Producer (IPP) situated at Delimara, Marsaxlokk, Malta, producing electrical power for the Maltese Grid. ElectroGas Malta Ltd., (EGM) has contracted ESB International Engineering & Facilities Management, Malta, Ltd. (ESB International), to operate, maintain and manage the Power Station on its behalf.

It is the policy of ESB International on behalf of EGM to ensure so far as is reasonably practicable:

- There will be a continual improvement in Safety performance in Delimara 4.
- Health, safety and welfare at work of all staff and contractors who work in Delimara 4.
- Safe plant and systems of work.
- A safe place of work with safe access and egress.
- Safe use, handling, storage and transport of articles and substances.
- A safe working environment with adequate welfare facilities.
- The provision of necessary information, instruction training and supervision.
- Our activities do not cause danger to the public or our customers.
- Will comply with relevant legal requirements.

This procedure will cover the following:

- Health and Safety Policy
- Safe systems of work for System derived Hazards & General Hazards
- Details of the implementation and operation of the safety management systems
- Audit Checks and ensuring compliance with the procedure
- Management Review

The Health and Safety Management System will comply with the ISO 45001:2017 requirements for occupational health and safety management systems and the paragraphs and headings from Section 4 of the document onwards will follow the structure of the ISO Standard, as set out in the Table of Contents.

2. References & Definitions

2.1 References

Occupational Health and Safety Authority Act XXVII, 2000, CAP 424 (as amended)
Seveso III Directive
Control of Major Accidents and Hazards (COMAH) Regulations 2015, LN 179 of 2015
All subsidiary legislation pursuant to CAP 424
All other relevant Legal Notifications and Regulations

D4-00-PS-001 Delimara 4 Safety Policy Statement
ESB Group Policy and Framework Safety Statement
Delimara 4 Safety, Environmental and General Procedures
Computerised Maintenance Management System (MAXIMO)
Integrated Software Safety Management System (NiSoft Eclipse)
Safety Audit Records
Job Risk Assessments
Work Place Risk Assessments
Chemical Hazard Risk Assessments
Safety Committee Minutes
ISO 45001:2017 (expected to issue Q1/17)

2.2 Definitions

Definitions shall be as described in Section 3, Terms & Definitions, of the above Standard

3. Health & Safety Management System responsibilities

3.1 Plant Manager

It shall be the responsibility of the Plant Manager to ensure that the Safety Management System is defined, agreed between ESB International and EGM, and that it is regularly reviewed and updated as necessary.

He shall ensure that his management team are fully involved in and committed to the paramount importance which ESB International attaches to Health & Safety.

The Plant Manager shall ensure that he appoints a Nominated Safety Engineer (normally the Production Manager) and that this function has the resources necessary to effectively carry out his duties.

The Plant Manager shall ensure that staff safety representatives are selected and that a Health & Safety Committee representing the views of both staff and management is appointed.

The Plant Manager shall ensure that all the necessary Safety and other Procedures necessary are written, reviewed and approved. Similarly, Local Safety Instructions, Standing Instructions and Work Instructions shall be of a high quality and reviewed as and when necessary.

A Management Review of the Safety System shall take place not less than annually.

3.2 Management Team

The Operations, Maintenance and Technical Services Managers shall support the Plant Manager as described above and shall ensure that their Team Leaders and staff participate fully in ensuring that the aims and objectives of the Safety Management System are met.

The Management team shall ensure that their sections strive for continual improvement and that they are held accountable for their safety performance.

3.3 Employees

All ESB International employees, at whatever level in the organisation, have their part to play in supporting the company's Health & Safety ethos.

Employees are encouraged to be pro-active in putting forward ideas for improvement, reporting near-misses and good catches, and being always mindful of both their own safety and that of their colleagues.

4. Context of the organisation (ISO 45001:2017, 4)

4.1 Understanding the organisation and its context

Background

Enemalta awarded the ElectroGas Malta Consortium the gas supply agreement and the power purchase agreement required for Enemalta to achieve a diversified mix of cleaner, low cost energy supply in Malta.

The proposed project includes a CCGT Power Plant, an LNG Floating Storage Unit and an onshore Regasification Unit. These will be built at Delimara Power Station, next to Enemalta's existing power plants.

ElectroGas is required to provide Enemalta with approximately 200 MW of electricity from the new CCGT plant. The LNG facilities will also supply gas to the existing 144 MW diesel engines, which will be converted to run on Natural Gas.

A Power Purchase Agreement (PPA) and a Gas Supply Agreement (GSA) were signed.

ElectroGas Malta Ltd., (EGM) has contracted ESB International Engineering & Facilities Management, Malta, Ltd. (ESB International), to operate, maintain and manage the Power Station on its behalf. ESB International has been contracted by EGM to provide services subject to Operation and Maintenance Management Agreement (OMMA) and the Plant Manning Agreement (PMA).

COMAH Regulation

Due to the large amount of LNG stored and handled (> 200 tonnes), ElectroGas' new plant will be an "upper tier" establishment as defined by the Control of Major Accident Hazards (COMAH) Regulations that implement the Seveso III Directive (Directive 2012/18/EU). The Directive has been transposed into Maltese law through the Control of Major Accident Hazards (COMAH) Regulations - L.N. 179 2015.

In Malta, the competent Authority is the Occupational Health and Safety Authority (OHSA) together with the Environment & Resources Authority (ERA) and the Civil Protection Department of the Ministry for Home Affairs and National Security (CPD). OHSA takes the lead in coordinating the administrative actions of the COMAH Competent Authority.

Application of the Seveso III Directive depends on the inventory of dangerous substances, defined using CLP Regulations (classification, labelling and packaging of substances) with the new Seveso III Directive allowing the COMAH Regulations to continue to be applicable.

The main approach of the Seveso Directive remains the same: Identification, Controls & Mitigation. Seveso III Directive has the same component parts: Safety

Management of sites capable of producing major accident hazards, Emergency Planning, Land-use Planning & Inspection.

Seveso III covers the consequences for both human health and the environment. The main difference between the current Seveso III Directive and the old Seveso II is in the area of Information to the Public, Access to Justice, Public Participation and Inspection.

The main objective of the COMAH Regulations is to put focus on Major Accident Hazards involving dangerous substances which can cause serious damage or harm to people and/or the environment and that the operator shall prevent and mitigate the effects of those major accidents. "Major accident" means an occurrence (including in particular, but not limited to, a major emission, fire or explosion) resulting from uncontrolled developments in the course of the operation of any establishment and leading to serious danger to human health or the environment, immediate or delayed, inside or outside the establishment, and involving dangerous substances.

Safety Report

The Article 10 of the Seveso III Directive requires that an operator of an upper-tier Seveso type establishment produce a safety report.

The key features of the safety report can be described by means of the following questions (extracted from "Guidance on the preparation of a safety report", MAHB).

The safety report is intended to demonstrate that:

- A Major Accident Prevention Policy (MAPP) and a Safety Management System (SMS) have been put into effect;
- Major accident hazards are identified and necessary measures have been taken to prevent such accidents and to limit their consequences for man and the environment;
- Adequate safety and reliability have been incorporated into the design, construction, operation and maintenance of any installation;
- Internal emergency plans have been drawn up, supplying information to enable the external emergency plan to be drawn up;
- Information for land-use planning decisions has been given.

The safety report must include the following minimum data and information that are specified in more detail in Annex II of the Seveso III Directive:

- Information on the MAPP and on the SMS;
- Presentation of the environment of the establishment;
- Description of the installation(s);
- Hazard identification, risk analysis and prevention methods;
- Measures of protection and intervention to limit the consequences of an accident.

The safety report has been completed by ElectroGas Malta as the operator for the entire site even though it has contracted separate O&M contractors to operate the Power Station, Re-Gas Facility and FSU, respectively.

The Safety Report consists of the following referenced documents:

Reference	Designation	Issued by	Date
ENEM-AEC-E0-00-RP-SE-00005	Description of the Environment	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00004	Description of the Installations	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00003	Hazard Identification	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00002	Consequence Analysis	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00010	Risk Assessment	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00007	Safety of the Installations	AECOM	October 2015

The safety report will be reviewed and, if necessary, updated at least every five years, or at the initiative of the Operator or at the request of the Competent Authority, or in case of a “significant” modification of the establishment, the installation, the storage facility, the process, the nature of dangerous substance(s) or the quantity of dangerous substance(s).



Complex general layout

DESCRIPTION OF THE INSTALLATIONS

The main components of the project are the Floating Storage Unit and LNG terminal, the Regasification Plant and the Combined Cycle Gas Turbine Power Plant. The area covered by this document is the CCGT Power Plant.

Delimara 4 CCGT Power Plant

The CCGT power plant (Delimara 4 Power Plant, D4PP) includes three Siemens SGT-800 gas turbine generators which are optimized for combined cycle applications and have high efficiency with considerable high energy exhaust.

The working principle is common with any other state-of-the-art CCGT. Intake air is cooled and filtered in the combustion air intake system. The NG from the regasification plant is then filtered and its pressure and temperature conditioned in the CCGT Gas Receiving Station (GRS). The compressed air then flows to the annular-type combustor where the NG is injected and mixed with the air and the combustion takes place. The combustion gases are finally expanded in the turbine generating mechanical shaft work which is in turn converted into electricity via the generator.

The exhaust gases can be released from the gas turbines directly to the atmosphere via the 30 m high by-pass stacks during open cycle operation. This operating mode adds operational availability to the power plant and allows for flexibility.

In combined cycle operation, once the exhaust gases are expanded in the gas turbines, they are diverted to the three HRSGs where a considerable amount of the thermal energy is recovered by generating superheated steam at two different pressure levels.

This steam is then expanded in a single new SST-900 steam turbine (ST) and additional electricity is produced in the ST generator. The ST steam outlet is finally condensed by a seawater cooling system. The exhaust gases are then discharged through the main 75 m high stacks.

Plant Electrical System

The plant exports electrical power to an external high-voltage grid at a nominal voltage of 132 kV. Power is produced in the CCGT power plant by four 11 kV electrical generators, three linked to three Gas Turbines (GT) and one to the Steam Turbine, and is transferred to a local switchyard and further on to the external grid.

The distribution of power within the plant is made through the 6.3 kV system and the Low Voltage system at the nominal voltage levels of 400 and 690 V.

Cooling Water Systems - Water-Glycol System

The water-glycol system has three purposes: as the heating medium for the regasification of the LNG, to reduce the boil-off gas temperature into the BOG compressors and as the cooling medium for the CCGT Gas Turbines Air Chillers.

Seawater System

The seawater system can be divided into two subsystems:

- The Main Seawater System, whose function is to supply seawater to the CCGT steam condenser;
- The Auxiliary Seawater System, which is installed to provide seawater either to the regasification facilities and/or to the CCGT auxiliary cooling system, for cooling and heating purposes.

Closed Cooling Water

The purpose of the closed cooling water system is to transfer heat mainly from the steam turbine/gas turbines generators coolers and lube oil coolers to the Auxiliary Cooling Water System.

In addition, the Enemalta site within which the EGM complex is located is already a COMAH/Seveso site by virtue of the volume of distillate Enemalta stores for its own activities.

Accidents, incidents or operational problems in any of these areas have the potential to cause negative outcomes in terms of product realisation (the ability to generate electricity), environmental and safety (possibilities of gas leaks or explosions).

It is crucial that ESB International develops sound procedures for cross-boundary operations and secures good working relationships with the FSU/Jetty and Re-gas operators in terms of environmental and safety planning, especially in the area of emergency response.

As well as being the grid operator and customer for power generated at Delimara 4, Enemalta also provides the power station site with services such as demineralised water, fire water (both sea and fresh water), potable water, and compressed air. Again, therefore, for reasons of production, environment and safety, procedures must exist for operations across all relevant boundaries where the actions or inactions of others impinge on the functionality of the power station.

As part of its function as O&M contractor for EGM, ESB International recognises the value of developing a good working relationship with the regulatory authorities such as the Occupational Health and Safety Authority and the Environment & Resources Authority (ERA). This is to ensure that ESB International fully understands and has plans and processes in place to meet all regulatory requirements and codes of practice expected of it.

Because EGM has contracted out major plant maintenance activities by means of a Long Term Service Agreement, and because many of the services necessary for the effective and efficient running of the Power Station will be carried out by other external contractors, ESB International will pay close attention to contractor safety and has developed specific procedures in this regard.

Internally, ESB International has a strong safety culture both at Delimara 4 and throughout the organisation worldwide and has developed its processes and procedures over time to reflect best practice. From the Chief Executive downwards,


safety is the number one priority in all ESB International activities. At local level, the Plant Manager ensures that this is reinforced through his management team and by the active involvement and participation of staff.

ESB International and EGM are committed to ensuring that the resources necessary for successful operation of Delimara 4 Health & Safety activities are provided and that personnel are trained and competent to carry out the tasks required of them.

ESB International has, over many years and at several locations, built up and developed internal standards, codes of practice, processes and procedures, which ensure that it achieves best international practice. Where company procedures are more stringent in their demands than local legislation, then those company policies will be used to complement and strengthen the protection given.

ESB International will take cognisance of the EU's Working Time Directive (2003/88/EC) and will consult fully with staff in the setting of working hours and shift patterns.

ESB International has issued a Safety Policy Statement, document reference D4-00PS-001, approved by the Plant Manager, which is available to all staff.

	Safety Policy Statement	D4-00-PS-001
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Delimara 4 is an Independent Power Producer (IPP) situated at Delimara, Marsaxlokk, Malta, producing electrical power for the Maltese Grid. ElectroGas Malta Ltd., (EGM) has contracted ESB International Engineering & Facilities Management, Malta, Ltd. (ESBI), to operate, maintain and manage the Power Station on its behalf. It is the policy of ESBI, on behalf of EGM, to operate and maintain the Power station with due regard to safety in all aspects as outlined below:

It is the policy of ESBI on behalf of EGM to ensure so far as is reasonably practicable:

- There will be a continual improvement in Safety performance in Delimara 4.
- Health, safety and welfare at work of all staff and contractors who work in Delimara 4.
- Safe plant and systems of work.
- A safe place of work with safe access and egress.
- Safe use, handling, storage and transport of articles and substances.
- A safe working environment with adequate welfare facilities.
- The provision of necessary information, instruction training and supervision.
- Our activities do not cause danger to the public or our customers.
- Will comply with relevant legal requirements.

ESBI on behalf of EGM shall:

- Provide the necessary procedures and resources. (This will include hazard identification, risk assessment, safety audits, planning and implementing necessary actions and reviewing the adequacy of these measures).
- Provide necessary safety equipment including protective clothing, tools or other items necessary for the safe execution of work.
- Provide the organisation to implement the policy.
- Recognize the safety representations of employees.
- Form a Safety Committee to consider Health and Safety matters.
- Review the policy, organisation and arrangements including safety objectives and targets, annually, or when changes in legislation, plant, personnel or procedures or ESB Group Policy requires it.
- Ensure that all staff and contractors are aware of and understand the Safety Policy Statement. This policy statement will also be made available to members of the public on request.

Our employees are our most valuable assets. It is our aim to promote a safe and healthy working environment as far as is reasonable and practicable. We are also mindful of the safety of our customers, the public and others that may be affected by our activities.

All employees are required and expected to comply with Safety Rules and any statutory Health and Safety obligations (or arrangements specified in this safety policy) for themselves or others who may be affected by their acts or omissions. The implementation of this Safety Policy and the scope of application are described in the Delimara 4 Integrated Information and Business Management System, and detailed in the procedures and associated documentation.

Approved  Ian Whitehead, Plant Manager

Date: 05/04/2016

This document is valid only at the time of printing. You must obtain the latest revision online.

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In addition, the parent company has also issued its Safety Policy Statement;



INTERNATIONAL

HEALTH & SAFETY POLICY STATEMENT

At ESB International we are committed to establishing and maintaining a safe and healthy working environment for our staff, our contractors and those impacted by our work.

Safety and health is a core value of our business and our ultimate objective is to maintain an injury free place of work.

Our commitment to safety and health is based on the following principles:

- We will promote a positive safety culture and provide all staff with a safe and healthy place of work. Injuries, occupational illness and safety incidents will be treated as preventable. Our goal is zero lost time injuries.
- We will require all staff and contractors to take responsibility for their own safety and that of others who may be affected by their actions or omissions.
- We will provide appropriate resources, information, training and equipment and will implement work-planning to ensure work can be carried out safely.
- We will ensure that there is an adequate process in place to ensure that hazards and risks are identified and control measures are put in place.
- We will set and review safety and health objectives and targets annually to ensure continual improvement.
- We will foster openness and dialogue with staff and will be open to the concerns of staff, contractors and those impacted by our work.
- We will comply with, and constantly aim to exceed, all applicable legal and regulatory health and safety requirements and all other relevant guidelines.

It is ultimately with the co-operation and commitment of all involved that we will ensure the safety and health of all ESB staff, contractors and others impacted by our work.

No business result is more important than the safety of the individual.

If it's not safe - don't do it

Signed: 

Date: 10th June 2013

Ollie Brogan
Manager ESB International

4.2 Understanding the needs and expectations of workers and other interested parties

ESB International recognises that there are legitimate needs and expectations placed on the company with regard to its Health & Safety Management System.

Needs and expectations of interested parties are not necessarily requirements of the organisation. There is a distinction between these needs and requirements such as:

- Mandatory requirements; laws, regulations, corporate requirements, provisions of collective agreements that relate to the health and safety of workers where these are given legal effect;
- Commitment requirements; voluntary commitments to interested parties to which the organisation subscribes e.g. rules, guides and technical references
- Other requirements to which ESB International voluntarily subscribes that relate to the Health & Safety Management System.

The needs and expectations from interested parties only become obligatory requirements if the company chooses to adopt them. Once adopted, they become requirements and will be considered in the planning and operation of the Health & Safety Management System.

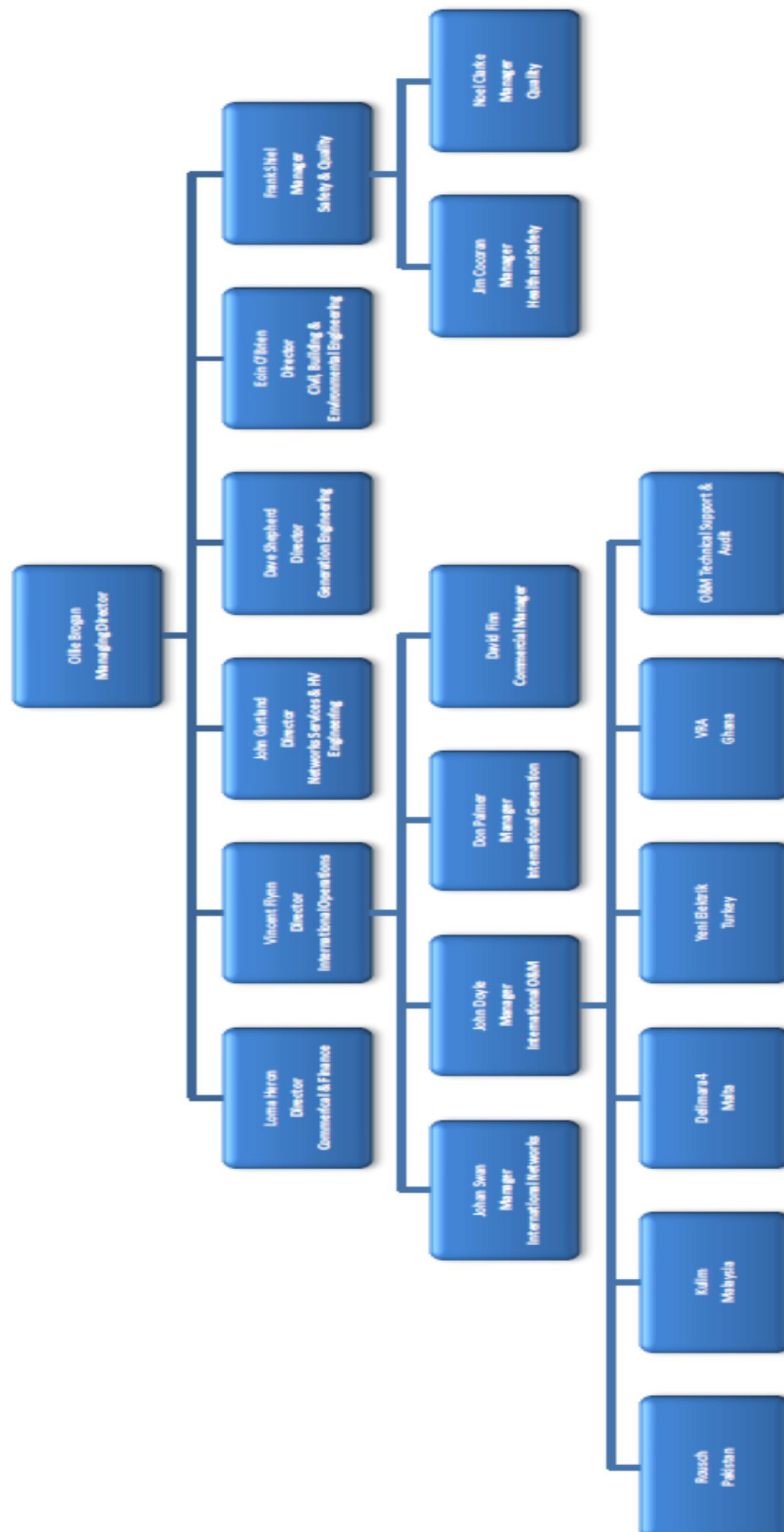
Internally, ESB International will determine the needs and expectations of both managerial and non-managerial workers relative to the Health & Safety Management System, the latter through the Workers Safety and Trade Union Representatives.

ESB International's parent organisation maintains an active involvement in the Health & Safety activities and performance of all its home and overseas locations, with regular monthly safety reporting against a company-wide format for the analysis of safety statistics.

Additionally, there are quarterly "safety shared-learning" teleconferences where ESB International sites meet to report on and discuss safety issues.

The company has clear policies on reporting of accidents and incidents, with high priority (P1) incidents coming to the notice of the Chief Executive within twenty-four hours – or sooner if necessary.

ESB International Organisation Chart



ESB International will work closely with EGM to ensure that the views off its management, the owners and other interested parties in and related to the owner's consortium are fully taken into account.

Externally, ESB International will deal with the legal and regulatory authorities e.g. OSHA and ERA on an ongoing basis and will seek to inform and to involve them in whatever aspects of Health & Safety Management they express and interest, as well as seeking their advice and guidance as required.

Suppliers and contractors need and are entitled to expect clarity in the terms under which they do business with ESB International/EGM.

Working with contractors will be a regular and ongoing activity at Delimara 4, and ESB International will include in its Health and Safety Management system the necessary procedures and documentation to manage contractor selection and safety performance. Contractors will be selected based upon their "safety-approval" status being maintained and only "Safety-Approved" contractors will be engaged by ESB International. A separate and distinct procedure, Contractor Safety Procedure, will be made available to every prospective contractor and heir written agreement to comply with this procedure is mandatory. Contractors (and sub-contractors) working on the Delimara 4 site may expect to be subject to the same level of safety protection (and enforcement) as ESB International's own personnel.

Where relevant standards exist, these will be made known to suppliers as conditions of supply. Where they do not exist, or where ESB INTERNATIONAL technical/safety standards are higher, ESB International will specify the standard to which suppliers must comply.

The EGM complex, of which the Power Station is one part (the others being the FSU and the Re-gas facilities respectively), is designated as a COMAH/Seveso site. The Civil Protection Department (CPD), OSHA and ERA would reasonably expect to be consulted and informed about ESB International's Health & Safety Management System. ESB International envisages close cooperation with CPD and with its neighbours, including Enemalta, at the Delimara complex in this regard.

4.3 Scope of the Health & Safety Management System

Although ESB International Engineering & Facilities Management Malta Ltd. is part of the ESB International organisation, which in turn is part of Electricity Supply Board (ESB) in Ireland, responsibility and authority to establish an autonomous Health & Safety Management System at Delimara 4 is devolved to the Plant Manager.

The Health & Safety Management System developed for Delimara 4 has both physical (the Power Station part(s) of EGM's complex for which it has Operation and Maintenance responsibility) and non-physical (commercial, contractual, legal & statutory, etc.) aspects. While the scope described here cannot in practical terms be exhaustive, the intention is to ensure that it is both factual and representative of ESB

International's operations conducted within this Health & Safety Management System and will not mislead any interested parties.

The AECOM (EGM's Owner's Engineer for the Delimara 4 construction project) drawing ENEM-URS-FS-00-DR-ME-00100 shows the area of the entire Delimara site. See following page.

It illustrates the physical demarcation, within the overall Delimara site boundaries, those areas under the responsibility of Power Station O&M Contractor, ESB International, described therein as "O&M1".

O&M1 (ESB International) responsibility is represented in the green shaded areas marked A, D, and E in the drawing.

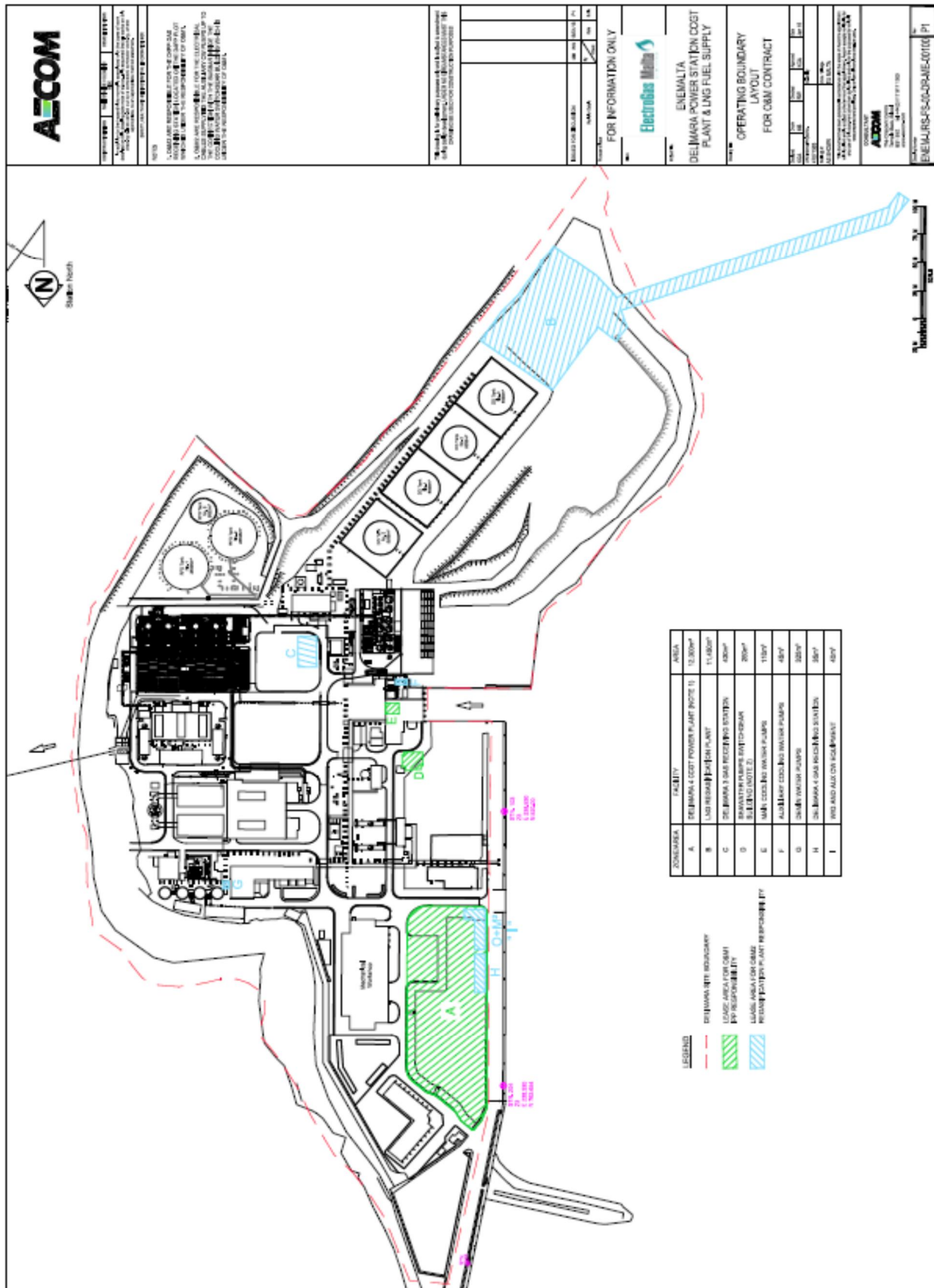
Area A shows the boundary of the Power Station site itself, while D and E show that the Sea-water Pumps Switchgear Building and Main Cooling Water Pumps respectively, while outside the physical area of the Power Station footprint, are in fact also the responsibility of ESB International (O&M1).

It is noted that "O&M2" (the re-gas Plant Operator) has areas of responsibility, shaded in blue and designated H and I, being the Delimara 4 Gas Receiving Station and W/G and Aux. CW Equipment respectively, which physically lie within the Power Station site boundary.

In practical terms this means that ESB International personnel and contractors will work both within the area under its exclusive control (the Power Station site, area A on the drawing) but will also have to traverse parts of the Delimara site under the control of Enemalta in order to access and work in areas D and E.

All work in areas A, D, and E will be the responsibility of ESB International and will be carried out under the ESB International Safety Rules (Electrical & Mechanical) and such ESB International procedures and management instructions as may be in force at any time.

Similarly, ESB International will have personnel from the Re-Gas O&M Contractor (O&M2) entering the Power Station site to work on areas H and I, which will be under their control, and within their safety rules and regulations.



D4-42-DP-001 ESB International Safety Rules (Electrical & Mechanical)

While ESB International will at all times seek to ensure that it is in compliance with all relevant legal and statutory requirements, its primary means of ensuring the safety of its personnel and contractors is the application of its Safety Rules (Electrical & Mechanical), D4-42-DP-001, referred to hereafter as the “Safety Rules”. Compliance is mandatory.

ESB International’s safety philosophy differentiates between General Safety and Safety from the System, the latter being from the dangers which may arise from the design functions of Plant and Apparatus and from which the Safety Rules are designed to protect.

General Safety deals with danger arising from the environment at and in the vicinity of the work point and not associated with the System.

Both General Safety and Safety from the System fall within the scope of the Health & Safety management system, and will apply to all persons undertaking work within the Delimara 4 Power Station for which ESB International has O&M responsibility.

In both cases, ESB International will pay particular attention to the safety management of its contractors, with a specific Contractor Safety Procedure being stringently applied.

Comprehensive Safety Rules, Procedures, and Codes of Practice relating to particular activities will be issued for general applications at Delimara 4. These policy documents must be observed by all staff, and by contractor’s employees working at the Power Station.

In designated areas of particular hazard, supervisors who have written authorisation will be required to satisfy themselves that all necessary safety precautions have been carried out, before authorising in writing the commencement of work.

Definitions:

Plant: Fixed and moveable items, other than apparatus, for which ESB International has maintenance responsibility

Apparatus: All equipment in which electrical conductors are used, supported, or of which they may form a part, and for which ESB International has maintenance responsibility

System: Items of plant and apparatus, which are used separately or in combination in any process associated with the operation of the Delimara 4 Power Station

Danger: A risk to health, or of bodily injury

Approved: Sanctioned by the Plant Manager or his/her nominated deputy

Person: Persons are defined respectively in the Safety Rules as Competent Person, Authorised Person, Senior Authorised Person, Control

Person, Selected Person, Nominated Supervisor or member of a Working Party.

Delimara 4 electrical and mechanical items of Plant and Apparatus are interconnected to form electro-mechanical Systems. These Systems, because of their ultimate purpose to generate or transmit electricity at high voltages, contain inherent Dangers.

The Systems are designed so that when they are in their normal operating mode, they may be operated without Danger if routine procedures and suitable equipment are correctly used.

When work other than operation has to be carried out affecting the Plant and Apparatus and it is necessary to change from the normal operating mode or depart from routine operating procedures, it is then necessary to specify rules to achieve safety from the inherent Dangers.

The Safety Rules are based on a philosophy that the Rules should briefly and clearly specify those actions which must be implemented and identify those practices which should be followed, to establish conditions in which personnel who have to carry out work on the Plant and Apparatus will be safeguarded from the inherent Dangers and to make them "Safe from the System".

Whenever work is carried out affecting plant and apparatus, which is part of the System, two types of Danger may arise: -

- (i) The first type is Danger inherent in the System arising from the design function of the Plant and Apparatus, and this philosophy requires that the Rules, when implemented, will achieve the safety of personnel at work from these inherent Dangers at the commencement and during the course of work
- (ii) The second type is Danger arising from the environment at and in the vicinity of the work point and not associated with the System.

These Rules are *not* designed to specify the means of establishing safety from the second type of Danger, which may arise whenever work is done, for example from methods of work, or means of access, but the Rules allocate responsibility for achieving safety from this type of Danger

To carry out work affecting Plant and Apparatus within a System, the procedure to be observed may be divided into the following stages: -

- (i) Making available the Plant and Apparatus concerned for the work required
- (ii) Establishing the conditions to safeguard personnel from the inherent Dangers of the System
- (iii) Execution of the work required

- (iv) Clearance of the Plant and Apparatus on completion or termination of the work
- (v) Restoration of the Plant and Apparatus to its normal conditions within the System

To achieve safety within the stages specified above these rules require that defined Persons be given responsibilities for:

- (i) Establishing safe conditions for personnel to work on the Plant and Apparatus
- (ii) Either checking that safe conditions have been established for work on Plant and Apparatus which has been Isolated from the System, or
- (iii) Identifying the appropriate specialised procedures that will be applied when work has to be done on Plant and Apparatus that remains energised and
- (iv) Then to authorise, in writing, the commencement of work, and finally to cancel the written authority on termination of the work
- (v) Receiving the written authority to commence work, thereafter to supervise safety during the course of the work and to clear the written authority when the work is terminated

The Rules for achieving the safety of personnel at work from the inherent Dangers of the System are limited therefore to specifying:

- (i) The actions necessary to ensure safety during each of the stages above in which Dangers may arise from the design function of the Plant and Apparatus
- (ii) The responsibilities of Persons for ensuring safety during each of the stages above from Dangers, which may arise from the design function of the Plant and Apparatus.

And in relation to the general Dangers arising whenever work is performed, the Rules are limited to:

- (iii) Identifying the Person responsible for achieving safety from these general Dangers

The Rules will be supported by Codes of Practice and Local Safety Instructions to specify procedures for implementing the Rules effectively and efficiently, and to ensure that the Rules are applied in a consistent manner at Delimara 4.

To fulfil the requirements of the philosophy, the following principles have been adopted in formulating the Safety Rules:

- (i) The Rules are concerned only with achieving safety for personnel, from the inherent Dangers of the electro-mechanical systems:
- (ii) When work is to be carried out on High Voltage Apparatus, the primary means of achieving safety is by isolation from the System(s) followed by earthing, except when working on or testing Live Apparatus. For these exceptions, the means of achieving safety is by the application of specialised procedures.
- (iii) In the case of Low Voltage Apparatus, the primary means of achieving safety is, if reasonably practicable, by isolation from the System(s). If isolation is not reasonably practicable, safety is achieved by the application of specialised procedures:
- (iv) When work is to be carried out on Plant, the primary means of achieving safety is by isolation from the System(s) followed by draining, venting and purging as appropriate, except when the work requires the Plant to be energised. For these exceptions the means of achieving safety is by the application of specialised procedures:
- (v) The fundamental means of protecting personnel at work is the application and maintenance of the primary means of achieving safety specified in (ii), (iii) and (iv) supported by appropriate actions to maintain the effectiveness of the primary means e.g. locking off Isolating Devices:
- (vi) The authorisation of personnel to carry out defined requirements under the Rules will be the subject of a formal procedure to assess competence.
- (vii) The application of the Rules shall ensure that a safe situation exists across all control area boundaries and operational interfaces, be they totally or partially within the jurisdiction of ESB International.
- (viii) To achieve "Safety from the System", that is, from Dangers, which may arise from the design functions of the Plant and Apparatus, each of the five stages referred to in the foregoing text will involve one or more of the following functions:
 - a) Safety Co-ordination - which includes, before work commences, instructing actions to implement safety precautions and, after completion of work, instructing actions to remove safety precautions
 - b) Making Safe/Restoration of Plant and Apparatus - which includes, before work commences, taking actions to make Plant and Apparatus safe for work and issuing a Safety Document. After completion of work and the cancellation of the Safety Document, taking actions to restore the Plant and Apparatus to service:

- c) Work - which includes: receipt of Safety Document, execution of the required work to its completion or termination and, after the work area has been cleared, clearance of the Safety Document

The above three functions cover separate responsibilities that are distinct from each other and are treated distinctively in the Safety Rules.

The Rules do not state the number of Persons necessary to discharge the three functions. However, in order to implement the Rules efficiently, it will frequently be necessary for two or more Persons to perform the three separate functions because of technical and geographical complexities of Delimara 4 site.

The Rules do not preclude one suitably authorised individual from personally performing all three functions, and for a particular task one Person could take responsibility for safety co-ordination, preparation of Plant and Apparatus to his own instructions, issuing a Safety Document to himself, executing the work, clearing and cancelling the Safety Document and restoring the Plant and Apparatus to service.

General Provisions

(a) General Safety

In addition to the requirements specified in the Safety Rules for establishing Safety from the System, the safety of personnel at work shall also be achieved by maintaining, at all times, General Safety at and in the vicinity of the place of work.

Before work or testing commences, it is the personal responsibility of the appropriate Nominated Supervisor to ensure that safety precautions are taken to establish General Safety at and in the vicinity of the work place. Subsequent to the commencement of work or testing, the Person in charge of the work or testing shall, continue to maintain conditions which ensure General Safety.

This Person shall also ensure that conditions of other work areas are not adversely affected by the activities for which he is responsible. The discharging responsibility for General Safety will be achieved as part of the normal pattern of management delegation and control by ensuring that all activities are in accordance with appropriate instructions and guidance

- (i) Additional Safety Rules, Codes of Practice & procedures

In addition to the Safety Rules, the requirements of other associated Safety Documents issued by ESB International or other authorities shall be complied with. Guidance documents should be complied with in accordance with management instructions.

- (ii) Special instructions

Work on or testing of Plant and Apparatus to which these Rules cannot be applied, or for special reasons should not be applied, should be carried out in an Approved manner which shall be confirmed in writing.

(iii) Objections on safety grounds

Any individual receiving instructions in the application of these Rules shall report to the Person issuing those instructions any objections on safety grounds to carrying them out. Any such objections shall then be dealt with in an Approved manner.

(b) Inter-Systems Operations

The complex has a large number of interfaces, referred to as Terminal Points, with external services and systems not under ESB International control (see table below, where D4PP refers to the Power Station). This will require formal, written procedures so as to ensure safe means of achieving isolations, both electrical and non-electrical.

A documented procedure dealing with operations across systems boundaries will lay down how these operations across these interfaces will be managed.

In addition, there will be separate formal, documented Record of Interconnection Safety Precautions (RISP) governing H.V. electrical and also non-electrical switching, isolation, earthing and cancellation upon completion of work as appropriate

Terminal Point Definition Table

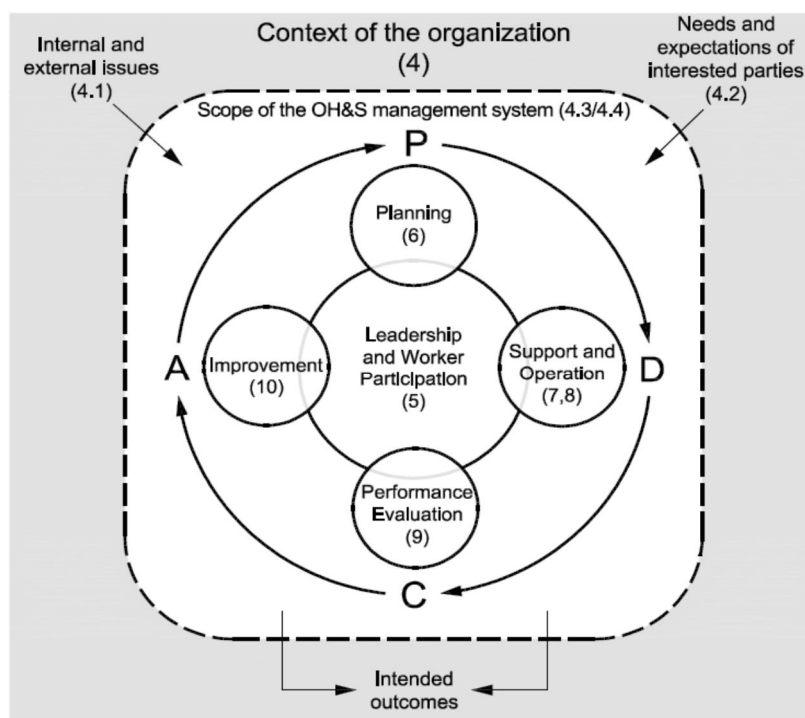
#	Service	From	To
TP001	NATURAL GAS	RE-GAS PLANT	D3PP
TP002	DE-MIN WATER	MAIN DE-MIN STORAGE	DE-MIN WATER DISTRIBUTION
TP003	MAIN COOLING WATER	SEAWATER INTAKE (D1)	D4PP
TP004	MAIN COOLING WATER	SEAWATER INTAKE (D4)	D4PP
TP005	AUXILIARY COOLING WATER	SEAWATER INTAKE	D4PP
TP006	AUXILIARY COOLING WATER	SEAWATER INTAKE	D4PP
TP007	FRESH WATER FIRE SYSTEM	ENEMALTA FRESH WATER FIRE SYSTEM	D4PP
TP008	DE-MIN WATER	DE-MIN WATER DISTRIBUTION	MAIN DE-MIN STORAGE
TP009	POTABLE WATER	ENEMALTA POTABLE WATER SYSTEM	POTABLE WATER DISTRIBUTION
TP010	FRESH WATER FIRE SYSTEM	ENEMALTA FRESH WATER FIRE SYSTEM	RE-GAS FIREWATER SYSTEM
TP011	SEAWATER FIRE SYSTEM	ENEMALTA SEAWATER FIRE SYSTEM	D4PP
TP012	MAIN COOLING WATER	MAIN COOLING WATER SYSTEM	SEAWATER

#	Service	From	To
			OUTFALL
TP013	132kV ELECTRICAL SUPPLY	D4PP	ENEMALTA ELECTRICAL NETWORK
TP014	3.3kV ELECTRICAL SUPPLY	ENEMALTA ELECTRICAL NETWORK	MAIN COOLING WATER SWITCHGEAR
TP015.1	33kV ELECTRICAL SUPPLY	ENEMALTA ELECTRICAL NETWORK	RE-GAS PLANT
TP015.2	3.3kV ELECTRICAL SUPPLY	ENEMALTA ELECTRICAL NETWORK	RE-GAS PLANT
TP017	415V ELECTRICAL SUPPLY	ENEMALTA ELECTRICAL NETWORK	DELIMARA 3 GAS RECEIVING STATION
TP101	NATURAL GAS	RE-GAS PLANT	D4PP
TP102	DE-MIN WATER	DE-MIN WATER DISTRIBUTION	D4PP
TP103	MAIN COOLING WATER (SUPPLY)	SEAWATER INTAKE	D4PP
TP104	MAIN COOLING WATER (RETURN)	D4PP	SEAWATER OUTFALL
TP105	AUXILIARY COOLING WATER (SUPPLY)	SEAWATER INTAKE	D4PP
TP106	AUXILIARY COOLING WATER (RETURN)	D4PP	SEAWATER OUTFALL
TP107	WATER/GLYCOL (SUPPLY)	RE-GAS PLANT	D4PP
TP108	WATER/GLYCOL (RETURN)	D4PP	RE-GAS PLANT
TP109	POTABLE WATER	POTABLE WATER DISTRIBUTION	D4PP
TP110	FRESH WATER FIRE SYSTEM	ENEMALTA FRESH FIRE WATER SYSTEM	D4PP
TP111	SEAWATER FIRE SYSTEM	ENEMALTA SEAWATER FIRE SYSTEM	D4PP
TP112	COMPRESSED AIR	D4PP	AUXILIARY COOLING WATER FILTERS
TP113	132kV ELECTRICAL SUPPLY	D4PP	ENEMALTA ELECTRICAL NETWORK
TP114	3.3kV ELECTRICAL SUPPLY	D4PP	MAIN COOLING WATER SWITCHGEAR
TP115	TELECOMMUNICATIONS	ENEMALTA NETWORK	D4PP
TP116A/B	NATURAL GAS	RE-GAS PLANT	D4PP
TP201	LIQUIFIED NATURAL GAS (LNG)	FLOATING STORAGE UNIT (FSU)	RE-GAS PLANT

#	Service	From		To
TP202	LIQUIFIED NATURAL GAS (LNG)	FLOATING STORAGE UNIT (FSU)	RE-GAS PLANT	
TP203	BOIL-OFF GAS (BOG)	FLOATING STORAGE UNIT (FSU)	RE-GAS PLANT	
TP204	BOIL-OFF GAS (BOG)	FLOATING STORAGE UNIT (FSU)	RE-GAS PLANT	
TP205	FRESH WATER FIRE SYSTEM	RE-GAS FIRE WATER SYSTEM	FLOATING STORAGE UNIT	
TP206	POTABLE WATER	POTABLE WATER DISTRIBUTION	FLOATING STORAGE UNIT	
TP207	NITROGEN SUPPLY	RE-GAS PLANT	D4PP	
TP208	3.3kV ELECTRICAL SUPPLY	D4PP	RE-GAS PLANT	
TP209	MOORING LINES	FLOATING STORAGE UNIT (FSU)	JETTY	
TP401	SEWAGE	D4PP	EXISTING SEWAGE SYSTEM	
TP402	STORM WATER	D4PP	EXISTING STORM WATER DRAINS	

4.4 Health & Safety Management System

The Delimara 4 Health & Management System will comply with ISO 45001:2016 by incorporating the requirements of the Standard as shown below.



In addition, the Health & Safety Management System will be integrated into the Delimara 4 Integrated Management and Business System comprising ISO9001:2015, ISO 14001: 2015 and ISO 55000:2014, as well as ISO 45001:2016.

	Integrated Management System	ISO 9001 Clause	ISO 14001 Clause	ISO 45001 Clause	ISO 55000 Clause
4	Context of the organisation				
4.1	Understanding the organisation and its context	4.1	4.1	4.1	4.1
4.2	Understanding the needs and expectations of workers and other interested parties	4.2	4.2	4.2	4.2
4.3	Determining the scope of this IMS	4.3	4.3	4.3	4.3
4.4	IMS and its processes	4.4	4.4	4.4	4.4
5	Leadership				
5.1	Leadership and commitment	5.1.1, 5.1.2	5.1	5.1	5.1
5.2	Policy	5.2.1, 5.2.2	5.2	5.2	5.2
5.3	Roles, responsibilities accountabilities and authorities	5.3	5.3	5.3	5.3
5.4	Participation & consultation			5.4	
6	Planning				
6.1	Actions to address risks & opportunities	6.1	6.1	6.1	6.1

	Integrated Management System	ISO 9001 Clause	ISO 14001 Clause	ISO 45001 Clause	ISO 55000 Clause
6.1.1	General	6.1.1	6.1.1	6.1.1	
6.1.2	Hazard identification & risk assessment. Environmental aspects.	6.1.2	6.1.2	6.1.2	
6.1.3	Determination of applicable legal requirements and other requirements. Compliance Obligations		6.1.3	6.1.3	
6.1.4	Planning to take action		6.1.4	6.1.4	
6.2	Objectives and planning to achieve them	6.2	6.2	6.2	6.2
6.2.1	Establishing objectives	6.2.1	6.2.1	6.2.1	6.2.1
6.2.2	Planning to achieve objectives	6.2.2	6.2.2	6.2.2	6.2.2
6.3	Planning of changes to IMS	6.3			
7	Support				
7.1	Resources	7.1	7.1	7.1	7.1
7.1.1	General	7.1.1			
7.1.2	People	7.1.2			
7.1.3	Infrastructure	7.1.3			
7.1.4	Environment for the operation of processes	7.1.4			
7.1.5	Monitoring and measuring resources	7.1.5			
7.1.6	Organisational knowledge	7.1.6			
7.2	Competence	7.2	7.2	7.2	7.2
7.3	Awareness	7.3	7.3	7.3	7.3
7.4	Information and Communication	7.4	7.4	7.4	7.4/7.5
7.4.1	General		7.4.1		
7.4.2	Internal communication		7.4.2		
7.4.3	External communication		7.4.3		
7.5	Documented information	7.5	7.5	7.5	7.6
7.5.1	General	7.5.1	7.5.1	7.5.1	7.6.1
7.5.2	Creating and updating	7.5.2	7.5.2	7.5.2	7.6.2
7.5.3	Control of documented information	7.5.3	7.5.3	7.5.3	7.6.3
8	Operation				
8.1	Operational planning and control	8.1	8.1	8.1	8.1
8.1.1	General			8.1.1	
8.1.2	Hierarchy of controls			8.1.2	
8.2	Requirements for products and services	8.2			
8.2.1	Customer communication	8.2.1			

	Integrated Management System	ISO 9001 Clause	ISO 14001 Clause	ISO 45001 Clause	ISO 55000 Clause
8.2.2	Determining the requirements for products and services	8.2.2			
8.2.3	Review of the requirements for products and services	8.2.3			
8.2.4	Changes to the requirements for products and services	8.2.4			
8.3	Design and development of products and services	8.3			
8.4	Control of externally provided processes, products and services. Outsourcing, Procurement, Contractors	8.4		8.3, 8.4, 8.5	8.3
8.4.1	General	8.4.1			
8.4.2	Type and extent of control	8.4.2			
8.4.3	Information for external providers	8.4.3			
8.5	Production and service provision	8.5			
8.5.1	Control of production and service provision	8.5.1			
8.5.2	Identification and traceability	8.5.2			
8.5.3	Property belonging to customers or external providers	8.5.3			
8.5.4	Preservation	8.5.4			
8.5.5	Post-delivery activities	8.5.5			
8.6	Control of change, Management of Change	8.6		8.2	8.2
8.7	Control of nonconforming outputs	8.7			
8.8	Emergency preparedness and response		8.2	8.6	8.6
9	Performance evaluation				
9.1	Monitoring, measurement, analysis and evaluation	9.1	9.1	9.1	9.1
9.1.1	General	9.1.1	9.1.1	9.1.1	
9.1.2	Evaluation of compliance and analysis	9.1.2, 9.1.3	9.1.2	9.1.2	
9.2	Internal audit	9.2	9.2	9.2	9.2
9.2.1	Internal audit objectives	9.2.1	9.2.1	9.2.1	
9.2.2	Internal audit programme	9.2.2	9.2.2	9.2.2	
9.3	Management review	9.3	9.3	9.3	9.3
9.3.1	General	9.3.1			
9.3.2	Management review inputs	9.3.2			
9.3.3	Management review outputs	9.3.3			
10	Improvement				
10.1	General	10.1	10.1		
10.2	Incident, nonconformity and corrective action	10.2	10.2	10.1	10.1
10.3	Continual improvement	10.3	10.3	10.2	10.3

	Integrated Management System	ISO 9001 Clause	ISO 14001 Clause	ISO 45001 Clause	ISO 55000 Clause
10.3.1	Continual improvement objectives			10.2.1	
10.3.2	Continual improvement process			10.2.2	
10.4	Preventive Action				10.2

Where policies and procedures are adopted from other parts of the ESB/ESB International organisation, these shall be amended, where necessary, to ensure their compliance with the above Standards.

5. Leadership and worker participation (ISO 45001:2016, 5)

5.1 Leadership and commitment

Top management at the ESB group, from the ESB Chief Executive and his Board through all levels of the ESB and ESB International organisation, is committed to establishing and maintaining a safe and healthy working environment for our staff, our contractors & business partners, and those impacted by our business.

ESB International management sees health and safety as a core value of our business, which comes before everything else, and for which it accepts responsibility and accountability. Management's paramount safety objective is to maintain a healthy and injury free place of work by operating in compliance with all applicable legal and regulatory requirements and striving for best practice in delivering our business activities.

Top management's commitment to health and safety is built on the pillars of Leadership, Competence, Compliance and Engagement, and is supported through the following:

- Ensuring that ESB International's Health & Safety Policy and the related Health & Safety objectives are established and that these are compatible with the organisation's strategy.
- Ensuring that the Health & Safety Policy and related processes are integrated into the organisation's business processes.
- Ensuring that the resources necessary to establish, maintain, implement and continually improve the Health & Safety Management System are available.
- Ensuring the active participation of workers and workers representatives by means of consultation and by removing any obstacles or barriers to participation; ESB International top management asks all staff to be safety leaders, demonstrating and encouraging safe behaviours through the standards they set and examples they provide. The primary responsibility for safety is through the line, with safety being an integral part of each person's role. Management values openness and trust in relation to safety, through positive participation and dialogue with staff and their representatives. Management will engage in dialogue, listening and engagement with staff, contractors and those impacted by our work on matters affecting their safety. ESB International encourages reporting of all incidents, good catches and near misses, so that causes can be understood, patterns analysed, and learnings and improvements shared across our business.
- Communicating the importance of effective Health & Safety Management and of complying with Health & Safety Management System requirements; Management will require all staff, contractors and business partners to take responsibility for their own safety and that of others who may be affected by their actions or omissions. ESB International management expects 100%

compliance with the letter and spirit of the Safety Rules and procedures which are in place to keep everybody safe.

- Ensuring that the Health & Safety Management System achieves its intended outcomes by constant vigilance, internal safety auditing, collection and analysis of safety data, communication with staff, careful planning and robust management reviews.
- Ensuring and promoting continual improvement of the Health & Safety Management System to improve safety performance by systematically identifying and taking action to address non-conformities; taking advantage of improvement opportunities and the minimisation of work related hazards and risks, including deficiencies in the system as these are uncovered. Hazard identification and risk assessment are essential requirements of working safely to ensure all personnel, contractors and business partners are aware of the risks and understand how their work impacts on their safety and the safety of others. Management will set challenging health and safety objectives and seek to deliver these consistent with ESB International's commitment to continual health and safety performance improvement.
- By fully supporting the Delimara 4 Plant Manager to enable him/her to demonstrate their leadership of and commitment to Health & Safety; The Plant Manager will demonstrate similar leadership and commitment by empowering his management team, who will in turn ensure that every member of Delimara 4 staff knows they have a safety responsibility and is a champion for safety in their own day-to-day work.
- Developing, leading and promoting a safety culture within Delimara 4 that actively supports and contributes to the development and improvement of the health & Safety Management System

5.2 Health & Safety Policy

ESB International management has established a documented Health & Safety Policy Statement D4-00-PS-001. This policy document is freely available to all members of Delimara 4 staff and to other stakeholders upon request.

This policy will be implemented and maintained in consultation with Delimara 4 personnel at all levels, both managerial and non-managerial. Staff will be expected to assume responsibility for those areas of policy and procedure over which they have control.

The ESB International Delimara 4 Health & Safety Policy will be reviewed every three years or immediately after any significant incident or accident.

ESB International will ensure that processes are in place to encourage participation and consultation through Workers' representatives and the Delimara 4 Health & Safety Committee.

The Delimara 4 Health & Safety Policy, in its implementation, commits to the following:

- Provision of a framework for setting health & Safety objectives
- Comply with all applicable legal and statutory requirements
- Identify and control Health & Safety risks using the hierarchy of controls i.e.
 - (a) eliminate the hazard
 - (b) substitute with less hazardous materials, processes, operations or equipment
 - (c) use engineering control
 - (d) use administrative controls,
 - (e) provide and ensure use of adequate personal protective equipment

Continual improvement of the Health & Safety Management System and of overall Health & Safety performance

Participation of and consultation with workers' representatives in the decision making process as it relates to the Health & Safety Management System

5.3 Organisational roles, responsibilities, accountabilities and authorities

The Managing Director, ESB International, has responsibility for safety delegated to him by the Chief Executive, ESB. The MD, ESB International, delegates this authority and responsibility to his Directors and Senior Managers, with ultimate responsibility resting on the Plant Manager for health & Safety Management at Delimara 4.

In practice, the Plant Manager delegates operational responsibility for management of Health & Safety to the ESB International Nominated Safety Engineer (the Production Manager).

The management team has access to the full Health & Safety resources of the company and may call upon its Health & Safety Manager for advice and assistance at any time.

The responsibilities, accountabilities and authorities for roles within the Health & Safety Management System will be assigned and communicated to all staff. This will be formally documented and retained within the Integrated Business Management Information System. In the event of structural change, these roles and responsibilities will be reviewed.

Workers who assume responsibility for those aspects of Health & Safety management over which they have control are required to report dangerous situations so that action can be taken.

As set out in the ESB International Delimara 4 Safety Rules (Electrical & Mechanical), D4-42-DP-001, everyone has the right to object on safety grounds; *"Any individual receiving instructions in the application of these Rules shall report to the Person issuing those instructions any objections on safety grounds to carrying them out. Any such objections shall then be dealt with in an Approved manner."*

Plant Manager Responsibilities

- Create Health and Safety Policy for the organisation in line with the ESB International corporate policy
- Conduct a review at least annually and amend or redefine as necessary the Delimara 4 Health & Safety Policy, and associated procedures and provide the resources and the process to ensure implementation.
- Assign the responsibilities of ESB International's Nominated Safety Engineer.
- Facilitate the selection of a Safety Committee and Health & Safety Representatives.
- Report to the appropriate stakeholders any Health & Safety issues that impact on the company's statutory or commercial remit.
- Participate in performance reviews and analysing audits of the Health & Safety Management System.
- Promote a Health & Safety culture within the organisation and systems to proactively improve Health & Safety.
- Ensure that adequate resources are available to implement safety policy and safety objectives

Nominated Safety Engineer (Production Manager) Responsibilities

- To advise management, employees and their representative on matters relating Health & Safety including:
- Create and develop policies procedures and objectives
- Communicate the organisations Health & Safety Policies and procedures to staff contractors and others as required.
- The promotion of a positive Health & Safety culture in the organisation including assistance to line managers in implementing an effective Health & Safety Policy
- Advise on the formation of Health & Safety plans; This will include goal-setting, deciding priorities and establishing adequate systems and performance standards, setting short and long term Health & Safety objectives.
- Manage the day to day implementation and monitoring of policy and plans. This will include exercising the major accident response plans, accident and incident investigation, reporting, analysis and recording.

- Keep abreast of technological changes, new statutory requirements or other changes that could affect the organisations activities.
- Communicating the organisations policy and procedures to staff, contractors and others as required.
- Communicating required notifications to the Maltese Health & Safety authorities
- Ensure that suppliers and contractors are familiar with and comply with the organisations Health & Safety Policy
- Monthly reporting to the Plant Manager and to ESB International Head Office Health & Safety Manager on safety statistics and progress against Health & Safety objectives and the Safety Improvement Plan.
- Reporting to the Plant Manager and to ESB International Head Office in the event of any LTA/LTI or other serious incident at the plant; Priority 1 incidents must be immediately reported to ESB International Head Office where they come to the attention of the Chief Executive of ESB.
- Reporting on Health and Safety system performance at Management Review to act as a basis for continual improvement.
- Acts as chairman of the Delimara 4 Health & Safety Committee

Department Managers and Team Leaders Responsibilities

- Implement ESB International Health & Safety Policy across all the process of the organisation.
- Ensure that appropriate responsibilities are delegated and monitor that these responsibilities are discharged.
- Be familiar with the legal requirements relating to health and safety.
- Ensure that all staff within their responsibility are trained in health and safety matters as necessary and kept informed of all health and safety information provided either by ESB International or the Maltese Health and Safety Authorities.
- Ensure that personal protective equipment is issued and used as and when required.
- Report to their senior managers on any problems related to Safety, Health and Welfare and liaise with the Health and Safety Manager as necessary.

- Ensure that suppliers and contractors are aware of and comply with the organisation's Health & Safety Policy
- Assist in the investigation of notifiable accidents and dangerous occurrences and implementation of report recommendations.
- Take appropriate action where a member of staff fails to discharge their responsibility for Health and Safety.
- Promote awareness of Health & Safety amongst all staff.

Shift Team Leaders Responsibilities

- Act as Senior Authorised Persons under the ESB International Safety Rules; Responsible to the Production Manager for the operation of the power station, including the release of plant and apparatus for work, during his shift.
- Ensure that he is fully briefed on operational and safety aspects by the departing Shift Team Leader before starting his shift and for briefing the incoming Shift Team Leader before leaving the station at the end of shift.

Health and Safety Committee Responsibilities

To improve work place Health & Safety by:

- Attending regularly at Health & Safety committee meetings and positively contributing to the role of the committee.
- Contributing to the setting and achievement of the health and safety objectives and targets
- Being involved in the design, operation, monitoring and review of the Health & Safety Management System including input to the Health & Safety Policy
- Being a conduit for two-way communication between management & staff
- Being involved in the decision making process for Health & Safety issues
- Contributing their first-hand knowledge of the work process and hazards
- Fostering a team approach to Health & Safety issues and contributing to the creation of a Health & Safety culture within the organisation by promoting safety awareness
- Identify required H&S training for staff

Responsibilities of all Employees

- Be aware of their individual Health & Safety obligations as outlined in the Health & Safety Policy and the Annual Safety Plan

- Take notice of Safety and Health posters and literature.
- Warn colleagues and inform the Manager of any hazard observed in the workplace.
- Know the fire drill; obey fire or emergency instructions for whichever office or building they may be in
- Know what to do in the event of an accident and act accordingly. Take ownership as appropriate
- Wear personal protective equipment whenever necessary.
- Find out whether a work location is likely to be hazardous, and ensure that personal protective equipment is available to him/her and that adequate controls are in place.
- Avoid misusing anything provided for his/her Safety.
- Obey the health and safety instructions in force at any location you work in or may visit.
- Attend training sessions, particularly if any job to be undertaken requires special instruction.
- Ensure that any items he/she specifies, designs or details are free from hazard to the constructor, user, installation supervisor, operator or anyone else.
- Be free from the influence of drugs or alcohol during working hours and not to bring either on to the premises without permission of the company.
- Ensure compliance with all legal requirements when driving.
- Not to endanger others by his/her actions or neglect.
- Take action to rectify any unsafe practice he/she may observe.
- Ensure accidents and dangerous occurrences are reported promptly.
- Show by example that ESB International is a safety-conscious organisation.
- Practice and promote Safety Health and Welfare at work.

5.4 Participation and Consultation

ESB International sees worker participation as a key factor in the success of its Health & Safety Management System. Management will therefore encourage such

participation and will establish, implement and maintain processes for participation and consultation in the development, planning, implementation, evaluation and actions for improving the Health & Safety Management System by workers at all levels, including workers' representatives at Delimara 4.

Worker participation and consultation will be facilitated and positively encouraged, in line with stated ESB International policy as follows:

- Provision of the necessary mechanisms, including a Health & Safety Committee, providing time, training and the necessary resources
- Information about the Health & Safety Management System and its supporting procedures and processes will be freely and easily available to all staff
- Identification and removal of any barriers which may exist, or be perceived to exist, and where barriers cannot be entirely removed they will be minimised to the utmost possible extent. This will include a management commitment to respond to workers' inputs and suggestions.

The opinions of workers will be actively sought out and management gives a commitment that no worker has any need to feel apprehensive about identifying risks and hazards, suggesting better ways of doing things or of objecting to an instruction if he/she has a genuine safety concern. Workers will be empowered to take on this responsibility in their own interests and in the interest of their colleagues.

In particular, ESB International will give particular emphasis in ensuring that non-managerial workers can participate, through the Health & Safety Committee and the Workers' representatives, in:

- Determining how they participate and are consulted
- Identifying hazards and assessing risk
- Actions to control hazards and risks
- Identifying training and competency needs and assessing training provided
- Determining the information that needs to be communicated and how best this should be done
- Determining control measures and their effective use
- Incident investigation, non-conformities and corrective actions

ESB International will emphasise the inclusion of non-managerial workers in consultation with respect to:

- Determining the needs and expectations of interested parties
- Establishing the policy
- Assignment of organisational roles, responsibilities, accountabilities and authorities with respect to Health & Safety Management
- The application of legal and other requirements
- Establishing Health & Safety objectives
- Determining the Health & Safety controls for outsourcing, procurement and contractors
- Deciding what needs to be monitored, measured and evaluated
- Planning, establishing, implementing and maintaining the internal safety audit program
- Establishing the continual improvement process

6. Planning (ISO 45001:2016, 6)

6.1 Actions to address risks and opportunities

6.1.1 General

The purpose of planning in the Health & Safety Management System is to prevent undesired effects (such as failure to apply of legal requirements, or work-related injury and ill health), by anticipating hazardous events and their likelihood and consequences, and applying appropriate risk controls, in order to achieve the intended outcomes. It also identifies opportunities that can offer a potential advantage or beneficial outcome, such as improved safety performance.

Planning is not a single event but an on-going process, anticipating changing circumstances and continually identifying risks and opportunities, both for the workers as individuals and for the organization. In planning the Health & Safety Management System, the context, the views of Delimara 4 workers and other interested parties, and its scope have been taken into consideration.

This is to ensure that the Health & Safety Management System can achieve its intended outcomes, prevent or reduce undesired effects and achieve continual improvement.

As the Health & Safety Management System develops, workers will participate in planning.

ESB International at Delimara 4 will identify hazards and assess the Health & Safety risks and its Health & Safety opportunities.

It will determine its applicable legal and other requirements assess other risks and identify other opportunities applicable to the Health & Safety Management System.

This information is used to determine how the risks and opportunities should be managed.

Planning also includes determining how to incorporate the actions deemed necessary or beneficial into the Health & Safety Management System through objective setting, operational control or other parts of the Health & Safety Management System, e.g. resource provisions and competence.

Mechanisms for evaluating the effectiveness of the preventive and protective measures will also be planned and will include monitoring and measurement techniques internal audit and Management Review.

ESB International recognises that changes can present both risks to workers, and opportunities to improve the performance of the Health & Safety Management System, and consequently they need to be carefully planned before being implemented through a process of Change Management.

So as to more effectively run the Health & Safety Management planning process, and to provide an audit trail, ESB International will maintain documented information,

such as for the identification of workplace hazards, the assessment of Health & Safety Management System risks and identification of Health & Safety opportunities.

The processes established and the outcome of the implementation of these processes will be maintained as documented information to facilitate internal and external communication of these processes and their outcomes.

This documentation can be used in further planning and when conducting internal audits.

6.1.2 Hazard Identification and Assessment of Health & Safety Risks

6.1.2.1 Hazard identification

Explanation:

Hazard	A source or situation with a potential to cause injury and/or ill-health
Risk	The effect of uncertainty
Effect	A deviation from the expected, and can be either positive or negative.
Uncertainty	A state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood

Risk is often characterised by reference to potential “events” and “consequences”, or a combination of both.

Risk is frequently expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence. Occupational Health & Safety Risk can therefore be understood as the likelihood of occurrence of a work-related hazardous event or exposure and the severity of injury and/or ill-health that can be caused by the event or exposure.

Hazard identification at Delimara 4 was built into the design and planning process for development of the Power Station, and involved the EPC contractor, Siemens, as well as the owner consortium and the Maltese authorities.

AECOM, the owner’s Engineer for ElectroGas Malta Ltd., prepared a Safety Report as required under the COMAH/Seveso directives. This report covers the whole EGM site.

It includes an overview of the Combined Cycle Gas Turbine (CCGT) and Liquefied Natural Gas (LNG) Terminal project and general information on Major

Accident Hazards and on potential effects on human health and the environment in the event of a major accident.

Hazards related to the physical and chemical properties of the materials being stored and handled, the arrangement of equipment, operating conditions, chemical reaction, as well as hazards from natural and human environment (external hazards) are considered. The Hazard Identification is completed with the review of past major accidents on similar facilities/activities and includes HAZID and HAZOP reviews.

As part of the Consequence Analysis, the safety distances have been assessed for the identified major accident scenarios, using dedicated modelling software tools.

The Risk Assessment includes the evaluation of the likelihood and severity of major accident scenarios prior to risk ranking. The external risk ranking, i.e. with regards to members of the public exposed outside the plant boundaries, is presented in the present document. The internal risk, i.e. with regards to operators and personnel within Enemalta Power Plant boundaries, is evaluated as part of the Risk Assessment document.

The Safety Report consists of the following referenced documents:

Reference	Designation	Issued by	Date
ENEM-AEC-E0-00-RP-SE-00005	Description of the Environment	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00004	Description of the Installations	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00003	Hazard Identification	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00002	Consequence Analysis	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00010	Risk Assessment	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00007	Safety of the Installations	AECOM	October 2015

Hazard Identification

(a) Hazards from Dangerous Installations

(i) Liquefied Natural Gas and Natural Gas

LNG is natural gas which has been converted to liquid form for ease of storage and/or transportation. LNG takes up about 1/600th of the volume of natural gas. Depending upon its exact composition, natural gas becomes a liquid at approximately -160°C and atmospheric pressure. LNG's extremely low temperature makes it a cryogenic liquid.

LNG is odourless (if no odourising substance is added), colourless and non-corrosive.

It is a mixture of methane (by far the major component), ethane, propane and butane with traces of heavier hydrocarbons and some impurities, notably nitrogen. LNG must not be confused with Liquefied Petroleum Gas (LPG), which is a mixture of mainly propane and butane. LPG liquefies much more easily than LNG. In fact, LPG is stored as a liquid

under pressure at ambient temperature, whereas LNG is stored as a liquid only at very low temperatures and ambient pressure.

Flammability is the property which makes natural gas desirable as an energy source, and for the same reason is a safety hazard. It is very important to note that natural gas is flammable but LNG (the liquid form of natural gas) is not because of the lack of oxygen in the liquid. Since LNG begins vaporising immediately upon its release from a container, the important issue is when will the vapour become flammable and for how long.

The LFL for methane is 4.4% and the UFL is 16.5% both by volume in air. Outside of this range, the methane/air mixture is not flammable. LNG is considered as a non-toxic substance.

The amount of liquefied flammable gases, Category 1 or 2 (including LPG) and Natural Gas, stored and handled within the process (around 58 000 tonnes >> 200 tonnes) will mean that the Delimara 4 CCGT and LNG Terminal will be upper tier COMAH establishment.

(ii) Process Equipment

Hazards from process equipment (vessels, pipelines, valves and flanges) can be overpressure, overfilling and loss of containment. As LNG and/or NG are stored and handled within this equipment, consequences in case of loss of containment are related to flammable dispersion, fire and/or explosion.

(b) Hazards from Natural Environment

Environmental loads, including extreme weather conditions (high wind and high waves), lightning, soil subsidence as well as seismic activity are all taken into account in the project design. Therefore, scenarios related to these causes can be discarded from the risk assessment as they are managed by the normal design process.

(c) Hazards from Human Environment

(i) Hazards from Third-Party Activities (Domino Effect)

The Delimara 4 CCGT and LNG Terminal are built within Enemalta site boundaries. Enemalta is an Upper Tier Establishment, in accordance with COMAH Regulation (Seveso Directive). The latest version of its Safety Report is dated July 2013.

Enemalta's activities generate significant hazards related to handling and storage of Heavy Fuel Oil (HFO) and Diesel Oil (DO), including unloading from ship (oil tanker at quay), storage tanks and transfer of products by pipeline into the power plant. These are flammable liquids that may lead to fire (pool fire) in case of Loss Of Process Containment with ignition.

Some third-party events may produce domino effects in new facilities. They are considered in the risk assessment.

With regards to the other COMAH Establishments, none of their consultation zones overlap Delimara 4 CCGT and LNG Terminal. Therefore, no other domino effects are expected.

(ii) Hazards from Communication Networks

Impact, direct or otherwise, by an aircraft could potentially damage the Delimara 4 CCGT and LNG Terminal, including process equipment and associated pipe-works.

As the new facilities are out of the landing / take-off approach routes for Malta / Luqa Airport, no specific design requirement has been implemented for any aircraft impact.

Vehicle collision and ship collision scenarios are considered as possible during normal operations, and evaluated through the risk assessment.

(iii) Other Human Hazards

Vandalism and terrorism are considered for the risk assessment.

HAZID and HAZOP Reviews

The HAZID (HAZard IDentification) is a technique used for early identification of potential hazards and threats. It is especially suited to the identification of non-process related hazards such as extreme weather, third-party activities, ship collision, etc. The effect or possible consequence of an untoward incident is itemised and the possible causes determined.

The HAZOP technique is suitable for identifying hazards associated with deviations from the design intent of the process. It draws upon the facility process and instrument diagrams (P&IDs) as the basis of the study and is used as an audit tool once the design is well understood and minor changes to the system can be incorporated easily.

Both techniques have been undertaken with all project contractors for the FSU, the LNG Terminal (including the jetty, the regasification unit and the BOG compressors) and the CCGT.

All the relevant events (incidents/accidents and near misses) from the past on similar facilities/equipment and/or handling similar products have been identified in order to build up knowledge about potential causes and consequences prior to HAZID and HAZOP reviews.

From these HAZID and HAZOP reviews, Major Accident Scenarios were identified and selected, to be evaluated through the consequence analysis and the risk assessment.

CONSEQUENCE ANALYSIS

The AECOM Safety Report deals with Consequence Analysis in document reference ENEM-AEC-EO-00-RP-SE-00002.

RISK ASSESSMENT

The risk assessment includes the evaluation of the likelihood and severity of major accident scenarios prior to risk ranking, where the hazards have been identified through HAZID and HAZOP reviews and the safety distances have been calculated as part of the consequence analysis.

(a) Evaluation of Scenario Frequency Levels

(i) Methods and Assumptions

Causes of major accident scenarios may be categorized as follows: natural hazards, external hazards, mechanical hazards (equipment failure) and process hazards (including human error).

Natural hazards include extreme weather, lightning, seismic activity and erosion/subsidence. They are discounted as covered by design codes and standards.

External hazards include third party activities, aircraft crash, ship collision and vehicle collision, as well as terrorism/vandalism. Potential domino effects from Enemalta Power Plant have been identified based on latest version of Enemalta's COMAH Safety Report.

Generic failure frequency data for process equipment loss of containment, used for risk assessment, are those recently published by DNV, derived from the Hydrocarbon Release Database (HCRD) which has been compiled by the UK Health and Safety Executive (UK HSE). In addition, for rupture of the loading/unloading hose and the unloading arm during loading and unloading activities with ships, the values from Handbook Failure Frequencies 2009 for drawing up a Safety Report (Flemish Government, Belgium) are used. And estimate of frequency of rupture applied for the FSU tanks is extracted from OGP database.

In order to estimate the frequency at which a Critical Event (Top Event) and its associated consequences will result following one or several Initiating Events (Causes), the effect of any safeguards has been considered, including mechanical devices (e.g. pressure relief valve), instrumentation (e.g. alarms and/or safety trips). The probability of failure on demand for other safeguards is estimated based on available data from the literature or from the suppliers.

Finally, credits for circumstance factors (e.g. normal operation versus ship-to-ship transfer), probability of weather conditions (for F2 and D5 conditions), ignition probability and probability of effects of vapour cloud ignition have been taken into account. For scenarios located at the FSU, the data from OGP / UKOOA look-up correlations provide estimated

values of the probabilities of hydrocarbon releases igniting to result in an explosion (flash fire, VCE) and/or a sustained fire (pool/jet fire).

The probability of ignition may increase in the event that the flammable gas cloud reaches any of permanent ignition sources within Enemalta site or in the environment surrounding. Therefore, for scenarios located at the jetty pier, the Regasification Plant, the NG pipeline, the D3PP/GRS and the D4PP/GRS, "flat" ignition probabilities are assumed as a conservative approach.

The outcome was that ninety-nine out of three hundred and forty-four scenarios lead to consequence at Risk level 2 (tolerable if ALARP – **As Low As Reasonably Practicable**).

There were no scenarios at Risk Level 1 (unacceptable).

All other scenarios were at Risk level 3 (broadly acceptable).

Safety Critical Measures

Safeguards implemented in the project design and maintained during the life of the installation to prevent scenarios at risk Level-2 are commonly considered in this specification as Safety Critical Measures (SCMs). These safety measures can be mechanical, instrumental or procedural. They can also be active (which need energy sources) or passive systems (which do not rely on energy sources).

The Safety Critical Measures are located at the FSU and the Regasification Plant, including:

- Prevention measures: Procedures, Safety Instrumented Systems, Pressure Safety Valves;
- Mitigation measures: Fire, Spill and Gas Detection Systems and Emergency Shut-Down (ESD) valves
- Protection measures: Firefighting Systems.

These Safety Critical Measures allow for risk to be at ALARP level.

Delimara 4 CCGT Power Station

In the Operational phase, ESB International will establish, implement and maintain a process for on-going proactive identification of hazards specific to the areas under its control.

This is covered by the documented procedure D4-41-DP-001, Hazard Identification, Risk Assessment and Risk Control (HIRARC). This document specifies the responsibility for ensuring that hazards are identified, risk assessments are carried

out, and control measures implemented. It sets out the methodology to be used and the requirements in relation to communication.

A linchpin of a safety management system is an effective risk assessment process. Not only is risk assessment required under legislation, but a systematic and rigorous risk assessment system will identify potential sources of accidents in advance of work being undertaken and ensure that they are addressed by the establishment of effective control measures.

The legal requirement for risk assessments comes primarily from S.L. 424.15 (L.N. 44/2002) Workplace (Minimum Health & Safety Requirements) Regulations, and S.L. 424.18 (L.N. 36/2003), General Provisions for Health & Safety at Workplaces Regulations.

It is ESB International policy on risk assessment that all activities undertaken at Delimara 4 must be covered by prior risk assessment.

Hazard identification will proactively identify any source or situation, or combination of both, with the potential for work-related injury or ill-health.

This will include both routine non-routine activities. Routine activities are organised by means of Planned/Preventive/Predictive Maintenance (PM) tasks, which are individually risk-assessed and which are issued via the Delimara 4 enterprise and asset management system, MAXIMO. PM tasks will include Work Instructions, and reference to standard forms or Documented Procedures to be used when carrying out the work.

Non-routine activities are referred to as Corrective Maintenance (CM) tasks, which are also issued through the MAXIMO system. Each activity must be risk-assessed as a condition of obtaining a safety document for the safe release of plant or apparatus for work. MAXIMO is interfaced to the Delimara 4 NiSoft integrated software safety management system through which safety documents and isolation details are managed and recorded.

Some plant areas have risks associated with them owing to their location, such as HRSGs, Switchgear Rooms, etc. These will be identified by means of Area Risk Assessments.

Sources might include, for example, COSHH substances, ionising radiation from NDT activities, stored energy in pipework or vessels, temperature, pressure, noise, electricity etc.

Situations might include, for example, Confined Space Working, Working at Height, and so on.

Physical conditions and human factors are taken into account when hazard identification and risk assessments are being prepared, and control measures decided upon and a final, on-the-spot review of hazards is carried out and recorded using the Work Area Safety Plan (WASP) D4-41-RA-002 at the pre-work Toolbox Talk. Refer to Notes of Guidance D4-42-NG-008, Setting to Work.

The Delimara 4 Emergency Response Plan (which takes into account the Emergency Plan developed by AECOM for the ElectroGas Malta site as a whole – see table below), identifies likely emergency scenarios and provides instruction on actions to be taken in event of emergencies.

Reference	Designation	Contents
ENEM-AEC-E0-00-RP-SE-00013	General Data	Environment Site and Installations Process Dangerous Substances
ENEM-AEC-E0-00-RP-SE-00014	Alert and Evacuation	Emergency Alert and Immediate Actions Evacuation Procedure
ENEM-AEC-E0-00-RP-SE-00015	Detection, ESD and Fire Fighting Systems	Fire, Spill and Gas Detection Systems Emergency Shut-Down Systems Fire Fighting Systems External Fire Fighting Resources
ENEM-AEC-E0-00-RP-SE-00016	Roles and Responsibilities	Normal Operating Organization Emergency Control Systems Roles and Responsibilities Off-site Emergency Organizations Incident Reporting Requirements
ENEM-AEC-E0-00-RP-SE-00017	Emergency Response Scenarios	LNG Spill, Gas Release and Fire Scenarios FSU Specific Scenarios Medical Response Bomb Threat or Discovery of an Explosive Device Breach of Site Security Earthquake
ENEM-AEC-E0-00-RP-SE-00018	Emergency Drills	Training Requirements Periodic Drills

Station Operations personnel regularly review emergency situations as part of their normal work in order to maintain awareness and identify the best means of responding to incidents.

Delimara 4 will seek to liaise closely with the emergency services and involve them in the planning and execution of emergency response exercises.

The Delimara 4 Power station site lies within the overall EGM complex, which also contains the Re-Gas and Floating Storage Unit (FSU). The FSU and Re-Gas facilities are operated by their own respective O&M organisations.

The EGM site has an upper-tier COMAH/Seveso rating because the volume of LNG stored at the FSU constitutes a Major Accident Hazard

The EGM site in turn comes within the Enemalta site, which is also a COMAH site itself, based upon its volume of distillate storage.

Proximity to such major hazards outside the control of the Delimara 4 operator will be carefully considered both internally and in cooperation with the other operators at Delimara.

Included in risk-assessments will be the potential effects of Delimara 4 activities upon people who may be on site at the time, our neighbours and people visiting the site. A

Contractor Safety Procedure governs how outside contractors will be dealt with and a Control of Visitors Procedure details how people visiting the site are to be managed. Because it is necessary for Delimara 4 personnel to leave the confines of the Power Station (see 1.3 above) and traverse parts of the complex under the control of others to reach other areas falling under the responsibility of the Power Station, identification of hazards and assessments of risk must take into account dangers to personnel which these movements may entail.

Change presents a further source of hazard and risk, and Delimara 4 operates a formal Change Management Procedure to assess proposed changes to plant, equipment or controls. Change may also arise from changes in processes and procedures, which must be formally verified and approved before being communicated to those affected.

It is also the case that knowledge and understanding of hazards may change over time, arising from incidents and experience at the Power Station or elsewhere, and insights given by third-party studies. Legal and statutory requirements may change the way hazards and risks must be viewed and these too must be taken into consideration as part of the ongoing process.

6.1.2.2 Assessment of H&S risks and other risks to the H&S Management System

The process implemented at Delimara 4 for the assessment of risks from documented hazards is described in the HIRARC Procedure D4-41-DP-003 and in the supporting standard forms, D4-41-FC-001 Risk Assessment Pro-forma, D4-41-FC-002 Work Area Safety Plan (WASP) and D4-41-FC-003 Area Risk Assessments. Note of Guidance D4-42-NG-008, Setting to Work, also refers.

The system is proactive and compliance is mandatory.

A Register of Legal & Statutory Requirements and Compliance D4-41-RD-001 has been established and is maintained. Changes to legislation are monitored by monthly reference to the Government Gazette on Department of Justice website. The activity is prompted by a PM task from the MAXIMO system.

As well as the hazards and risks dealt with above and in the HIRARC Procedure, there also exist risks which may affect the Health & Safety Management System itself.

Such risks may arise from;

- Inappropriate analysis of context or from analysis being outdated. By implementing a rigorous verification and approval process for documented procedures, by engagement and consultation with Delimara 4 personnel and other interested parties, by internal audit and by reviewing the process on a regular basis, this risk may be avoided.
- Similarly, inadequate consideration of Health & Safety Management System requirements, management of change and other related Health & Safety

issues in relation to strategic planning and other areas of the business, may be mitigated against.

- It is the responsibility of management to ensure that effectiveness the Health & Safety Management system is not impaired through failure to foresee and provide adequate resources, whether financial, personnel or other organisational imperatives.
- An adequate number of Delimara 4 staff will be trained in internal auditing and will be involved in cross-functional audit teams to implement an annual Health & Safety Audit program. Senior management will take an active part in ensuring that audit teams have the knowledge, resources and cooperation from all concerned to enable them to run effective audits.
- Management will endeavour to ensure the adequacy of succession planning for key Health & Safety Management System roles by a combination of Individual Development and Training Plans (ITDPs) and by inclusion of succession planning in scheduled Management Reviews of the System.

A training needs analysis is included in the development of the staff competency matrix. The ITDP process is undertaken annually and follows the following process;

- Review the individual's development needs
- Review the range of development opportunities
- Review individual safety training records
- Prioritise the individual's needs
- Agree actions
- Implement the ITDP
- Evaluate the transfer of knowledge to the workplace

Active engagement by top management in the activities of the Health & Safety Management System is a requirement of the ISO 45001 Standard and also the documented responsibility of management.

ESB International's commitment to safety comes from the Chief Executive down, and senior managers in ESB International have safety responsibilities as shown in the ESB International organisation chart in section 5.1.2 above.

This translates into the responsibility and accountability of the Delimara 4 Plant Manager to provide leadership and to demonstrate real commitment. Poor engagement by top management would be an unacceptable risk and should never arise.

- A commitment has been given to address the needs and expectations of relevant interested parties, without which the Health & Safety Management System would certainly be impaired. Management will ensure that workers and their representatives are actively involved through the Safety Committee and through consultation through the various processes and procedures relating to Health and Safety Management.
- Failure of the Health & Safety Management System to drive good safety performance would present a major challenge. However, through correct implementation and management of reviews and continual improvement initiatives, any slippage will be quickly identified and addressed. Compliance with all Health & Safety procedures, instructions, laws and regulations is mandatory and non-negotiable. Failures, whether inherent in the system or because of human factors are not acceptable.

6.1.2.3 Identification of Health & Safety Opportunities and other opportunities

ESB International will implement, and maintain systems to help Delimara 4 identify opportunities to improve both Health & Safety Performance as well as the Health & Safety Management System itself.

Safety has been designed into the Power Station by the contractor during the equipment procurement and construction stage and by conducting a HAZOP/HAZID study.

ESB International will use HIRARC process to identify, reduce, and where possible, eliminate hazards and consequent risks in the Power Station's operational phase.

Delimara 4 will operate a carefully managed process to manage change (ref procedure D4-41-DP-004, Plant Modifications), which includes hazard identification, risk assessment and implementation of control measures as necessary.

ESB International encourages all its personnel at Delimara 4 to be involved in managing safety. To this end, a schedule of Internal Safety Audits will be planned and implemented annually, with special emphasis on periods of heightened activity, and when contractors are on site. Included will be Du-Pont style behavioural safety audits (form D4-41-FC-011) and ongoing assessment of contractor safety performance.

Delimara 4 will operate an Incident/Near Miss reporting system and staff will be requested to report every potentially dangerous occurrence, event or behaviour they find during the course of their work. Actions arising will be recorded in MAXIMO as Work Requests so that responsibilities can be assigned and progress to conclusion more easily tracked and reported. In addition, a register of

reports will be maintained, which will be freely available to staff so that they can track progress against reports raised.

The result of audits and Incident/Near Miss (form D4-41-FC-010) reporting will be actions to improve safety by identifying and removing or minimising risk, to find better and safer ways of working, and to heighten safety awareness.

In order to improve the visibility of management's commitment to the Health & Safety Management System, the Plant Manager will personally conduct monthly safety audits and raise Work Requests to address non-conformances or to have improvements actioned.

In addition, managers and supervisors will be given monthly targets for safety audits which must be completed.

The outcome of Internal Audits, Du-Pont style behavioural safety audits, incident and Near Miss reports will be discussed at Health & Safety Committee meetings. Safety Work requests will be treated as priority issues at each morning production meeting and at weekly reviews of the MAXIMO live backlogs for each department/section.

Accident/Investigation is carried out in compliance with procedure D4-41-DP-006. The outcome of investigations will be discussed at the regular Safety Committee meetings. Formal investigations of serious accidents/incidents will include Safety Committee members on the investigation team and reports will be discussed with, and made available to, Committee members and other staff representatives.

ESB International at Delimara 4 will liaise closely with its Head Office Safety Team for the reporting of LTIs and P1 (high severity) accidents and incidents. These are recorded in the company's safety management system and progress to closure of open cases tracked and reported upon.

In addition, the Station will send monthly safety reports to the Head Office Safety Team and will be involved in quarterly safety briefings held (using on-line meeting system) between the company's overseas locations to share experiences and knowledge.

Accident notification to OHSA will be as required by the Work Places (Health, Safety and Welfare) Regulations, S.L. 424.09 and Delimara 4 management will cooperate fully with any investigations required by the competent authorities.

6.1.3 Determination of applicable legal requirements and other requirements

Requirements are summarised as including but not necessarily limited to

- Mandatory requirements; laws, regulations, corporate requirements, provisions of collective agreements that relate to the health and safety of workers where these are given legal effect;

- Commitment requirements; voluntary commitments to interested parties to which the organisation subscribes e.g. rules, guides and technical references
- Other requirements to which ESB International voluntarily subscribes that relate to the Health & Safety Management System.

In respect of its legal and statutory requirements regarding Health & Safety, ESB International at Delimara 4 has established a formal register of Legal and Statutory Requirements and Compliance, ref. D4-41-RD-001.

This document takes as its starting point the Occupational Health & Safety Authority Act (CAP 424) and examines each clause of the act and of the Subsidiary Legislation setting out the various Health and Safety Regulations S.L. 424.01 to S.L. 424.33, inclusive.

The document identifies each clause with which Delimara 4 must comply and explains how this is achieved in practice by reference to internal procedures and instructions designed to ensure compliance.

The Register is reviewed annually and when any change in the legal and statutory requirements occurs.

The Malta Government Gazette will be consulted each month by Technical Services Department and any changes or new laws or regulations relevant to Delimara 4 operations will be brought to the attention of management for further action.

Requirements other than legal and statutory are dealt with through procedures and planned tasks managed through the MAXIMO.

The need for compliance will be communicated to Delimara 4 staff through procedures, instructions, training and ongoing management and supervision as well as through the Safety Committee and workers representatives.

Where necessary, compliance issues with external statutory authorities will be through the means specified by the relevant regulations and by liaison with OHSa and others. This includes statutory reporting issues.

Because Delimara 4 uses a common integrated business information management system across the ISO 45001, ISO 9001, ISO 14001 and ISO 55000 Standards (see section 1.4 above), legal and statutory requirements will always be taken into account in the maintenance and improvement of its Health & Safety and other business systems.

6.1.4 Planning to take action

ESB International at Delimara 4 will identify and assess risks and opportunities and how the organisation will plan and carry out the necessary actions arising. Legal and other requirements are identified and the mechanism by which compliance will be achieved will be identified.

In each case, where actions are identified as being necessary to close gaps or to address issues, Delimara 4 will use the MAXIMO system to assign, track, close and maintain records of these actions. Continual improvement actions will be managed using the same process.

ESB International will operate an integrated business management information system across the ISO 9001, 14001, 55000 and 45001 standards to ensure that the actions planned and carried out are integrated into the overall business management system.

The company will utilise the Plan, Do, Check, Act cycle to keep the actions arising from the planning stage under review on a continuous basis through daily, weekly, monthly review sessions as well as through formal Management Review of the Health & Safety Management System. The Quality, Environmental and Asset Management strands of the business management system will follow similar review processes, with actions arising being fed back into the planning cycle once again.

The hierarchy of controls will be used as a driver in the planning process i.e. (a) eliminate the hazard, (b) substitute with less hazardous materials, processes, operations or equipment, (c) use engineering controls, (d) use administrative controls, (e) provide and ensure use of adequate personal protective equipment.

Action plans will take into account the company's own Safety Rules, procedures, processes and international best practice, as well as the requirements driven by legislation and regulation.

6.2 Health & Safety objectives and planning to achieve them

6.2.1 Health & Safety Objectives

The principal health & Safety objective is to maintain and at the same time to improve safety performance at Delimara 4.

By eliminating, insofar as practicable, workplace hazards and by controlling to an acceptable level that which cannot be removed, the overall goal is to achieve zero LTIs.

This will be done with reference to ESB International's Health & Safety Policy, Safety Rules, Codes of Practice and Procedures, best international practice and compliance with legal and statutory requirements.

Essential in achieving these goals are;

- Provision of a safe system of work
- Educating and communicating
- Increasing safety awareness and involvement
- Internal auditing
- Seeking continual improvement
- Management of change

Delimara 4 will have an annual Safety Improvement Plan, which will identify specific Health & Safety goals to be achieved and which will require the involvement of both management and staff to achieve.

Health & Safety objectives will be measured and the results fed back to correct and modify planning where necessary.

6.2.2 Planning to achieve Health & Safety objectives

As previously explained planning Health & Safety objectives at Delimara 4 does not exist in isolation but is an integral part of everyday activities at the Power Station.

Safety is considered as a prerequisite for every job undertaken as is demonstrated by mandatory Risk Assessments and application of the ESB International Safety Rules (Electrical & Mechanical). The MAXIMO system manages work allocation and Risk Assessments, and this is integrated with the software safety management system, NiSoft Eclipse.

Procedures, codes of practice, notes of guidance, legal requirements, and so on, are all utilised and referred to as a matter of course in planning to achieve the overall objective of zero LTI.

Every activity, whether a planned maintenance task, a corrective maintenance job, action arising from an audit non-conformance, incident or near miss, is planned through MAXIMO. This applies also to specific safety goals required by the annual Safety Improvement Plan.

In this way, it will be clear for every Health & Safety Objective that;

- What is to be done is clearly identified

- The resources needed will be stated
- Responsibility for results is assigned and clear for all to see
- Target completion is specified

Health & Safety Work requests can easily be collected in the MAXIMO system and reports prepared for weekly/monthly live backlog reviews. They can similarly be reviewed and discussed at regular meetings of the Health & Safety Committee, and can be viewed at any time by any staff member with access to the system.

On completion, history will be written and saved, thereby preserving a record of every safety-related activity undertaken and completed.

Results are evaluated on the basis of effectiveness.

Also included in planning to achieve is emergency preparedness and the capacity to respond effectively.

Delimara 4 is part of a complex subject to COMAH/Seveso directives. It exists within the ElectroGas Malta site, which is an upper-tier Seveso site, which in its turn is part of the Enemalta site which is also subject to Seveso directives.

Therefore, the Delimara 4 Emergency Response Plan has its own considerations and objectives but must refer to the overall ElectroGas Malta complex Emergency Plan. The EGM Emergency Plan in turn must refer to the Enemalta Emergency Plan. The Delimara 4 Emergency Response Plan is contained in the controlled document D4-41-DP-002.

Because Delimara 4 operates an integrated business management information system, Health & Safety objectives and actions are visible and effective through the entire business.

7. Support (ISO 45001:2017, 7)

7.1 Resources

The resources required at Delimara 4 for the safe and efficient generation of electricity are many and diverse, and each resource brings with it Health & Safety considerations above those needed only to establish, implement and maintain the Health & Safety Management System itself.

Resources necessary include but are not necessarily limited to the following;

(a) Human resources

People are the single most importance resource and are consequently both the main ingredient and the subject of the Health & Safety Management System.

Employees at Delimara 4 are required to bring with them the knowledge, skills, experience and competence to safely and effectively carry out their specific tasks. This applies both the Station's directly employed personnel as well as to contractors and sub-contractors who come to site to undertake various works or projects.

When dealing with contractors, it is not possible to ascertain behavioural competency or to be sure of their capacity to perform. Instead reliance is placed on having the contractor (who must be "Safety Approved") make a formal declaration that his personnel and sub-contractors are both fit and competent to undertake the task for which they are to be employed at the Power Station.

(b) Financial

It is the responsibility of management to ensure that the Health and Safety Management System is adequately provided for in annual budgets and to uphold the maxim that there is never a choice to be made between cost and safety; If something cannot be done safely, it cannot be done.

Financial resourcing may include provision of the correct safety equipment, training, PPE, financing of the annual Safety Improvement Plan, maintenance of safety systems, and so on.

(c) Infrastructure

This term covers a wide range such as adequate buildings, offices and workshops in which to work with at least the degree of comfort required by legal and other standards. This would encompass adequate lighting, ventilation, sanitary and hygiene facilities, for instance.

It may also be considered to cover plant and equipment, IT, communications, firefighting, containment systems, alarm systems, roads, storage, and so on.

All of these are necessary for the functioning of the Health & Safety management System and each has its own safety considerations which must be assessed and their hazards and risks minimised.

7.2 Competence

When ESB International uses the term “competence” it refers to not simply technical ability or knowledge, but also to a set of behavioural competencies that can be measured and observed, and which describes *how* people perform their roles.

The behavioural competencies of all staff will have been assessed initially at selection and these are used continually as part of staff development so that people know what is expected of them.

Each staff member will have a training needs analysis carried out and the resulting gaps, if any, will be used to prioritise training delivery.

Each staff member will have an individual training record and will be assessed against a competency matrix, which is designed to identify all the skills required and record demonstrated competency against those considered necessary to safely carry out various tasks. Where certificates of competency are required by law or regulation, these will be mandatory and copies will also be kept in the training record.

With regard to Health & Safety, no assumptions will be made and competency assessments will include;

- Education, previous training, qualifications and experience
- The person’s work environment
- Familiarity with the procedures, instructions and control measures put in place following hazard risk assessments
- Requirements applicable to the Health & Safety Management System
- Rights and responsibilities based upon legal and statutory requirements
- Understanding that compliance with Safety Rules and the Health & Safety Management System is mandatory
- Consequences and implications of non-compliance
- Duties and responsibilities associated with defined roles, such as the levels of competency for “Persons” as defined in the Safety Rules
- Understanding that under the Safety Rules, every employee has the right to object on safety grounds

- Understanding that every employee has the right to remove themselves from any situation of imminent danger

Staff will be trained and encouraged to audit and to participate in the management of their Health & Safety and Safety Committee members/workers representatives will receive specific training to enable them to fulfil their roles.

For contractor personnel, reliance is placed on a written declaration from the “Safety Approved” contractor in respect of the individuals presented for work at Delimara 4, and in addition, each person must undergo and pass a Site Safety Induction program to demonstrate that they understand the basic safety hazards, know what to avoid and how to respond in the event of an emergency.

7.3 Awareness

Every employee at Delimara 4 will be made aware of ESB International’s Policy Statements;

Health & Safety Policy	D4-00-PS-001
Quality Policy Statement	D4-00-PS-002
Environmental Policy Statement	D4-00-PS-003
Chemical Safety Policy Statement	D4-00-PS-004
Prevention and Eradication of Drug, Alcohol and Substance Abuse in the Workplace (DASAPS)	D4-00-PS-005
Asset Management Policy	D4-00-PS-006

Every employee will receive training in basic firefighting, hearing conservation and basic first-aid.

Every employee, excepting those in finance/administration/clerical areas, will be trained in the ESB International Safety Rules (Electrical & Mechanical) D4-42-DP-001, and individuals with responsibilities (Senior Authorised Persons, Authorised Persons, Competent-Persons etc.) will receive specific training and must demonstrate competency before being allowed to assume these roles.

Every employee will receive training on the Delimara 4 Emergency Response Plan D4-43-DP-001 and the response required of them in various emergency scenarios.

Every employee will receive training at the appropriate level on the Health & Safety Management System D4-41-DP-001 and a number will be trained as Internal Safety Auditors.

Every employee will be informed as to the importance of their taking an active and meaningful part in the management of Health & Safety and the benefits this will bring to all employees.

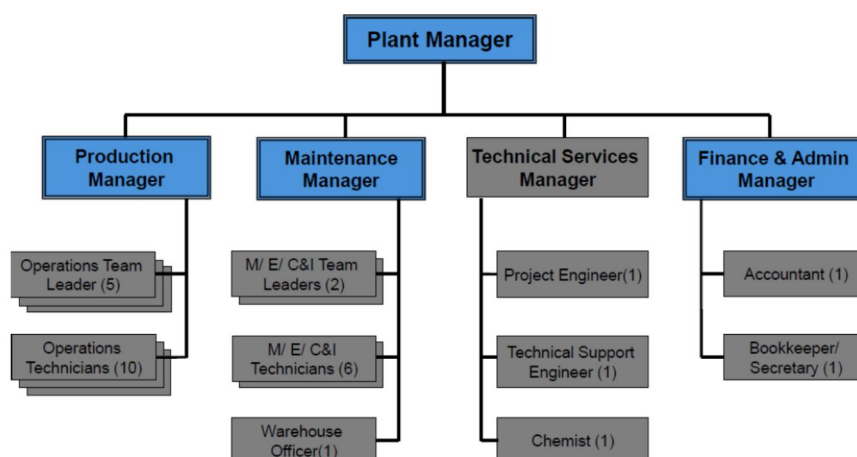
Every employee will have the hazards, risks and control measures relevant to their work explained to them and will be required to both demonstrate understanding and to comply at all times.

It will be clear to every employee, whether staff or contractor, and compliance with the Safety Rules and such procedure and instructions as are approved by management from time to time, are mandatory and that repeated violations will lead to dismissal/removal from site.

Each employee will be aware that he or she has the right to remove themselves from any situation of imminent danger and that they must report all unsafe situations, acts or behaviours to their line manager/supervisor as quickly as possible – and in confidence if they feel this to be necessary. Accident/Incident/Near Miss reporting structures are provided to support this desired behaviour.

With the exception of blatant disregard for the Safety Rules and procedures, ESB International will seek to operate a “no blame culture”, where we learn from our experiences and from the experiences of others in order to build a strong safety culture based on collaboration and improvement.

7.4 Information and communication (7.4)



ESB International, Delimara 4, Organisation Chart

ESB International will establish and maintain channels for the flow of information both formally and informally, upwards, downwards and across the organisation at Delimara 4. In addition, it will provide ensure that channels of communication exist with external interested parties both for routine and for emergency situations.

Internally

Formally, internal communication of matters related to Health & Safety and to the Health & Safety Management System is conducted at its highest level through the Safety Rules and procedures/instructions related to the provision of safe systems of work, which are the foundation of safety at the Power Station.

There will be regular meetings of the Safety Committee, where any Health & Safety topic may be raised, discussed and minuted, and where actions are decided and progress reported upon. Safety performance and statistics are open for review and comment.

The Nominated Safety Engineer (Production Manager) ensures that every new procedure or instruction, and every change to such a document is made known to the relevant people following completion of the revision process.

Similarly, every plant modification involves an approval process, after which any changes to plant and equipment are circulated and explained.

There is a safety conversation around every task carried out, in the form of Risk Assessments and the provision of Safety Documents required before work is allowed to proceed.

The Plant Manager communicates downward to his management team, who in turn brief their Team Leaders, who then brief their staff. Staff, in turn are encouraged to communicate any safety concerns or observations upwards to their line manager/supervisor and have the ability to track the progress of incident/near miss reports through a formal Accident/Incident/near Miss Reporting system and register so as to be satisfied that their concerns are being properly dealt with.

Provision is made for staff to have team discussions where issues which they feel have an impact on their health and safety and can bring these to the attention of management through the Safety Committee/worker representatives and/or through their line manager/supervisor.

Toolbox Talks are held prior to the commencement of work, where staff involved are briefed on and discuss specific hazards and risks and where the work crew complete and sign off on a Work Area Safety Plan (WASP).

Informally, every Shift change involves a handover discussion between the departing and arriving Senior Authorised Person (Shift Team Leader), where safety information (as well as operational information) is shared and passed on. The Shift Log provides a formal record of activities, including safety, carried out on each shift.

On the morning of each normal workday, there is an Operations (Production) meeting chaired by the incoming Senior Authorised Person (Team Leader). This meeting is attended by the Plant manager, Production Manager, Technical Services manager, Station Chemist and Maintenance Supervisors (Team Leaders). The first topic to be considered at this meeting is safety i.e. what happened on the previous shift, any Safety Work requests arising, and the safety needs of each job planned for the coming day.

Each afternoon, there is a safety meeting to consider the work planned for the following day and to ensure that the Senior Authorised Person fully understands the implication both for safety and availability, and to ensure that he/she is in possession of valid Risk Assessments etc., so that Safety Documents can be prepared overnight and be ready for the following morning.

During outages, this process may be the subject of a separate meeting with the Permit Engineer (a Senior Authorised Person whose sole task it is to manage Safety Documents for the period) and the relevant Managers, Supervisors and, where appropriate, contractors.

Each week, there is a “live backlog review” meeting chaired by the Plant Manager and attended by the Management team, Supervisors, Station Chemist and either or both of the engineers attached to Technical Services Department. Again, the first topic here is the Safety Work request backlog, with each section/department being challenged to explain if safety jobs have not been completed by their due date and to discuss the issues surrounding new and outstanding safety jobs as appropriate.

Informally, the safety conversation is ongoing.

Every time a supervisor, Manager or Senior Authorised Person goes out on the plant, his/her priority task is to be aware of unsafe situations, acts and behaviours and to address them appropriately and promptly.

Operations Technicians will, on a regular basis prompted by a MAXIMO PM, discuss together possible emergency scenarios and explore how they would most effectively respond to them.

The Delimara 4 Emergency Response Plan is communicated and available to all, but it is recognised that without practice, such plans are quickly forgotten and therefore the information must be communicated to staff in a way other than through regular evacuation drills. This is done by making a realistic emergency exercise, involving the emergency services and as many staff as possible, the highlight activity during the Station’s annual Safety Week.

In this way, there is a constant internal communication, with safety information being shared in all directions.

Externally

Interested parties with who Delimara 4 must, as an organisation, communicate regarding safety on a routine basis include;

- ESB International's client, ElectroGas Malta; Communication is generally at Plant Manager-level and can take the form of formal reports, formal meetings or informal day-to-day discussions and briefings as required.
- The Grid Operator, and EGM's client, Enemalta; Operationally, the Control Room communicates routinely with the Grid Operator to declare availability, to inform of issues and to receive dispatch instructions. It will from time to time be necessary for work on plant/apparatus to be carried out by either Delimara 4 or Enemalta that involves putting in place safety arrangements across operational boundaries.

This arises where safety isolations must be implemented on one or both sides of the boundary. A formal procedure exists to ensure that the safety process between the two sides is properly carried out and recorded using the Record of Interconnection Safety Precautions.

Delimara 4 receives its gas fuel from the Re-Gas Facility and again, there is ongoing operational communication with its Operator. A similar formal system exists to ensure safety across boundaries of systems.

- On the legal and statutory side, Delimara 4 would expect to be in regular contact with both OHSA and ERA, mainly in the form of submission of routine reports but also to arrange safety related inspections e.g boiler inspection, unfired pressure vessels inspections, and so on.

This communication would normally be expected to occur between the Technical Services Manager and the competent authorities' representatives, although Operations and Maintenance Managers as well as Senior Authorised Persons will also communicate and exchange information from time to time as appropriate.

- The Government Gazette will be consulted at last monthly by Technical Services Department to ensure that the Station is made aware of any changes or additions to the body of legal and statutory regulation with which it must comply. This information gathering is an essential part of legal and statutory compliance.
- Contractors will feature prominently in the task of managing Health & Safety at Delimara 4, and a special Contractors' Safety Procedure D4-41-DP-007 has been prepared for this purpose.

Contractors wishing to be considered for work at Delimara 4 must first read, understand and undertake in writing to abide by this procedure. In this way, and unless they lose the status through unacceptable safety performance, they become Safety Approved Contractors and eligible to work at Delimara 4.

Contractors will be audited on their safety performance and the results communicated to them, with the requirement that they engage and address and non-conformances or improvement opportunities highlighted. In addition, some specialised contractors will be required to conform to specific standards and/or codes of practice.

- Communication with suppliers in relation to safety may take the form of additional terms and conditions to purchase orders above the standard commercial terms. An example of this would be chemicals suppliers who must provide Material Safety Data Sheets with the products they supply.
- Communication and exchange of safety information will take place with ESB International Head Office in terms of the reporting of safety performance and

Accident/Incident Reporting from Delimara 4 to Head Office and the communication of Safety Alert Notifications from Head Office to Delimara 4 when the occasion arises. Additional intra-company communication takes place on a quarterly basis when ESB International's overseas locations engage in a safety shared-learning teleconference to discuss Health & Safety topics and events which have occurred and from which the sharing of experience can be beneficial to all.

Emergency Response Protocols

It is important that communication protocols exist in the event of emergencies, when both staff and external agencies must know how to expect important information to be imparted, by whom, to whom and in what form.

The Delimara 4 Emergency Response Procedure D4-43-DP-001 covers this in some detail.

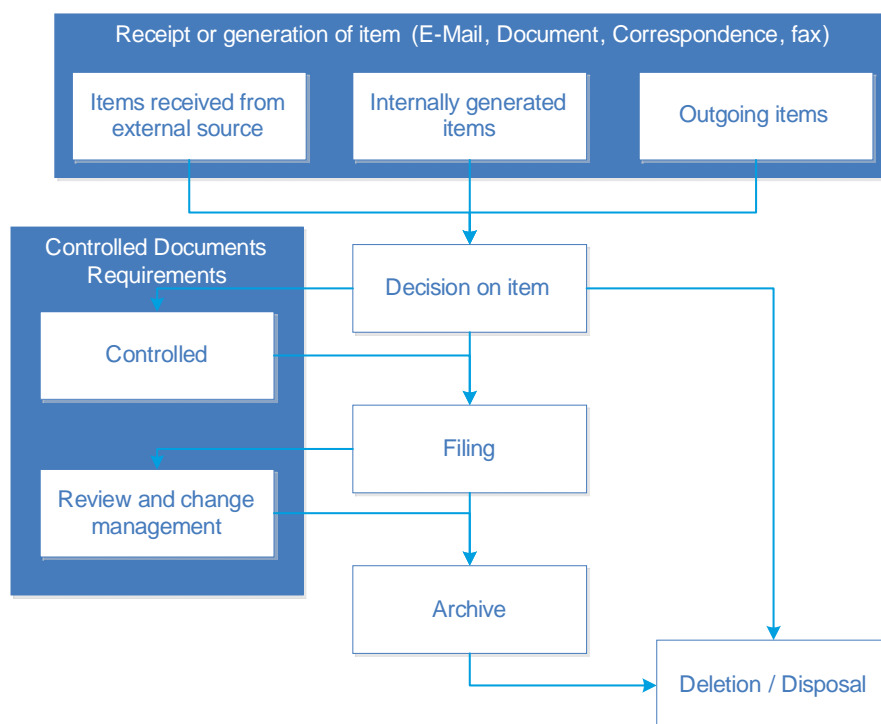
7.5 Documented information

7.5.1 General

The procedure Communications, Document & Data Control, D4-00-DP-002, has been created to govern the management of correspondence and documentation, including communication through formal meetings, briefing notes, etc., and seeks to ensure such items are controlled, traceable and accessible, as appropriate.

The integrated business information management system will record all the documents required across the ISO 45001 / 9001 / 14001 and 55000 standards and will be managed in SharePoint.

The procedure is described graphically in the figure below;



7.5.2 Creating and updating

Documents created within the organisation will follow the format and identification methods described in the procedure BMS Document Naming & Numbering, D4-00-DP-001.

Certain items are subject to specific restrictions and additional measures for issue and to ensure they are up to date. These items are termed “Controlled documents” and shall be stored in the Business Management System (BMS) part of the Delimara 4 IMS.

Controlled Documents shall only be kept on the BMS, any printed copies shall not be valid. As stated in D4-00-DP-001 Document Naming and Numbering, the following Meta Data must be correctly selected for each document:

- Document owner number
- Document type indicator
- Issue date
- Review date
- Document revision number
- The Standard the document is related to
- If the document is live or being retired.

7.5.3 Control of documented information

The procedure Communications, Document & Data Control, D4-00-DP-002 (see diagram in 4.5.1 above) sets out how documented information required by the Health & Safety Management System is controlled to ensure its integrity and availability.

8. Operation (ISO 45001: 2017, 8)

8.1 Operational planning and control

8.1.1 General

In section 6 above (ISO 45001:2017, clause 6), it was explained how ESB International and Delimara 4 would plan to identify hazards and risks, assess risks, identify opportunities, identify and set objectives for the Health and Safety Management System, and plan to achieve these objectives.

Operational planning and controls will be established and implemented to improve health and safety and to eliminate hazards or, where elimination is not practicable, to reduce risk to the level of ALARP for the processes necessary to meet the requirements of the Standard and to implement the actions identified in Clause 6.

The criteria are to ensure that each of the processes will be free of undesired effects and completed in a safe, effective and efficient manner.

Operational control of the processes will be achieved by using control options with the highest reliability in preventing work-related injury or ill-health:

- The mandatory ESB International Safety Rules (Electrical & Mechanical) as described in section 4.3. The Safety Rules Danger deal with danger inherent in the System arising from the design function of the Plant and Apparatus, and this philosophy requires that the Safety Rules, when implemented, will achieve the safety of personnel at work from these inherent dangers at the commencement and during the course of work. The rules do not deal with General Safety.
- The Safety Rules are supplemented by Safety Rules Procedures, Codes of Practice and Notes of Guidance.
- General Safety deals with danger arising from the environment at and in the vicinity of the work point and not associated with the System. Procedures and local safety instructions are provided and must be complied with.
- All Power Station assets are described and identified in the MAXIMO asset management system. All work is issued through MAXIMO, which is integrated with the NiSoft Eclipse safety management system. Risk Assessments and Safety Documents are an integral and essential before plant is released and work is allowed to proceed.
- Where appropriate, work Orders from the MAXIMO system will come with a set of Work Instructions, which may incorporate safety requirements for a particular task.
- No worker will be asked to perform a task for which he/she does not possess the appropriate training or competency. Individual training records are held for

each staff member and a “competency matrix” has been developed for Delimara 4 Operations and Maintenance.

- Based upon OEM (original equipment manufacturer) manuals, manuals supplied by the EPC Contractor, and ESB International best-practice experience, planned/preventive/predictive maintenance tasks have been developed. As with Corrective Maintenance, these PM tasks issue through the MAXIMO system at the appropriate intervals.
- When ordering spares and materials, care is taken to ensure that the engineering data and specifications held in the MAXIMO database are used to ensure that items ordered are to the correct specification. For new orders of previously unpurchased or un-stocked items, the accuracy and appropriateness of item specification will be verified through the tendering, purchase requisition, and purchase order approval process.
- Only contractors who have demonstrated their health and safety bona-fides and who are included on the List of Safety-Approved Contractors will be permitted to work on the Delimara 4 Power Station site. A dedicated Contractor Safety Procedure and Safety Checklist have been developed, with which contractor compliance is mandatory.
- As a prudent Operator, ESB International operates and maintains plant and equipment in compliance with the manufacturer’s instructions and recommendations. Where safety mechanisms are included on machinery or plant, great care is taken to ensure that their ongoing satisfactory operation by means of regular testing, prompted by MAXIMO PM tasks.
- As a general rule, the hierarchy of controls will be employed when developing operational controls of processes, and this may often comprise both engineering and administrative aspects.
- The possibilities to adapt work to workers are limited. The overall process is a three hundred and sixty five day a year, twenty-four hours a day operation, and the product is electrical energy rather than a tangible, physical item capable of storage or movement. The System is inherently dangerous and requires the strictest compliance with Safety Rules and procedures.

Workers are encouraged to give their feedback on the organisation of work and work safety, so if there are improvements to be found, these will, after assessment, be implemented.

Care is taken to ensure that workers are properly trained and that they possess the necessary competencies. New entrants to site (e.g. contractors and visitors) are given a safety induction to make them aware of the hazards pertaining at Delimara 4.

There should not be any situation where the absence of documentation could or would lead to deviations from Health & Safety policy or objectives. On the basis that *“if it isn’t written down, it never happened”*, great care is taken to record and to maintain records, and to ensure that these records are available for inspection should the need ever arise.

The Delimara complex is somewhat unusual in having Enemalta the owner of the overall site and running its generation and grid control there, with the EGM complex within this geographical area and composed of three separate but interlinked functions (FSU, Re-Gas and Power Station). Some of the Power Station areas of responsibility reside physically inside the area controlled by Enemalta and part of the equipment for which the Re-Gas operator is responsible lies inside the area of responsibility of the Power Station operator (ESB International).

There are a number of service terminal points (see section 4.3) where one of the entities gives services to or receives them from one of the other entities.

All these interfaces between the various entities are managed through formal arrangements for operating across system boundaries.

In terms of emergency response, the emergency plans of each entity, while serving the interests of their own personnel and areas of responsibility, will also overlap both horizontally and vertically for both operational reasons and to ensure compliance with COMAH/Seveso regulations.

ESB International will ensure the effectiveness of the operational controls are monitored, measured, analysed and evaluated. Where non-conformances or improvement opportunities are identified, the necessary actions will be planned, assessed and implemented using the processes already described.

8.1.2 Hierarchy of controls

ESB International will consider the most effective control measures to minimise risks and implement those considered appropriate to the risks. Using the hierarchy of control, the following are the control measures:



The documented procedure Hazard Identification, Risk Assessment and Risk Control (HIRARC), D4-41-DP-003 explains this in detail.

8.2 Management of Change

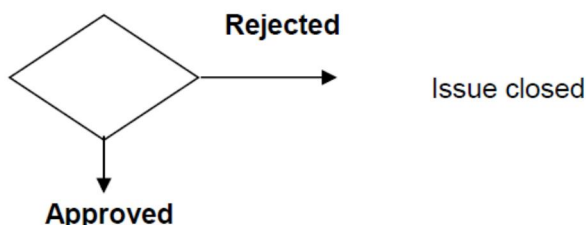
The Plant Modification Procedure, D4-41-DP-004 has been implemented to provide the Delimara 4 management team with a system for evaluating and approving technical changes, including associated hazards and risks.

This document applies to all new and existing plant, apparatus and systems installed and operated at Delimara 4.

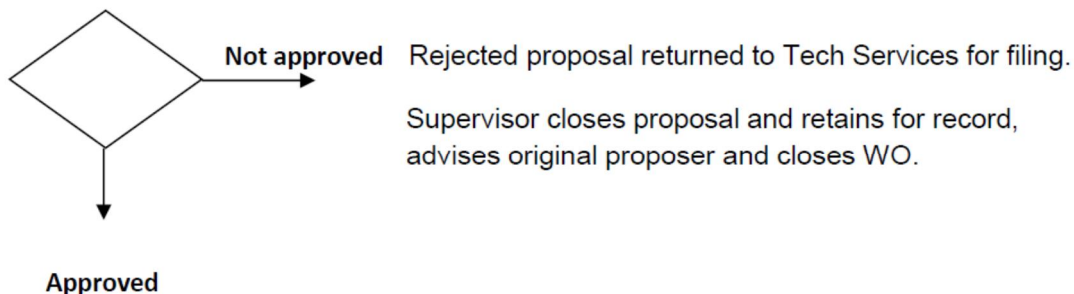
The process flow is outlined in the diagram below –

Modification process flow diagram

1. Modification Owner discusses with appropriate Manager/Supervisor and raises WR.



2. Modification Owner raises plant modification proposal, obtains registration number from Technical Services, and conducts HIRARC
3. Technical Services scans all documents and places them on the IBMIS.
3. Modification Owner circulates proposal to appropriate Managers/Supervisors etc. for review and comment.
4. Proposal returns to Modification Owner for assessment of comments etc. received during circulation.
5. Modification Owner makes any necessary amendments and forwards to Plant Manager for approval



6. For overlapping interests, Plant Managers of Delimara 4 and other affected Delimara operations agree.



7. Plant Manager returns approved proposal to Tech Services and advises the Modification Owner to implement the modification.

8.3 Outsourcing

ESB International at Delimara 4 has put in place procedure D4-30-DP-003, Qualification of Suppliers and Contractors, which explains how contractors, suppliers and service providers are assessed and evaluated prior to their inclusion on the respective Lists of Qualified Contractors (D4-20-FC-003) and Qualified Suppliers (D4-20-FC-004) respectively.

Qualification of Suppliers and Contractors Questionnaire, D4-30-FC-001, is used for the formal evaluation process.

Contractors, Suppliers and Service Providers may be Qualified on the basis of previous experience in supplying goods and services to Delimara 4. The form Qualification of Suppliers & Contractors; Evaluation from known Performance, D4-30-FC-002, shall be used to record this process.

Contractors must, in addition, comply with the Contractor Safety Procedure, D4-41-DP-007 and become Safety Approved. Safety Approved Contractors are listed in the document D4-41-FC-016.

At the discretion of the Plant Manager, Original Equipment Manufacturers and their approved agents may be exempted from the need for “qualification” on the grounds that these have been qualified during the Project phase. This exemption would be confined to the provision of spare parts for the original equipment or supply of the same type of equipment.

8.4 Procurement

The procedure Procurement of Goods and Services, D4-20-DP-002, has been established to describe how ESB International will manage and govern procurement. This document defines the procedures and controls applicable to the placement of orders for materials, maintenance and services contracts, which will be implemented.

The objectives of this procedure are:

- To control purchases of goods and services
- To ensure the goods and services are suitable for the intended purpose
- To ensure value for money is obtained when procuring goods or services
- To ensure proper documentation is maintained to record the process of each procurement

It covers the following:

- Power Station spares
- Chemicals
- Lubricating Oils
- Other Materials Orders (Non Stores)
- Maintenance & Service Contracts
- Other Service Contracts as required by needs of the Power Station

Suppliers and contractors must be pre-qualified (see reference to procedure D4-30-DP-003 in 8.3 above).

Procedure D4-30-DP-004, Receipt of Incoming Goods and Materials, has been put in place to detail the process for receiving, checking and placing items into storage at Delimara 4.

It is intended that separation between the function of handling received materials and that of finance and administration of order processing is maintained according to good practice. This protects the individual, ESB International and ElectroGas Malta Ltd.

Items delivered to the Power Station Stores are subject to quality assurance checking, using form D4-30-FC-004, Quality Plan for Incoming Goods and Materials.

In addition, there is a separate process for the Control of Incoming Substances Hazardous to Health. This ensures that MSDS (Material Safety Data Sheets) are supplied for such items and involves assessment by the Station Chemist and approval by the Nominated Safety Engineer before release to be issued for use at the Power Station.

8.5 Contractors

Contractors are pre-qualified using the procedure D4-30-DP-003 and may not be offered contracts for work at Delimara 4 until they commit to the Contractor Safety Procedure D4-41-DP-007 and are added to the List of Safety Approved Contractors D4-41-FC-016.

A Contractor Safety Checklist D4-41-FC-017 must be satisfactorily completed before Safety Documents will be issued and contractor work is allowed to proceed.

Except in cases where a contractor employee has been trained and has been authorised as a Competent Person under the ESB International Safety Rules (Electrical & Mechanical) D4-42-DP-001, contractor staff are supervised by a Delimara 4 Competent Person.

The procedure D4-20-DP-002 exists to describe the controls on Procurement of Goods and Services.

8.6 Emergency Preparedness and Response

The Delimara 4 Emergency Response Plan D4-43-DP-001 (which takes into account the Emergency Plan developed by AECOM for the ElectroGas Malta site as a whole – see table below), identifies likely emergency scenarios and provides instruction on actions to be taken in event of emergencies.

Reference	Designation	Contents
ENEM-AEC-E0-00-RP-SE-00013	General Data	Environment Site and Installations Process Dangerous Substances
ENEM-AEC-E0-00-RP-SE-00014	Alert and Evacuation	Emergency Alert and Immediate Actions Evacuation Procedure
ENEM-AEC-E0-00-RP-SE-00015	Detection, ESD and Fire Fighting Systems	Fire, Spill and Gas Detection Systems Emergency Shut-Down Systems Fire Fighting Systems External Fire Fighting Resources
ENEM-AEC-E0-00-RP-SE-00016	Roles and Responsibilities	Normal Operating Organization Emergency Control Systems Roles and Responsibilities Off-site Emergency Organizations Incident Reporting Requirements
ENEM-AEC-E0-00-RP-SE-00017	Emergency Response Scenarios	LNG Spill, Gas Release and Fire Scenarios FSU Specific Scenarios Medical Response Bomb Threat or Discovery of an Explosive Device Breach of Site Security Earthquake
ENEM-AEC-E0-00-RP-SE-00018	Emergency Drills	Training Requirements Periodic Drills

Station Operations personnel regularly review emergency situations as part of their normal work in order to maintain awareness and identify the best means of responding to incidents.

Delimara 4 will seek to liaise closely with the emergency services and involve them in the planning and execution of emergency response exercises, which will take place at least annually.

The Delimara 4 Power station site lies within the overall EGM complex, which also contains the Re-Gas and Floating Storage Unit (FSU). The FSU and Re-Gas facilities are operated by their own respective O&M organisations. The EGM site has an upper-tier COMAH/Seveso rating because the volume of LNG stored at the FSU constitutes a Major Accident Hazard

The EGM site in turn comes within the Enemalta site, which is also a COMAH site itself, based upon its volume of distillate storage.

Proximity to such major hazards outside the control of the Delimara 4 operator will be carefully considered both internally and in cooperation with the other operators at Delimara.

9. Performance evaluation (ISO 45001:2017, 9)

9.1 Monitoring, measurement, analysis and evaluation

9.1.1 General

The process used for monitoring, measuring and evaluating Health & Safety Management system performance is described in document D4-00-DP-004, Performance Measurement. This results-based process will be used across the business.

The following shall be determined;

- (a) What needs to be monitored, e.g. Progress on meeting Health & Safety policies and objectives, legal and other requirements, effectiveness of operational controls, hazards and risks
- (b) The criteria against which performance can be measured by reference to KPIs and gap analysis
- (c) M&E methods employed so as to ensure validity of results
- (d) Strategically deciding what will monitored and how
- (e) Strategically deciding what will be evaluated and when, including stakeholder involvement and timely dissemination of the results

Calibration and verification is dealt with under the Maintenance Department procedure D4-30-DP-005, Inspection, Measuring, Monitoring & Test Equipment.

Following the Performance and Evaluation procedure, there are five steps involved in evaluating Health & Safety performance as follows;

- Step 1: Clearly identify what the health and safety objectives are.
- Step 2: Develop performance measures which indicate achievement of these objectives.
- Step 3: Collect information on these measures of effectiveness.
- Step 4: Analyse the results and decide upon improvements.
- Step 5: Implement changes and start again.

Step 1, Identifying Health & Safety Objectives

With reference to the Performance and Evaluation procedure, the desired objectives or goals are referred to as Outcomes.

The primary desired outcomes for the Health & Safety Management Systems are –

- Meeting the legal and other requirements applicable at Delimara 4 and
- Maintaining, as far as is practicable, a safe working environment for employees and contractors

To evaluate performance, the organisation will look at what it is doing to achieve these Outcomes.

The desired Outcomes will be achieved through, among others, through

- effective management with commitment and personal involvement at all levels of the organisation;
- work planning and control, so hazardous situations and conditions are avoided;
- facilities, equipment, education and training, to ensure healthy and safe working conditions and methods

To evaluate the Health & Safety Management System against these objectives, for example, it will be necessary to see what programs have been put in place to meet them e.g. training will be provided, so it is necessary to see how well training is contributing to ensuring “healthy and safe working conditions and methods”.

Here, facilities, equipment, education and training are inputs, healthy and safe working conditions and methods are the Output and the desired Outcomes are those defined above.

Other more specific objectives relate to strategies, commitment, roles and functions e.g.

Strategic goals:	Health and safety strategies will be developed annually to improve health and safety performance.
Commitment and responsibility goals:	Personal commitment to health and safety will be demonstrated at all levels.
Work environment goals:	Health and safety practices and procedures, and the work environment, will be regularly reviewed

Part of the evaluation of these goals will be to determine whether the arrangements have been made as committed to e.g. are the health and safety strategies being developed annually?

Evaluation will also include an assessment of how well these Outputs are contributing towards the Outcomes. Each individual strategy will be examined and a determination made as to how well it is achieving the aim of improving health & Safety performance.

The question of meeting legal and other requirements is dealt with in section 9.1.2 below.

Step 2, Developing performance measures

The second step involves the development of measures which will indicate progress towards achieving aims and objectives. These measures may be stated in objectives, or built into the health and safety programs established.

Whatever indicators are chosen to measure performance, they will be put in place beginning, when the objective, plan or program is established.

Long-term as well as short-term measures of performance will be sought. Measures to look at overall management of health and safety and to look at individual strategies and programs will be employed.

Short term measurements, long term indicators, quantitative measures, qualitative measures as well as measures of timeliness will be required.

Measures will yield information about the program or activity being evaluated e.g. for an objective to reduce the number of lost time injuries, then injury and illness records will be used to measure if this is being achieved, and by how much (quantitative measures).

Some short term measures include: an assessment of whether your plans are being implemented; the proportion of health and safety grievances which were resolved successfully at shop-floor level; and any reduction in the number of health and safety grievances.

The main aim of the health and safety management system is to reduce work related injury and illness. Some of the changes that take place in the workplace to achieve this goal may not show up in the short term. Long-term indicators therefore include: injury and illness rates; incidence of gradual onset injuries; and the hidden costs of injury and illness.

Quantitative measures are measures available from health and safety records. They include: the number of incidents; the number of employees trained; the number of work procedures developed, and the number of hazards identified and eliminated.

Qualitative measures give more information about the numbers, and are helpful in analysing the success and failure of particular strategies. Qualitative measures include: the types of issues being raised by employees and health and safety representatives; employees' level of awareness of the health and safety policy; how the health and safety performance is being taken into account in the performance assessment of supervisors and managers; and evidence that management is leading by example.

An important aspect of effectiveness is whether the activity happened in a timely way. Measures of timeliness include: whether the training timetable is being followed; whether the timetable for implementing the strategies is being observed; the response time for corrective action on inspections; or maintenance requests being handled promptly.

It will be necessary to plan the measures to be used when the respective programs or strategies are being set up e.g. to establish ways of collecting records about injuries and illnesses and to ensure that incident reporting is conducted as required.

Step 3, Collecting information on measures of effectiveness

Once it has been decided what measures to use, it will then be decided how this information will be collected, how often it will be collected, and who will collect it. These decisions will depend on the program or strategy being evaluated and the types of measures to be collected.

Information will be collected by reference to KPIs, the Register of Legal & Statutory Requirements, specifically constructed routine PM tasks, checklists and audits, among others.

Health & Safety KPIs (which will change and develop over time) are

- | | |
|---|-----------------------|
| <ul style="list-style-type: none"> ▪ Number of LTIs ▪ LTI Frequency Rate ▪ Minor Injuries ▪ Minor Injuries Frequency Rate ▪ Near Miss / Incident ▪ Near Miss / Incident Frequency Rate ▪ Percentage of Incident/Near-miss reports satisfactorily closed out ▪ Good Catch ▪ Percentage of managers/workers with acceptable OSH training (ref Competency Matrix) ▪ Number of workplace inspections carried out ▪ Number of Safety Audits completed ▪ Number of unsafe behaviours recorded in behavioural safety audits ▪ Percentage of OSH CM jobs completed on target ▪ Percentage OSH PM jobs completed on target ▪ Percentage completion of Safety Improvement Plan ▪ Percentage staff OSH suggestions responded to ▪ Percentage of Scheduled Safety Committee Meetings held ▪ Percentage attendance at Safety Committee Meetings ▪ Percentage Contractor Safety Performance Evaluations up to date ▪ Percentage scheduled safety training completed | <p>How often this</p> |
|---|-----------------------|

information is collected will vary according to the nature of the measures, and the

system or strategy being evaluated. For example, some indicators relating to training will need to be assessed at the end of every training course. The overall performance of the Health & Safety Management System may only need to be assessed annually.

Whatever the respective timetable, information will be collected regularly so that changes can be identified.

Depending on what is being monitored and evaluated, evaluation teams may receive health and safety performance information from a work area or location. It may also be collected on a health and safety system operating throughout the workplace. In both cases the role or function of collecting the information will be clearly allocated.

In specific locations, supervisors or line managers can collect information on the areas under their control. Small workgroups or teams can collect information on their own area.

It is considered essential that stakeholders e.g. the Health and Safety Committee and Health and Safety Representatives should be involved in evaluation.

Step 4, Analysis results and deciding on improvements

Measurement is not an end in itself. It is necessary to analyse these records and to understand the information so it can be used to identify improvements to both the Health and Safety Management system as well as particular strategies.

The results of monitoring and information collection will show whether a strategy is achieving its objective (desired Outcome), or if performance is up to the standard set. If the desired Outcome has not been achieved or the desired improvement target has not been met, then the information collected will be examined to determine the reasons. This will help to identify and arrange improvements or changes to the objective or strategy.

If a strategy is not working, there are a number of questions to ask and it is important that these are addressed critically and without preconceptions;

- Was the objective realistic and achievable?
- Is the objective relevant to current technology and values?
- Was the strategy implemented as planned?
- Was there adequate training, information and understanding of the strategy?
- Were there resources available to implement the strategy?
- Did work organisation allow the strategy to work?
- Was responsibility for implementing the strategy allocated?

- Are the responsibilities understood?
- Did the information you collect accurately measure performance of the strategy?

The information gleaned from this analysis will be used to fine tune strategies, to reset standards and to identify areas of Health and Safety needing more systematic management.

Step 5, Implementing change and restarting the process

Once improvements to the Health and Safety Management System have been identified and agreed with stakeholders, the results will be made known and corrective action implemented.

Follow-up corrective action will be taken promptly to demonstrate management commitment to health and safety.

New or improved strategies will be implemented and then the evaluation process will begin again, using any lessons, mistakes and achievements to help the process. Effective evaluation is a continuous cycle of action, analysis and change.

9.1.2 Evaluation of compliance with legal and other requirements

ESB International has established a Register of Legal and Statutory Requirements, and Compliance document reference D4-41-RD-001, which sets out each clause in each piece of main and subsidiary legislation with which compliance is required at the Delimara 4 Power Station, states how compliance is demonstrated and who is individually responsible in each case.

A process of gap-analysis will be applied to this register to identify shortcomings and non-compliances, and while a number of gaps may be expected at the outset, the objective will be to close these quickly and completely.

It is anticipated that once gaps have been closed, the frequency with which this register needs to be revisited will decrease and monitoring and evaluation can be conducted by examination of PM tasks completed with adequate history written, and by auditing, where non-conformance reports and accompanying MAXIMO Work Requests will be generated and tracked to completion. The Performance and Evaluation procedure D4-00-DP-004 will be applied.

On a monthly basis, the Malta Government Gazette online will be consulted to determine whether there is any new legislation or modification to existing laws or regulations requiring action. This activity will be prompted by a MAXIMO PM task and closed with history written.

Because Delimara 4 uses a common integrated business information management system across the ISO 45001, ISO 9001, ISO 14001 and ISO 55000 Standards (see sections 1.4 and 6.1.3 above), legal and statutory requirements will always be taken into account in the maintenance and improvement of its Health & Safety and other business systems.

Other requirements arise from e.g. ESB International's client, ElectroGas Malta Ltd. Procedure D4-00-DP-004, Determination and Review of Customer Requirements and Satisfaction has been prepared to manage this process, and will also be used for other stakeholders with whom ESB International acts as a representative of EGM and to whom it has Health & Safety obligations.

Similarly, requirements arise from contractor safety management, ref procedure D4-41-DP-007, and so on.

9.2 Internal Audit

The Internal Audit Procedure D4-00-DP-005 describes the methodology used by ESB International for Internal Auditing across the Delimara 4 integrated management system as part of the performance monitoring and evaluation process.

The exception to this procedure is for specialised audits of the ESB International Safety Rules (Electrical & Mechanical), D4-42-DP-001. Safety Rules audits are carried out using procedure D4-42-DP-008, Safety Rules - Audit of Safety Rules.

Internal Auditors will be trained to IRCA Internal auditor standards, and the Production Manager (ESB International Nominated Safety Engineer) will act as the Health & Safety Manager. As such, he will be responsible for the preparation of the audit schedule and plan and for ensuring that the audit procedure is followed and that Internal Audits are properly reported to the Management Review.

When planning Internal Audits, ESB International will take into consideration the processes having priority in terms of the Health & Safety Management System, including the impact those processes may have on the outcomes of Risk Assessments.

Non-Conformances arising from audits will be linked to MAXIMO Work Orders so that responsibility and their progress to closure can be more easily monitored.

Typical subjects for Internal Audits will be –

- Legal and statutory requirements
- Management's Health & Safety priorities as identified from other parts of the performance monitoring and evaluation processes
- Health & Safety procedures, policies and codes of practice
- Risk assessments of both work processes and the Health & Safety Management System itself
- Contractor Health & Safety performance
- Follow-up from previous audits

- Incidents, non-conformities and corrective/preventive actions
- Staff involvement and participation
- Customer and other stakeholder requirements
- Progress towards the desired outcomes of Safety Improvement and other plans designed to deliver continual improvement

9.3 Management Review

The procedure D4-00-DP-009, Management Review, describes how the management review process will be managed across the integrated business management system, including the Health & Safety Management System.

Management review shall, at regular intervals, and with proper planning, review the Health & Safety management System to ensure its continuing suitability, adequacy and effectiveness.

Management review of the Health & Safety Management System shall include, but may not be limited to the following –

- (a) The status of actions from previous management reviews
- (b) Changes in internal and external issues relevant to the Health & Safety Management System including;
 - 1) Legal and other requirements
 - 2) Health & Safety risks and opportunities
- (c) The extent to which Health & Safety policy and objectives have been met
- (d) Information on health & Safety Management System performance including trends in;
 - 1) Incidents, non-conformities, corrective actions, and continual improvement
 - 2) Worker participation and outputs of consultation
 - 3) Monitoring and measurement results
 - 4) Audit results
 - 5) Results of evaluation of compliance
 - 6) Health & Safety risks and opportunities
- (e) Relevant communications with interested parties
- (f) Opportunities for continual improvement
- (g) Adequacy of resources for maintaining an effective Health & Safety Management System

Outputs from the Management Review shall include decisions related to –

- Conclusions on the continuing suitability, adequacy and effectiveness of the Health & Safety Management System
- Continual improvement opportunities
- Any need for changes, including resources
- Actions needed, when objectives have not been met.

These outputs will be communicated to relevant stakeholders and workers representatives e.g. the Safety Committee.

The process will be properly documented and records retained.

10 Improvement (ISO 45001:2017, 10)

10.1 Incident, non-conformity and corrective action

The following procedures will apply –

- D4-41-DP-006, Accident/Incident Reporting and Investigation
- D4-00-DP-006, Non-conformance Management
- D4-00-DP-007, Corrective and Preventive Action

In addition, because plant trips or incidents may have a health and safety component, the Plant Trip or Incident Report form, D4-40-FC-003 is also relevant.

The purpose of these procedures and reports is to provide a framework to help ensure that there will be a timely reaction to incidents or non-conformances, resulting in direct action being taken to control or correct it and to deal effectively with the consequences.

When an incident or non-conformance is found, action will be taken to determine its root cause, implement corrective action to prevent recurrence and to examine whether there are other similar incidents or non-conformances that may require proactive action. The Safety Committee and other appropriate interested parties will, as far as practicable, be involved in investigations of accidents or serious incidents/non-conformances. A formal risk-assessment will be conducted, which will assess both the risks themselves and risks as they may apply to the Health & Safety Management System, which may also be changed if this is deemed necessary.

In deciding on corrective any actions, the hierarchy of controls i.e. (a) eliminate the hazard, (b) substitute with less hazardous materials, processes, operations or equipment, (c) use engineering controls, (d) use administrative controls, (e) provide and ensure use of adequate personal protective equipment, will be applied and the Plant Modification Procedure, D4-41-DP-004, will be adhered to whenever changes are recommended. The effectiveness of mitigation measures or changes will be reviewed.

Records of accidents, incidents and non-conformances will be retained and the outcome of investigations and corrective/preventive actions will similarly be maintained and made available to staff and other interested parties.

10.2 Continual improvement

The procedure D4-00-DP-008, Continual Improvement, applies.

10.2.1 Continual improvement objectives

Continual improvement is intended to be a step-by-step approach to gaining improvements in the Health & Safety Management System over time and is therefore an ongoing and unending search for enhancements.

Its objectives are, in collaboration with staff, to prevent as far as possible the occurrence of accidents, incidents and non-conformances, to promote a proactive and positive culture of health and safety in the workplace, and to secure and retain improvements in health and safety performance going forward.

10.2.2 Continual improvement process

In conjunction with the general objectives described above, management will ensure the ongoing implementation of the Continual Improvement procedure and use information gained from Performance Evaluation, Risk Assessments, Incident Reports, and so on to help prioritise and set specific health and safety objectives which can be measured and for which people are held accountable through KPIs, Safety Improvement Plans etc.

Clauses and sub-clauses of the Health & Safety Management System Standard Requirements providing inputs into continual improvement are –

Clause/sub-clause	Description
4	Context of the organisation
5.4	Participation, consultation and representation
6.1	Actions to address risks and opportunities
6.2	OH&S objectives and plans to achieve them
7.4	Information and communication
9.1	Monitoring, measurement, analysis and evaluation
9.2	Internal Audit
9.3	Management review
10.1	Incident, con-conformity and corrective action

APPENDIX A List of O&M Procedures

Integrated Business Management Information System Documents

Loc	Dept.	Type	Seq.	Description
D4	00	BM	001	Business Management System (BMS) Manual
D4	00	PS	001	Safety Policy Statement
D4	00	PS	002	Quality Policy Statement
D4	00	PS	003	Environmental Policy Statement
D4	00	PS	004	Chemical Safety Policy Statement
D4	00	PS	005	Policy Statement on the Prevention and Eradication of Drug, Alcohol and Substance Abuse in the Workplace (DASAPS)
D4	00	PS	006	Asset Management Policy Statement
D4	00	DP	001	BMS Document Naming & Numbering
D4	00	DP	002	Communications, Document & Data Control
D4	00	DP	003	Verification and Approval
D4	00	DP	004	Performance Evaluation
D4	00	DP	005	Internal Audit
D4	00	DP	006	Non-Conformance Management
D4	00	DP	007	Corrective and Preventive Action
D4	00	DP	008	Continual Improvement
D4	00	DP	009	Management Review
D4	00	DP	010	Review of Customer Requirements and Contract Review
D4	00	DP	011	Management and Use of IT Assets
D4	00	DP	012	Business Plans, Targets and Objectives
D4	00	DP	013	Operations and Maintenance Control
D4	00	DP	014	Communications & Stakeholder Management
D4	00	FC	001	BMS Document Template
D4	00	FC	002	Form, Checklist or Template Blank
D4	00	FC	003	Management Instruction Template
D4	00	FC	004	Non-Conformance/Observation Report (NCR)
D4	00	FC	005	Internal Audit Plan and Trail
D4	00	FC	006	Minutes of Meeting
D4	00	FC	007	Delimara 4 Morning Meeting Terms of Reference
D4	00	RD	001	Risk Register
D4	00	SI	001	External Communication, Recording and Dissemination of Audio, Video, and Multimedia Information

D4	05	RD	001	Register of O&M Agreement Annexe B Deliverables
D4	05	RD	002	Register of Operator Responsibilities under the PPA
D4	05	RD	003	Register of Operator Responsibilities under the ECA
D4	05	RD	004	Register of Operator Responsibilities under the SSA
D4	06	RP	001	ESBI Monthly Report to EGM
D4	10	RD	001	Delimara 4 Delivery Receipt Protocol
D4	11	DP	001	Environmental Management System
D4	11	DP	002	Waste Management Procedure
D4	11	DP	003	Environmental Impact Control
D4	11	FC	001	Plant Manager's Monthly Housekeeping Audit
D4	11	FC	002	Location of Waste Bins on Site
D4	11	FC	003	Waste Bins Daily Checklist
D4	12	RD	001	Material Safety Data Sheets Register
D4	20	DP	001	Financial Control Framework
D4	20	DP	002	Procurement of Goods and Services
D4	20	DP	003	Fixed Assets
D4	20	DP	004	
D4	20	DP	005	
D4	20	FC	001	
D4	20	FC	002	
D4	20	FC	003	List of Qualified Contractors
D4	20	FC	004	List of Qualified Suppliers
D4	20	FC	005	Emergency Procurement Form
D4	20	FC	006	Blanket Purchase Order Requisition Form
D4	20	FC	007	Register of Tenders Form
D4	20	FC	008	List of Designated Contractors
D4	20	FC	009	List of Designated Suppliers
D4	20	FC	010	ESBI Standard Letter/Memo Format
D4	20	FC	011	CAPEX Form
D4	20	FC	012	Fixed Asset Write-off/Disposal Form

D4	20	FC	013	Scrap Disposal Form
D4	21	DP	001	Competence, Training & Development
D4	21	DP	002	Probity Policy
D4	21	DP	003	Employee Handbook
D4	21	FC	001	Training & Competency Matrix
D4	21	FC	002	Training Course Approval Form
D4	21	FC	003	Training Course Feedback Form
D4	21	FC	004	Plant Area Familiarisation Form
D4	21	FC	005	Plant Area Knowledge Evaluation Form
D4	21	FC	006	Specific Competence Module Sign-Off Form - Operations
D4	21	FC	007	Specific Competence Module Sign-Off Form - Maintenance
D4	21	FC	008	Specific Competence Module Sign-off Form - Misc.
D4	21	FC	009	My Goals: Targets & Development
D4	21	FC	010	Annual Leave Application Form
D4	21	RD	001	Probity Register
D4	21	RD	002	Register of Persons Competent to Work at Height and Use Personal Fall Protection Equipment
D4	21	RD	003	Register of Persons Competent to Inspect Scaffolding
D4	21	RD	004	Stores Register of PPE Issued
D4	21	RD	005	Register of Specialised PPE
D4	21	RD	006	Register of Persons Competent to Operate Workshop Machines
D4	21	RD	007	Register of Persons Competent to Operate Forklifts
D4	30	DP	001	
D4	30	DP	002	
D4	30	DP	003	Qualificaton of Suppliers and Contractors
D4	30	DP	004	Receipt of Incoming Goods & Materials
D4	30	DP	005	Inspection, Measuring, Monitoring and Test Equipment
D4	30	CP	001	Code of Practice for Hand Tools, Power Tools & Workshop Equipment
D4	30	CP	002	Code of Practice for Use and Maintenance of Grinding Machines & Abrasive Wheels
D4	30	CP	003	Code of Practice for Hydraulic & Pressure Hoses & Fittings
D4	30	FC	001	Qualification of Suppliers & Contractors Questionnaire
D4	30	FC	002	Qualification of Suppliers & Contractors; Evaluation from Known Performance
D4	30	FC	003	Quality Plan for Incoming Goods & Materials

D4	30	FC	004	Control of Substances Hazardous to Health
D4	30	FC	005	Designated Contractor or Supplier Recommendation
D4	31	FC	001	Water Systems Maintenance - Legionella
D4	40	DP	001	
D4	40	DP	002	
D4	40	DP	003	
D4	40	DP	004	
D4	40	DP	005	
D4	40	DP	006	
D4	40	DP	007	Control Systems Logic Forcing
D4	40	DP	008	Operations Department - Daily Dispatch Reporting to Enemalta
D4	40	DP	009	Operations Shift Plant Surveillance Patrolling
D4	40	FC	001	Control Systems Logic Forcing Record
D4	40	FC	002	ESB International Daily Plant Report
D4	40	FC	003	Plant Trip or Incident Report
D4	40	FC	004	Shift Log
D4	40	FC	005	Daily Declaration to Enemalta
D4	40	FC	006	Amended Declaration to Enemalta
D4	41	DP	001	Health & Safety Management System (ref ISO 45001)
D4	41	DP	002	Work Method Statements
D4	41	DP	003	HIRARC Procedure
D4	41	DP	004	Plant Modification Procedure
D4	41	DP	005	Commissioning & Testing of Plant & Apparatus Procedure
D4	41	DP	006	Accident/Incident Reporting & Investigation Procedure
D4	41	DP	007	Contractor Safety Procedure
D4	41	DP	008	Housekeeping Procedure
D4	41	DP	009	Management of Water Systems - Legionella Prevention
D4	41	DP	010	Safe use of Forklift Trucks
D4	41	CP	001	Code of Practice for Working in Confined Spaces
D4	41	CP	002	Code of Practice for Working at Height & Personal Fall Protection Equipment (PFPE)
D4	41	CP	003	Code of Practice for Scaffolding
D4	41	CP	004	Code of Practice for Control of Excavations
D4	41	CP	005	Code of Practice for Ladders, Cranes and Lifting Equipment
D4	41	CP	006	Code of Practice for Hearing Protection and Preservation

D4	41	CP	007	Code of Practice & Specifications for Personal Protective Equipment (PPE)
D4	41	CP	008	UK HSE - Code of Practice for Control of Legionella in Water Systems
D4	41	FC	001	Risk Assessment Pro-Forma
D4	41	FC	002	Work Area Safety Plan Form
D4	41	FC	003	Area Risk Assessment Pro-Forma
D4	41	FC	004	General & Confined Space Medical Examination
D4	41	FC	005	Plant Modification Proposal Form
D4	41	FC	006	Plant Documentation / Software Amendment Form
D4	41	FC	007	Plant Modification Safety Record Sheet
D4	41	FC	008	Plant Modification Tracking Record
D4	41	FC	009	Installation of Plant & Apparatus Checklist
D4	41	FC	010	Incident / Near Miss Reporting
D4	41	FC	011	Behavioural Safety Audit Form
D4	41	FC	012	OHSA Accident Notification Form
D4	41	FC	013	Internal (Delimara 4) Minor Accident/Incident Report Form
D4	41	FC	014	ESB International LTI Notification Form
D4	41	FC	015	ESB International P1 Accident / Incident Report Form
D4	41	FC	016	List of Safety-Approved Contractors
D4	41	FC	017	Contractor Safety Checklist
D4	41	FC	018	Request for Contractor Safety Induction Training
D4	41	FC	019	Contractor's Health & Safety Performance Assessment
D4	41	FC	020	Personal Fall Protection Equipment Logbook Template
D4	41	FC	021	Personal Fall Protection Equipment Examination Certificate
D4	41	FC	022	Lanyard and Harness Details
D4	41	FC	023	Lanyard Pre-Use Inspection Check-Sheet
D4	41	FC	024	Harness Pre-Use Inspection Check-Sheet
D4	41	FC	025	Toolbox Briefing (Toolbox Talk)
D4	41	FC	026	Construction of Scaffolding Checklist
D4	41	FC	027	Scaffolds in Use Checklist
D4	41	FC	028	Dismantling of Scaffolds Checklist
D4	41	FC	029	Work Method Statement Pro-forma
D4	41	FC	030	Letter of Appointment to Person Competent to Mount/Dress Abrasive Wheels
D4	41	RA	001	Working at Height Risk Assessment Decision Tree
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Delimara Regas Plant Safety Management System

System (SMS) System Manual

Designation	Responsible
Owner	
Verifier	
Approver	

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Appendix A – List of Procedures for Commissioning Phase

1. Purpose and Scope

1.1 Purpose

This document will set out how the O&M team for the Delimara Regas Plant shall establish, document, maintain and continually improve the Health and Safety Management System. In order to deliver the Company's Corporate Safety Policy, Delimara Regas Plant Management and staff will implement, maintain and regularly review this Safety Management System in full accordance of the requirements of ISO 45001 and Maltese Health & Safety Legal & Statutory requirements.

1.2 Scope

It is the policy of Regas Plant O&M team on behalf of EGM to ensure so far as is reasonably practicable:

- There will be a continual improvement in Safety performance in Delimara Regas Plant.
- Health, safety and welfare at work of all staff and contractors who work in Delimara Regas Plant.
- Safe plant and systems of work.
- A safe place of work with safe access and egress.
- Safe use, handling, storage and transport of articles and substances.
- A safe working environment with adequate welfare facilities.
- The provision of necessary information, instruction training and supervision.
- Our activities do not cause danger to the public or our customers.
- Will comply with relevant legal requirements.

This procedure will cover the following:

- Health and Safety Policy
- Safe systems of work for System derived Hazards & General Hazards
- Details of the implementation and operation of the safety management systems
- Audit Checks and ensuring compliance with the procedure
- Management Review

The Health and Safety Management System will comply with the ISO 45001:2017 requirements for occupational health and safety management systems and the paragraphs and headings from Section 4 of the document onwards will follow the structure of the ISO Standard, as set out in the Table of Contents.

2. References & Definitions

2.1 References

Occupational Health and Safety Authority Act XXVII, 2000, CAP 424 (as amended)
All subsidiary legislation pursuant to CAP 424
All other relevant Legal Notifications and Regulations
Seveso III Directive
COMAH Regulations 2015, LN 179 of 2015

D4-00-PS-001 Delimara Regas Plant Safety Policy Statement
ESB Group Policy and Framework Safety Statement
Delimara Regas Plant Safety, Environmental and General Procedures
Computerised Maintenance Management System (MAXIMO)
Integrated Software Safety Management System (NiSoft Eclipse)
Safety Audit Records
Job Risk Assessments
Work Place Risk Assessments
Chemical Hazard Risk Assessments
Safety Committee Minutes
ISO 45001:2017 (expected to issue Q1/17)

2.2 Definitions

Definitions shall be as described in Section 3, Terms & Definitions, of the above Standard

3. Health & Safety Management System responsibilities

3.1 Plant Manager

It shall be the responsibility of the Plant Manager to ensure that the Safety Management System is defined, agreed between the O&M team and EGM, and that it is regularly reviewed and updated as necessary.

He shall ensure that his management team are fully involved in and committed to the paramount importance which the Regas Plant O&M team attaches to Health & Safety.

The Plant Manager shall ensure that he appoints a Nominated Safety Engineer and that this function has the resources necessary to effectively carry out his duties.

The Plant Manager shall ensure that staff safety representatives are selected and that a Health & Safety Committee representing the views of both staff and management is appointed.

The Plant Manager shall ensure that all the necessary Safety and other Procedures necessary are written, reviewed and approved. Similarly, Local Safety Instructions, Standing Instructions and Work Instructions shall be of a high quality and reviewed as and when necessary.

A Management Review of the Safety System shall take place not less than annually.

3.2 Management Team

The Operations, Maintenance and Technical Services Managers shall support the Plant Manager as described above and shall ensure that their Team Leaders and staff participate fully in ensuring that the aims and objectives of the Safety Management System are met.

The Management team shall ensure that their sections strive for continual improvement and that they are held accountable for their safety performance.

3.3 Employees

All employees, at whatever level in the organisation, have their part to play in supporting the company's Health & Safety ethos.

Employees are encouraged to be pro-active in putting forward ideas for improvement, reporting near-misses and good catches, and being always mindful of both their own safety and that of their colleagues.

4. Context of the organisation (ISO 45001:2017, 4)

4.1 Understanding the organisation and its context

Background

Enemalta awarded the ElectroGas Malta Consortium the gas supply agreement and the power purchase agreement required for Enemalta to achieve a diversified mix of cleaner, low cost energy supply in Malta.

The proposed project includes a CCGT Power Plant, an LNG Floating Storage Unit and an onshore Regasification Unit. These will be built at Delimara Power Station, next to Enemalta's existing power plants.

ElectroGas is required to provide Enemalta with approximately 200 MW of electricity from the new CCGT plant and to supply gas to the existing 144 MW diesel engines, which will be converted to run on Natural Gas.

ElectroGas Malta Ltd., (EGM) has contracted the Regas Plant O&M team to operate, maintain and manage the regas plant on its behalf.

COMAH Regulation

Due to the large amount of LNG stored and handled (> 200 tonnes), ElectroGas' new plant will be an "upper tier" establishment as defined by the Control of Major Accident Hazards (COMAH) Regulations that implement the Seveso III Directive (Directive 2012/18/EU). The Directive has been transposed into Maltese law through the Control of Major Accident Hazards (COMAH) Regulations - L.N. 179 of 2015.

In Malta, the competent Authority is the Occupational Health and Safety Authority (OHSA) together with the Environmental & Resource Authority (ERA) and the Civil Protection Department of the Ministry for Home Affairs and National Security (CPD). OHSA takes the lead in coordinating the administrative actions of the COMAH Competent Authority.

Application of the Seveso III Directive depends on the inventory of dangerous substances, defined using CLP Regulations (classification, labelling and packaging of substances) with the new Seveso III Directive allowing the COMAH Regulations to continue to be applicable.

The main approach of the Seveso Directive remains the same: Identification, Controls & Mitigation. Seveso III Directive has the same component parts: Safety Management of sites capable of producing major accident hazards, Emergency Planning, Land-use Planning & Inspection.

Seveso III covers the consequences for both human health and the environment. The main difference between the new Seveso III Directive and the old Seveso II is in the area of Information to the Public, Access to Justice, Public Participation and Inspection.

The main objective of the COMAH Regulations is to put focus on Major Accident Hazards involving dangerous substances which can cause serious damage or harm to people and/or the environment and that the operator shall prevent and mitigate the effects of those major accidents. “Major accident” means an occurrence (including in particular, but not limited to, a major emission, fire or explosion) resulting from uncontrolled developments in the course of the operation of any establishment and leading to serious danger to human health or the environment, immediate or delayed, inside or outside the establishment, and involving dangerous substances.

Safety Report

The Article 10 of the Seveso III Directive requires that an operator of an upper-tier Seveso type establishment produce a safety report. No significant additional requirements were introduced from previous Seveso II Directive.

The safety report is intended to demonstrate that:

- A Major Accident Prevention Policy (MAPP) and a Safety Management System (SMS) have been put into effect;
- Major accident hazards are identified and necessary measures have been taken to prevent such accidents and to limit their consequences for man and the environment;
- Adequate safety and reliability have been incorporated into the design, construction, operation and maintenance of any installation;
- Internal emergency plans have been drawn up, supplying information to enable the external emergency plan to be drawn up;
- Information for land-use planning decisions has been given.

The safety report includes the following minimum data and information that are specified in more detail in Annex II of the Seveso III Directive:

- Information on the MAPP and on the SMS;
- Presentation of the environment of the establishment;
- Description of the installation(s);
- Hazard identification, risk analysis and prevention methods;
- Measures of protection and intervention to limit the consequences of an accident.

The safety report has been completed by ElectroGas Malta as the operator for the entire site even though it has contracted separate O&M contractors to operate the Power Station, Re-Gas Facility and FSU, respectively.

The Safety Report consists of the following referenced documents:

Reference	Designation	Issued by	Date
ENEM-AEC-E0-00-RP-SE-00005	Description of the Environment	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00004	Description of the Installations	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00003	Hazard Identification	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00002	Consequence Analysis	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00010	Risk Assessment	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00007	Safety of the Installations	AECOM	October 2015

The safety report will be reviewed and, if necessary, updated at least every five years, or at the initiative of the Operator or at the request of the Competent Authority, or in case of a “significant” modification of the establishment, the installation, the storage facility, the process, the nature of dangerous substance(s) or the quantity of dangerous substance(s). The Regas Plant O&M team will advise the Operator, ElectroGas Malta should such modification have taken place.



Complex general layout

DESCRIPTION OF THE INSTALLATIONS

The main components of the project are the Floating Storage Unit and LNG terminal, the Regasification Plant and the Combined Cycle Gas Turbine Power Plant. The area covered by this document is the Regasification Plant within the LNG Terminal.

FSU and LNG Terminal

Liquefied Natural Gas is transferred from LNG carriers to the new Floating Storage Unit through a ship-to-ship transfer system. The FSU is a converted LNG tanker. This tanker has a nominal storage capacity of 125 000 m³. The LNG FSU containment system consists of five independent insulated Moss type tanks made of aluminium alloy and designed for operating at cryogenic temperatures.

The jetty provides safe berthing for the LNG carriers and the FSU in a ship-to-ship mooring configuration. The ship-to-ship mooring system will comprise 8 dolphins. This arrangement allows 180 000 m³ LNG cargo carriers to be moored alongside the FSU.

LNG is discharged from the FSU by dedicated LNG in-tank pumps in each cargo tank. A new liquid header connected to all five cargo tanks is installed for the LNG discharge.

LNG is offloaded from the FSU to the jetty through a marine type unloading arm connected to the new FSU liquid manifold, located at the jetty platform.

LNG is offloaded from the LNGC to the FSU in side-by-side mode (LNGC is moored at the FSU starboard side) through the use of standard flexible hoses for LNG connected to the existing FSU LNG manifold.

The FSU cargo pumps can be used for transfer of LNG between the five FSU cargo tanks, via the main liquid header.

The main purpose of the FSU spray cooling system is to cool down the cargo tanks before liquid LNG is introduced into the tank in order to protect the tank shell against severe thermal stresses. However, the tank must not only be pre-cooled prior to loading in case the tank is initially at ambient temperatures, but spraying may also be required if the tank is partially filled or during loading or offloading should the temperature at the tank equator rise significantly while containing LNG.

Two spray pumps can be used for supply of LNG for spray cooling of the FSU cargo tanks.

The initial cool down of the FSU storage tanks is performed either with LNG supplied from a shore terminal or from an LNG carrier moored side-by-side at site.

Boil-Off Gas (BOG) created in the FSU storage tanks due to heat transfer must continuously be removed from the tanks in order to prevent pressure and temperature increase.

During normal LNG discharge mode, the BOG is sent to the jetty via the two vapour hoses at port side manifold, by "free flow" or through the FSU gas compressors.

During loading operation, where its flow rate increases significantly, the handling of BOG requires the use of the gas compressor for discharge of gas to the jetty and the LNGC via one vapour hose at starboard manifold.

When the FSU is not connected to the jetty due to inclement weather conditions or the onshore Regasification Plant and BOG compressors are out of operation (black-out), BOG can be burned in the new auxiliary steam boiler, dumping the steam to the existing main condenser.

The LNG is stored in the FSU tanks and transferred, as required, to the regasification compound where it is converted back to NG for use in the new Delimara 4 CCGT and/or the converted Delimara 3 Power Plant. The Boil-Off Gas is also recovered, compressed and conditioned to operational pressures for use in the power plants.

The FSU manifold is connected to the jetty receiving manifold by an LNG unloading arm and a flexible hose. The unloading arm is used during normal operation; the flexible hose will be a spare transfer means, when the unloading arm is undergoing maintenance.

The LNG supply pipeline routes LNG from the jetty area to the regasification area, to the LNG Pumps Suction Drum.

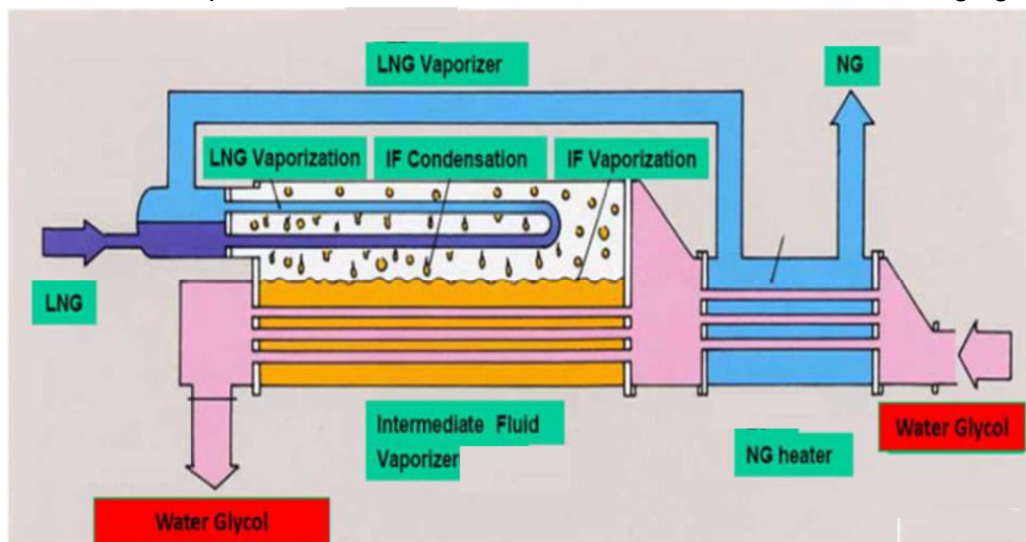
LNG is sent from the suction drum to the HP LNG pumps and the small scale LNG pumps. There are four HP (large scale) LNG pumps and two small scale LNG pumps. The common LNG discharge line from all LNG pumps is then routed to the Intermediate Fluid Vaporizers.

The Intermediate Fluid Vaporizers (IFV) use liquid propane as an intermediate heat transfer fluid, in order to vaporize LNG. The use of propane as an intermediate fluid is to prevent any freezing of the water-glycol mixture if used as the only vaporization fluid of the overall regasification process.

The IFV compound consists of three different types of heat exchangers. In the first one, liquid propane (shell side) is vaporized by absorbing heat from a water-glycol mixture stream (tube side). In the second one, the LNG stream (tube side) is vaporized by the heat from the condensation of the propane vapours (shell side). Condensed propane then flows back to the bottom of the shell and the natural gas produced is then transferred to the trim heater (shell side) where it is heated by the water-glycol mixture (tube side) up to the final required temperature (5°C).

The outlet Natural Gas from the IFVs is routed to the Natural Gas system.

An indicative process flow sketch of the IFV can be seen in the following figure:



The BOG from FSU tanks is transferred to the onshore facilities by two flexible vapour hoses, running between the FSU manifold and the jetty manifold.

The BOG supply pipeline routes BOG from the jetty area to the regasification area, to the BOG compressors, via a knock-out drum.

During normal operation, only one BOG compressor is in operation. During the ship-to-ship unloading, when BOG amount increases, all three BOG compressors may need to operate.

Downstream of the BOG compressors, the common line is connected to the natural gas supply line coming from the regasification compound. The BOG/Natural Gas mixture is then transferred and finally split into two pipes, which respectively supply the new Delimara 4 CCGT Power Plant and the Delimara 3 Power Plant, via their associated Gas Regulating System.

In addition, the Enemalta site within which the EGM complex is located is already a COMAH/Seveso site by virtue of the volume of distillate Enemalta stores for its own activities.

Accidents, incidents or operational problems in any of these areas have the potential to cause negative outcomes in terms of product realisation (the ability to generate electricity), environmental and safety (possibilities of gas leaks or explosions).

It is crucial that the Regas O&M team develops sound procedures for cross-boundary operations and secures good working relationships with the FSU and CCGT operators in terms of environmental and safety planning, especially in the area of emergency response.

As well as being the grid operator and customer for power generated at Delimara 4, Enemalta also provides the regas plant with services such as demineralised water, fire water (both sea and fresh water), potable water, and compressed air. Again, therefore,

for reasons of production, environment and safety, procedures must exist for operations across all relevant boundaries where the actions or inactions of others impinge on the functionality of the regas plant.

The Regas Plant O&M contractor recognises the value of developing a good working relationship with the regulatory authorities such as the Occupational Health and Safety Authority and the Environment & Resources Authority (ERA). This is to ensure the Regas O&M team fully understands and has plans and processes in place to meet all regulatory requirements and codes of practice expected of it.

Many of the services necessary for the effective and efficient running of the Regas Plant will be carried out by external contractors, and as such the Regas Plant O&M team will pay close attention to contractor safety and has developed specific procedures in this regard.

Internally the Regas Plant O&M team will have a strong safety culture both at Delimara and throughout the organisation worldwide and has developed its processes and procedures over time to reflect best practice. From the Chief Executive downwards, safety is the number one priority in all the company's activities. At local level, the Plant Manager ensures that this is reinforced through his management team and by the active involvement and participation of staff.

The Regas Plant O&M team is committed to ensuring that the resources necessary for successful operation of the Regas Plant Health & Safety activities are provided and that personnel are trained and competent to carry out the tasks required of them.

The Regas Plant O&M team has, over many years and at several locations, built up and developed internal standards, codes of practice, processes and procedures, which ensure that it achieves best international practice. Where company procedures are more stringent in their demands than local legislation, then those company policies will be used to complement and strengthen the protection given.

The Regas Plant O&M team will take cognisance of the EU's Working Time Directive (2003/88/EC) and will consult fully with staff in the setting of working hours and shift patterns.

The Regas Plant O&M team has a Safety Policy Statement, document reference RGU-00PS-001, approved by the Plant Manager, which is available to all staff.

4.2 Understanding the needs and expectations of workers and other interested parties

The Regas Plant O&M team recognises that there are legitimate needs and expectations placed on the company with regard to its Health & Safety Management System.

Needs and expectations of interested parties are not necessarily requirements of the organisation. There is a distinction between these needs and requirements such as:

- Mandatory requirements; laws, regulations, corporate requirements, provisions of collective agreements that relate to the health and safety of workers where these are given legal effect;
- Commitment requirements; voluntary commitments to interested parties to which the organisation subscribes e.g. rules, guides and technical references
- Other requirements to which the Regas Plant O&M management voluntarily subscribes that relate to the Health & Safety Management System.

The needs and expectations from interested parties only become obligatory requirements if the company chooses to adopt them. Once adopted, they become requirements and will be considered in the planning and operation of the Health & Safety Management System.

Internally the Regas Plant O&M Management will determine the needs and expectations of both managerial and non-managerial workers relative to the Health & Safety Management System, the latter through the Workers Safety and Trade Union Representatives.

The Regas Plant O&M head office organisation maintains an active involvement in the Health & Safety activities and performance of all its home and overseas locations, with regular monthly safety reporting against a company-wide format for the analysis of safety statistics.

The company has clear policies on reporting of accidents and incidents, with high priority (P1) incidents coming to the notice of the Chief Executive within twenty-four hours – or sooner if necessary.

The Regas Plant O&M team will work closely with EGM to ensure that the views of its management, the owners and other interested parties in and related to the owner's consortium are fully taken into account.

Externally, the Regas Plant O&M team will deal with the legal and regulatory authorities e.g. OHSA and ERA on an ongoing basis and will seek to inform and to involve them in whatever aspects of Health & Safety Management they express an interest in, as well as seeking their advice and guidance as required.

Suppliers and contractors need and are entitled to expect clarity in the terms under which they do business with the Regas Plant O&M team and EGM.

Working with contractors will be a regular and ongoing activity at the Regas Plant, and the O&M team will include in its Health and Safety Management system the necessary procedures and documentation to manage contractor selection and safety performance. Contractors will be selected based upon their “safety-approval” status being maintained and only “Safety-Approved” contractors will be engaged. A separate and distinct procedure, Contractor Safety Procedure, will be made available to every prospective contractor and their written agreement to comply with this procedure is mandatory. Contractors (and sub-contractors) working on the Regas Plant site may expect to be subject to the same level of safety protection (and enforcement) as the Regas Plant’s own personnel.

Where relevant standards exist, these will be made known to suppliers as conditions of supply.

The complete EGM facility, of which the Regas Plant is one part (the others being the FSU and the CCGT facilities respectively), is designated as an upper tier COMAH/Seveso site. The Civil Protection Department (CPD), OSHA and ERA would reasonably expect to be consulted and informed about the Regas Plant’s Health & Safety Management System. The O&M management team envisages close cooperation with CPD and with its neighbours, including Enemalta, at the Delimara complex in this regard.

4.3 Scope of the Health & Safety Management System

The Health & Safety Management System developed for the Regas Plant has both physical (the plant within EGM’s complex for which it has Operation and Maintenance responsibility) and non-physical (commercial, contractual, legal & statutory, etc.) aspects. While the scope described here cannot in practical terms be exhaustive, the intention is to ensure that it is both factual and representative of the Regas Plant’s operations conducted within this Health & Safety Management System and will not mislead any interested parties.

The AECOM (EGM’s Owner’s Engineer for the facility’s construction project) drawing ENEM-URS-FS-00-DR-ME-00100 shows the area of the entire Delimara site. See following page.

It illustrates the physical demarcation, within the overall Delimara site boundaries, those areas under the responsibility of the Regas Plant O&M Contractor, described therein as “O&M2”.

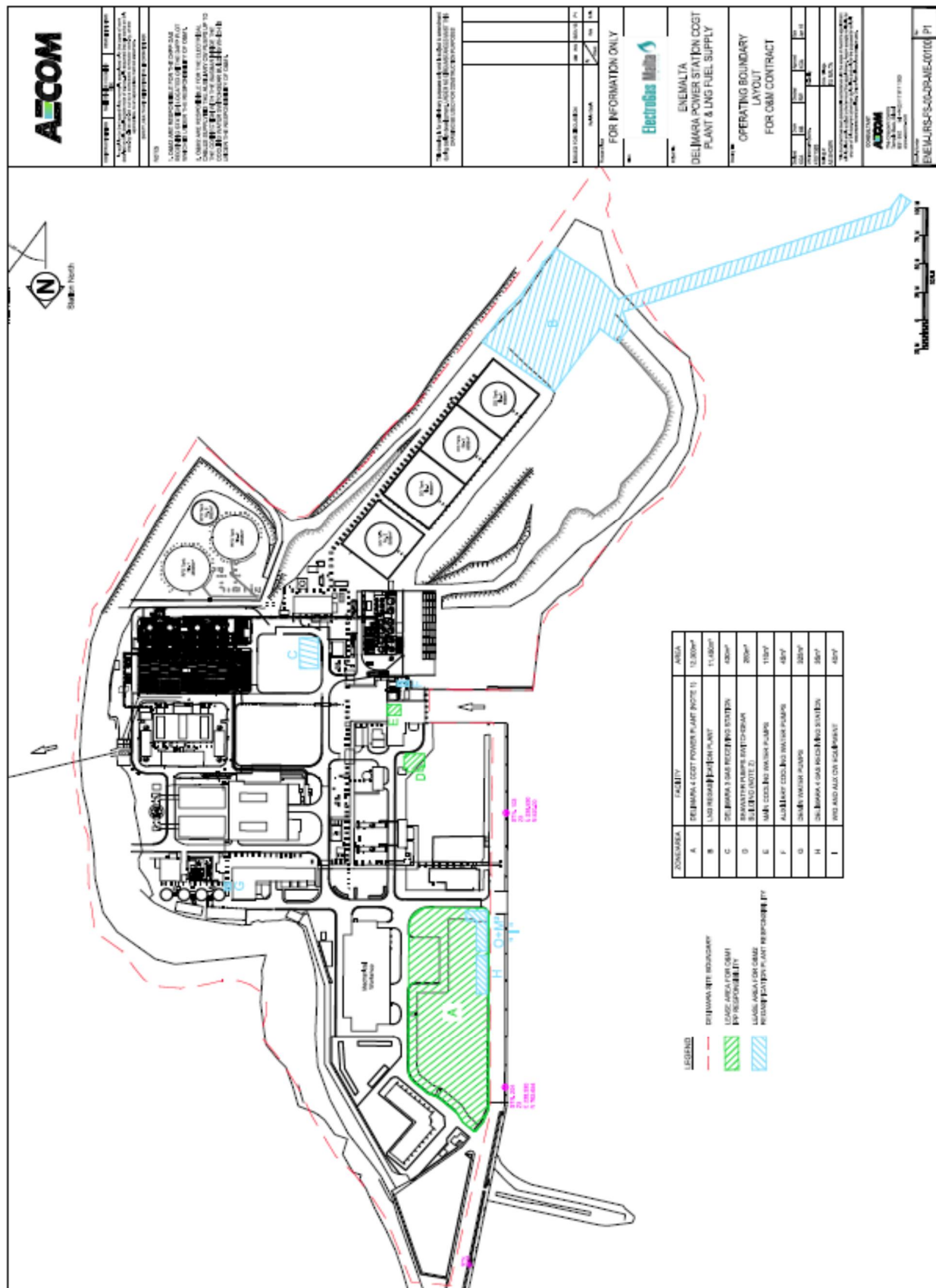
O&M2’s responsibility is represented in the blue shaded areas marked B, C, F, G, H & I in the drawing.

Area B shows the boundary of the Regas Plant site itself, while C, F, G, H & I while outside the physical area of the Regas Plant footprint, are in fact also the responsibility of O&M2.

In practical terms this means that the Regas Plant O&M personnel and contractors will work both within the area under its exclusive control (the Regas Plant site, area C on the drawing) but will also have to traverse parts of the Delimara site under the control of Enemalta and O&M1 in order to access and work on their plant.

All work in area B will be the responsibility of the Regas Plant O&M team and will be carried out under the Regas Plant O&M Safety Rules and any associated procedures and management instructions as may be in force at any time.

Within the other identified areas of the Regas Plants O&M responsibility the most stringent standards of the various concerned parties shall be adhered to.



Regas Plant O&M Safety Rules (Electrical & Mechanical)

While the Regas Plant O&M team will at all times seek to ensure that it is in compliance with all relevant legal and statutory requirements, its primary means of ensuring the safety of its personnel and contractors is the application of its Safety Rules (Electrical & Mechanical), RGU-42-DP-001, referred to hereafter as the “Safety Rules”. Compliance is mandatory.

The plant safety philosophy differentiates between General Safety and Safety from the System, the latter being from the dangers which may arise from the design functions of Plant and Apparatus and from which the Safety Rules are designed to protect.

General Safety deals with danger arising from the environment at and in the vicinity of the work point and not associated with the System.

Both General Safety and Safety from the System fall within the scope of the Health & Safety management system, and will apply to all persons undertaking work within the Regas Plant, with particular attention to the safety management of contractors, with a specific Contractor Safety Procedure being stringently applied.

Comprehensive Safety Rules, Procedures, and Codes of Practice relating to particular activities will be issued for general applications at the site. These policy documents must be observed by all staff, and by contractor's employees working at the Regas Plant.

In designated areas of particular hazard, supervisors who have written authorisation will be required to satisfy themselves that all necessary safety precautions have been carried out, before authorising in writing the commencement of work.

Definitions:

Plant:	Fixed and moveable items, other than apparatus, for which the Regas Plant O&M team has maintenance responsibility
Apparatus:	All equipment in which electrical conductors are used, supported, or of which they may form a part, and for which the Regas Plant O&M team has maintenance responsibility
System:	Items of plant and apparatus, which are used separately or in combination in any process associated with the operation of the Regas Plant
Danger:	A risk to health, or of bodily injury
Approved:	Sanctioned by the Plant Manager or his/her nominated deputy
Person:	Persons are defined respectively in the Safety Rules as Competent Person, Authorised Person, Senior Authorised Person, Control

Person, Selected Person, Nominated Supervisor or member of a Working Party.

The Regas Plant electrical and mechanical items of Plant and Apparatus are interconnected to form electro-mechanical Systems. These Systems, because of their ultimate purpose to generate or transmit electricity at high voltages, contain inherent Dangers.

The Systems are designed so that when they are in their normal operating mode, they may be operated without Danger if routine procedures and suitable equipment are correctly used.

When work other than operation has to be carried out affecting the Plant and Apparatus and it is necessary to change from the normal operating mode or depart from routine operating procedures, it is then necessary to specify rules to achieve safety from the inherent Dangers.

The Safety Rules are based on a philosophy that the Rules should briefly and clearly specify those actions which must be implemented and identify those practices which should be followed, to establish conditions in which personnel who have to carry out work on the Plant and Apparatus will be safeguarded from the inherent Dangers and to make them "Safe from the System".

Whenever work is carried out affecting plant and apparatus, which is part of the System, two types of Danger may arise: -

- (iii) The first type is Danger inherent in the System arising from the design function of the Plant and Apparatus, and this philosophy requires that the Rules, when implemented, will achieve the safety of personnel at work from these inherent Dangers at the commencement and during the course of work
- (iv) The second type is Danger arising from the environment at and in the vicinity of the work point and not associated with the System.

These Rules are *not* designed to specify the means of establishing safety from the second type of Danger, which may arise whenever work is done, for example from methods of work, or means of access, but the Rules allocate responsibility for achieving safety from this type of Danger

To carry out work affecting Plant and Apparatus within a System, the procedure to be observed may be divided into the following stages: -

- (vi) Making available the Plant and Apparatus concerned for the work required
- (vii) Establishing the conditions to safeguard personnel from the inherent Dangers of the System
- (viii) Execution of the work required

- (ix) Clearance of the Plant and Apparatus on completion or termination of the work
- (x) Restoration of the Plant and Apparatus to its normal conditions within the System

To achieve safety within the stages specified above these rules require that defined Persons be given responsibilities for:

- (vi) Establishing safe conditions for personnel to work on the Plant and Apparatus
- (vii) Either checking that safe conditions have been established for work on Plant and Apparatus which has been Isolated from the System, or
- (viii) Identifying the appropriate specialised procedures that will be applied when work has to be done on Plant and Apparatus that remains energised and
- (ix) Then to authorise, in writing, the commencement of work, and finally to cancel the written authority on termination of the work
- (x) Receiving the written authority to commence work, thereafter to supervise safety during the course of the work and to clear the written authority when the work is terminated

The Rules for achieving the safety of personnel at work from the inherent Dangers of the System are limited therefore to specifying:

- (iv) The actions necessary to ensure safety during each of the stages above in which Dangers may arise from the design function of the Plant and Apparatus
- (v) The responsibilities of Persons for ensuring safety during each of the stages above from Dangers, which may arise from the design function of the Plant and Apparatus.

And in relation to the general Dangers arising whenever work is performed, the Rules are limited to:

- (vi) Identifying the Person responsible for achieving safety from these general Dangers

The Rules will be supported by Codes of Practice and Local Safety Instructions to specify procedures for implementing the Rules effectively and efficiently, and to ensure that the Rules are applied in a consistent manner.

To fulfil the requirements of the philosophy, the following principles have been adopted in formulating the Safety Rules:

- (ix) The Rules are concerned only with achieving safety for personnel, from the inherent Dangers of the electro-mechanical systems:
- (x) When work is to be carried out on High Voltage Apparatus, the primary means of achieving safety is by isolation from the System(s) followed by earthing, except when working on or testing Live Apparatus. For these exceptions, the means of achieving safety is by the application of specialised procedures.
- (xi) In the case of Low Voltage Apparatus, the primary means of achieving safety is, if reasonably practicable, by isolation from the System(s). If isolation is not reasonably practicable, safety is achieved by the application of specialised procedures:
- (xii) When work is to be carried out on Plant, the primary means of achieving safety is by isolation from the System(s) followed by draining, venting and purging as appropriate, except when the work requires the Plant to be energised. For these exceptions the means of achieving safety is by the application of specialised procedures:
- (xiii) The fundamental means of protecting personnel at work is the application and maintenance of the primary means of achieving safety specified in (ii), (iii) and (iv) supported by appropriate actions to maintain the effectiveness of the primary means e.g. locking off Isolating Devices:
- (xiv) The authorisation of personnel to carry out defined requirements under the Rules will be the subject of a formal procedure to assess competence.
- (xv) The application of the Rules shall ensure that a safe situation exists across all control area boundaries and operational interfaces, be they totally or partially within the jurisdiction of the Regas Plant O&M team.
- (xvi) To achieve "Safety from the System", that is, from Dangers, which may arise from the design functions of the Plant and Apparatus, each of the five stages referred to in the foregoing text will involve one or more of the following functions:
 - d) Safety Co-ordination - which includes, before work commences, instructing actions to implement safety precautions and, after completion of work, instructing actions to remove safety precautions
 - e) Making Safe/Restoration of Plant and Apparatus - which includes, before work commences, taking actions to make Plant and Apparatus safe for work and issuing a Safety Document. After completion of work and the

cancellation of the Safety Document, taking actions to restore the Plant and Apparatus to service:

- f) Work - which includes: receipt of Safety Document, execution of the required work to its completion or termination and. after the work area has been cleared, clearance of the Safety Document

The above three functions cover separate responsibilities that are distinct from each other and are treated distinctively in the Safety Rules.

The Rules do not state the number of Persons necessary to discharge the three functions. However, in order to implement the Rules efficiently, it will frequently be necessary for two or more Persons to perform the three separate functions because of technical and geographical complexities of the Regas Plant site.

The Rules do not preclude one suitably authorised individual from personally performing all three functions, and for a particular task one Person could take responsibility for safety co-ordination, preparation of Plant and Apparatus to his own instructions, issuing a Safety Document to himself, executing the work, clearing and cancelling the Safety Document and restoring the Plant and Apparatus to service.

General Provisions

(c) General Safety

In addition to the requirements specified in the Safety Rules for establishing Safety from the System, the safety of personnel at work shall also be achieved by maintaining, at all times, General Safety at and in the vicinity of the place of work.

Before work or testing commences, it is the personal responsibility of the appropriate Nominated Supervisor to ensure that safety precautions are taken to establish General Safety at and in the vicinity of the work place. Subsequent to the commencement of work or testing, the Person in charge of the work or testing shall, continue to maintain conditions which ensure General Safety.

This Person shall also ensure that conditions of other work areas are not adversely affected by the activities for which he is responsible. The discharging responsibility for General Safety will be achieved as part of the normal pattern of management delegation and control by ensuring that all activities are in accordance with appropriate instructions and guidance

(iv) Additional Safety Rules, Codes of Practice & procedures

In addition to the Safety Rules, the requirements of other associated Safety Documents issued by the Regas Plant O&M team or other authorities shall be complied with. Guidance documents should be complied with in accordance with management instructions.

(v) Special instructions

Work on or testing of Plant and Apparatus to which these Rules cannot be applied, or for special reasons should not be applied, should be carried out in an Approved manner which shall be confirmed in writing.

(vi) Objections on safety grounds

Any individual receiving instructions in the application of these Rules shall report to the Person issuing those instructions any objections on safety grounds to carrying them out. Any such objections shall then be dealt with in an Approved manner.

(d) Inter-Systems Operations

The complex has a large number of interfaces, referred to as Terminal Points, with external services and systems not under the Regas O&M teams control (see table below). This will require formal, written procedures so as to ensure safe means of achieving isolations, both electrical and non-electrical.

A documented procedure dealing with operations across systems boundaries will lay down how these operations across these interfaces will be managed.

In addition, there will be separate formal, documented Record of Interconnection Safety Precautions (RISP) governing H.V. electrical and also non-electrical switching, isolation, earthing and cancellation upon completion of work as appropriate

Terminal Point Definition Table

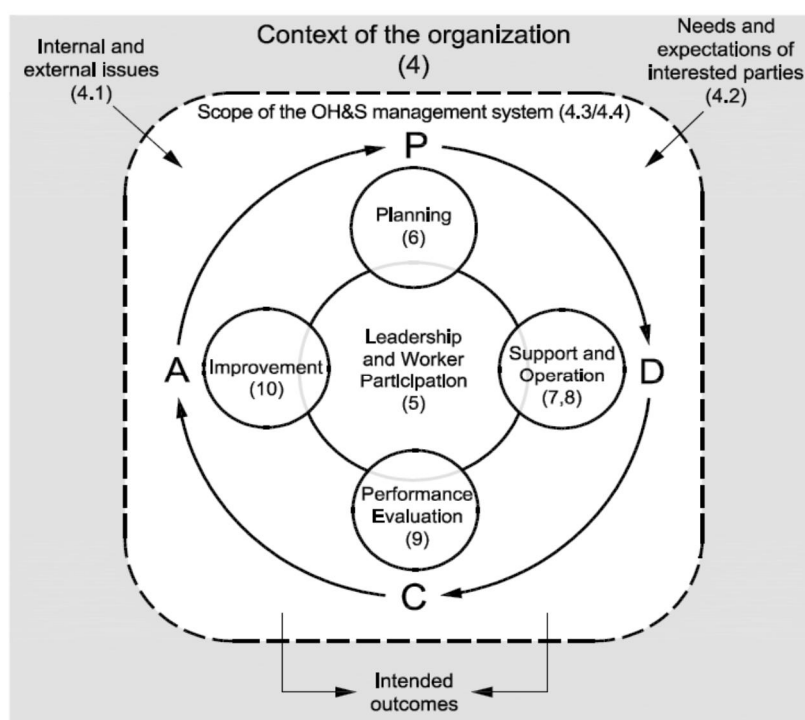
#	Service	From	To
TP001	NATURAL GAS	RE-GAS PLANT	D3PP
TP002	DE-MIN WATER	MAIN DE-MIN STORAGE	DE-MIN WATER DISTRIBUTION
TP003	MAIN COOLING WATER	SEAWATER INTAKE (D1)	D4PP
TP004	MAIN COOLING WATER	SEAWATER INTAKE (D4)	D4PP
TP005	AUXILIARY COOLING WATER	SEAWATER INTAKE	Regas W.G equipment
TP006	AUXILIARY COOLING WATER	SEAWATER INTAKE	Regas W.G equipment
TP007	FRESH WATER FIRE SYSTEM	ENEMALTA FRESH WATER FIRE SYSTEM	D4PP
TP008	DE-MIN WATER	DE-MIN WATER DISTRIBUTION	MAIN DE-MIN STORAGE
TP009	POTABLE WATER	ENEMALTA POTABLE WATER SYSTEM	POTABLE WATER DISTRIBUTION
TP010	FRESH WATER FIRE SYSTEM	ENEMALTA FRESH WATER FIRE SYSTEM	RE-GAS FIREWATER

#	Service	From	To
			SYSTEM
TP011	SEAWATER FIRE SYSTEM	ENEMALTA SEAWATER FIRE SYSTEM	D4PP
TP012	MAIN COOLING WATER	MAIN COOLING WATER SYSTEM	SEAWATER OUTFALL
TP013	132kV ELECTRICAL SUPPLY	D4PP	ENEMALTA ELECTRICAL NETWORK
TP014	3.3kV ELECTRICAL SUPPLY	ENEMALTA ELECTRICAL NETWORK	MAIN COOLING WATER SWITCHGEAR
TP015.1	33kV ELECTRICAL SUPPLY	ENEMALTA ELECTRICAL NETWORK	RE-GAS PLANT
TP015.2	3.3kV ELECTRICAL SUPPLY	ENEMALTA ELECTRICAL NETWORK	RE-GAS PLANT
TP017	415V ELECTRICAL SUPPLY	ENEMALTA ELECTRICAL NETWORK	DELIMARA 3 GAS RECEIVING STATION
TP101	NATURAL GAS	RE-GAS PLANT	D4PP
TP102	DE-MIN WATER	DE-MIN WATER DISTRIBUTION	D4PP
TP103	MAIN COOLING WATER (SUPPLY)	SEAWATER INTAKE	D4PP
TP104	MAIN COOLING WATER (RETURN)	D4PP	SEAWATER OUTFALL
TP105	AUXILIARY COOLING WATER (SUPPLY)	SEAWATER INTAKE	D4PP
TP106	AUXILIARY COOLING WATER (RETURN)	D4PP	SEAWATER OUTFALL
TP107	WATER/GLYCOL (SUPPLY)	RE-GAS PLANT	D4PP
TP108	WATER/GLYCOL (RETURN)	D4PP	RE-GAS PLANT
TP109	POTABLE WATER	POTABLE WATER DISTRIBUTION	D4PP
TP110	FRESH WATER FIRE SYSTEM	ENEMALTA FRESH FIRE WATER SYSTEM	D4PP
TP111	SEAWATER FIRE SYSTEM	ENEMALTA SEAWATER FIRE SYSTEM	D4PP
TP112	COMPRESSED AIR	D4PP	AUXILIARY COOLING WATER FILTERS
TP113	132kV ELECTRICAL SUPPLY	D4PP	ENEMALTA ELECTRICAL NETWORK
TP114	3.3kV ELECTRICAL SUPPLY	D4PP	MAIN COOLING WATER SWITCHGEAR
TP115	TELECOMMUNICATIONS	ENEMALTA NETWORK	D4PP

#	Service	From	To
TP116A/B	NATURAL GAS	RE-GAS PLANT	D4PP
TP201	LIQUIFIED NATURAL GAS (LNG)	FLOATING STORAGE UNIT (FSU)	RE-GAS PLANT
TP202	LIQUIFIED NATURAL GAS (LNG)	FLOATING STORAGE UNIT (FSU)	RE-GAS PLANT
TP203	BOIL-OFF GAS (BOG)	FLOATING STORAGE UNIT (FSU)	RE-GAS PLANT
TP204	BOIL-OFF GAS (BOG)	FLOATING STORAGE UNIT (FSU)	RE-GAS PLANT
TP205	FRESH WATER FIRE SYSTEM	RE-GAS FIRE WATER SYSTEM	FLOATING STORAGE UNIT
TP206	POTABLE WATER	POTABLE WATER DISTRIBUTION	FLOATING STORAGE UNIT
TP207	NITROGEN SUPPLY	RE-GAS PLANT	D4PP
TP208	3.3kV ELECTRICAL SUPPLY	D4PP	RE-GAS PLANT
TP209	MOORING LINES	FLOATING STORAGE UNIT (FSU)	JETTY
TP401	SEWAGE	D4PP	EXISTING SEWAGE SYSTEM
TP402	STORM WATER	D4PP	EXISTING STORM WATER DRAINS

4.4 Health & Safety Management System

The Regas Plant Health & Management System will comply with ISO 45001:2016 by incorporating the requirements of the Standard as shown below.



In addition, the Health & Safety Management System will be integrated into the Delimara 4 Integrated Management and Business System comprising ISO9001:2015, ISO 14001: 2015 and ISO 55000:2014, as well as ISO 45001:2016.

	Integrated Management System	ISO 9001 Clause	ISO 14001 Clause	ISO 45001 Clause	ISO 55000 Clause
4	Context of the organisation				
4.1	Understanding the organisation and its context	4.1	4.1	4.1	4.1
4.2	Understanding the needs and expectations of workers and other interested parties	4.2	4.2	4.2	4.2
4.3	Determining the scope of this IMS	4.3	4.3	4.3	4.3
4.4	IMS and its processes	4.4	4.4	4.4	4.4
5	Leadership				
5.1	Leadership and commitment	5.1.1, 5.1.2	5.1	5.1	5.1
5.2	Policy	5.2.1, 5.2.2	5.2	5.2	5.2
5.3	Roles, responsibilities accountabilities and authorities	5.3	5.3	5.3	5.3
5.4	Participation & consultation			5.4	
6	Planning				
6.1	Actions to address risks & opportunities	6.1	6.1	6.1	6.1

	Integrated Management System	ISO 9001 Clause	ISO 14001 Clause	ISO 45001 Clause	ISO 55000 Clause
6.1.1	General	6.1.1	6.1.1	6.1.1	
6.1.2	Hazard identification & risk assessment. Environmental aspects.	6.1.2	6.1.2	6.1.2	
6.1.3	Determination of applicable legal requirements and other requirements. Compliance Obligations		6.1.3	6.1.3	
6.1.4	Planning to take action		6.1.4	6.1.4	
6.2	Objectives and planning to achieve them	6.2	6.2	6.2	6.2
6.2.1	Establishing objectives	6.2.1	6.2.1	6.2.1	6.2.1
6.2.2	Planning to achieve objectives	6.2.2	6.2.2	6.2.2	6.2.2
6.3	Planning of changes to IMS	6.3			
7	Support				
7.1	Resources	7.1	7.1	7.1	7.1
7.1.1	General	7.1.1			
7.1.2	People	7.1.2			
7.1.3	Infrastructure	7.1.3			
7.1.4	Environment for the operation of processes	7.1.4			
7.1.5	Monitoring and measuring resources	7.1.5			
7.1.6	Organisational knowledge	7.1.6			
7.2	Competence	7.2	7.2	7.2	7.2
7.3	Awareness	7.3	7.3	7.3	7.3
7.4	Information and Communication	7.4	7.4	7.4	7.4/7.5
7.4.1	General		7.4.1		
7.4.2	Internal communication		7.4.2		
7.4.3	External communication		7.4.3		
7.5	Documented information	7.5	7.5	7.5	7.6
7.5.1	General	7.5.1	7.5.1	7.5.1	7.6.1
7.5.2	Creating and updating	7.5.2	7.5.2	7.5.2	7.6.2
7.5.3	Control of documented information	7.5.3	7.5.3	7.5.3	7.6.3
8	Operation				
8.1	Operational planning and control	8.1	8.1	8.1	8.1
8.1.1	General			8.1.1	
8.1.2	Hierarchy of controls			8.1.2	
8.2	Requirements for products and services	8.2			
8.2.1	Customer communication	8.2.1			

	Integrated Management System	ISO 9001 Clause	ISO 14001 Clause	ISO 45001 Clause	ISO 55000 Clause
8.2.2	Determining the requirements for products and services	8.2.2			
8.2.3	Review of the requirements for products and services	8.2.3			
8.2.4	Changes to the requirements for products and services	8.2.4			
8.3	Design and development of products and services	8.3			
8.4	Control of externally provided processes, products and services. Outsourcing, Procurement, Contractors	8.4		8.3, 8.4, 8.5	8.3
8.4.1	General	8.4.1			
8.4.2	Type and extent of control	8.4.2			
8.4.3	Information for external providers	8.4.3			
8.5	Production and service provision	8.5			
8.5.1	Control of production and service provision	8.5.1			
8.5.2	Identification and traceability	8.5.2			
8.5.3	Property belonging to customers or external providers	8.5.3			
8.5.4	Preservation	8.5.4			
8.5.5	Post-delivery activities	8.5.5			
8.6	Control of change, Management of Change	8.6		8.2	8.2
8.7	Control of nonconforming outputs	8.7			
8.8	Emergency preparedness and response		8.2	8.6	8.6
9	Performance evaluation				
9.1	Monitoring, measurement, analysis and evaluation	9.1	9.1	9.1	9.1
9.1.1	General	9.1.1	9.1.1	9.1.1	
9.1.2	Evaluation of compliance and analysis	9.1.2, 9.1.3	9.1.2	9.1.2	
9.2	Internal audit	9.2	9.2	9.2	9.2
9.2.1	Internal audit objectives	9.2.1	9.2.1	9.2.1	
9.2.2	Internal audit programme	9.2.2	9.2.2	9.2.2	
9.3	Management review	9.3	9.3	9.3	9.3
9.3.1	General	9.3.1			
9.3.2	Management review inputs	9.3.2			
9.3.3	Management review outputs	9.3.3			
10	Improvement				
10.1	General	10.1	10.1		
10.2	Incident, nonconformity and corrective action	10.2	10.2	10.1	10.1
10.3	Continual improvement	10.3	10.3	10.2	10.3

	Integrated Management System	ISO 9001 Clause	ISO 14001 Clause	ISO 45001 Clause	ISO 55000 Clause
10.3.1	Continual improvement objectives			10.2.1	
10.3.2	Continual improvement process			10.2.2	
10.4	Preventive Action				10.2

Where policies and procedures are adopted from other parts of the ESB/ESB International organisation, these shall be amended, where necessary, to ensure their compliance with the above Standards.

5. Leadership and worker participation (ISO 45001:2016, 5)

5.1 Leadership and commitment

Top management of the Regas Plant O&M team, from the Chief Executive and his Board through all levels of the organisation, are committed to establishing and maintaining a safe and healthy working environment for our staff, our contractors & business partners, and those impacted by our business.

The Regas Plant O&M management sees health and safety as a core value of our business, which comes before everything else, and for which it accepts responsibility and accountability. Management's paramount safety objective is to maintain a healthy and injury free place of work by operating in compliance with all applicable legal and regulatory requirements and striving for best practice in delivering our business activities.

Top management's commitment to health and safety is built on the pillars of Leadership, Competence, Compliance and Engagement, and is supported through the following:

- Ensuring that the company's Health & Safety Policy and the related Health & Safety objectives are established and that these are compatible with the organisation's strategy.
- Ensuring that the Health & Safety Policy and related processes are integrated into the organisation's business processes.
- Ensuring that the resources necessary to establish, maintain, implement and continually improve the Health & Safety Management System are available.
- Ensuring the active participation of workers and workers representatives by means of consultation and by removing any obstacles or barriers to participation; The top management asks all staff to be safety leaders, demonstrating and encouraging safe behaviours through the standards they set and examples they provide. The primary responsibility for safety is through the line, with safety being an integral part of each person's role. Management values openness and trust in relation to safety, through positive participation and dialogue with staff and their representatives. Management will engage in dialogue, listening and engagement with staff, contractors and those impacted by our work on matters affecting their safety. The Regas Plant O&M Management encourages reporting of all incidents, good catches and near misses, so that causes can be understood, patterns analysed, and learnings and improvements shared across our business.
- Communicating the importance of effective Health & Safety Management and of complying with Health & Safety Management System requirements; Management will require all staff, contractors and business partners to take responsibility for their own safety and that of others who may be affected by their actions or omissions. The Regas Plant O&M management expects

100% compliance with the letter and spirit of the Safety Rules and procedures which are in place to keep everybody safe.

- Ensuring that the Health & Safety Management System achieves its intended outcomes by constant vigilance, internal safety auditing, collection and analysis of safety data, communication with staff, careful planning and robust management reviews.
- Ensuring and promoting continual improvement of the Health & Safety Management System to improve safety performance by systematically identifying and taking action to address non-conformities; taking advantage of improvement opportunities and the minimisation of work related hazards and risks, including deficiencies in the system as these are uncovered. Hazard identification and risk assessment are essential requirements of working safely to ensure all personnel, contractors and business partners are aware of the risks and understand how their work impacts on their safety and the safety of others. Management will set challenging health and safety objectives and seek to deliver these consistent with the company's commitment to continual health and safety performance improvement.
- By fully supporting the Regas Plant Manager to enable him/her to demonstrate their leadership of and commitment to Health & Safety; The Plant Manager will demonstrate similar leadership and commitment by empowering his management team, who will in turn ensure that every member of the Regas Plant O&M staff knows they have a safety responsibility and is a champion for safety in their own day-to-day work.
- Developing, leading and promoting a safety culture within the Regas Plant O&M team that actively supports and contributes to the development and improvement of the health & Safety Management System

5.2 Health & Safety Policy

The Regas Plant O&M International management has established a documented Health & Safety Policy Statement RGU-00-PS-001. This policy document is freely available to all members of the Regas Plant O&M staff and to other stakeholders upon request.

This policy will be implemented and maintained in consultation with the Regas Plant O&M personnel at all levels, both managerial and non-managerial. Staff will be expected to assume responsibility for those areas of policy and procedure over which they have control.

The Regas Plant O&M Health & Safety Policy will be reviewed every three years or immediately after any significant incident or accident.

The Regas Plant O&M team will ensure that processes are in place to encourage participation and consultation through Workers' representatives and the Regas Plant Health & Safety Committee.

The Regas Plant Health & Safety Policy, in its implementation, commits to the following:

- Provision of a framework for setting health & Safety objectives
- Comply with all applicable legal and statutory requirements
- Identify and control Health & Safety risks using the hierarchy of controls i.e.
 - (f) eliminate the hazard
 - (g) substitute with less hazardous materials, processes, operations or equipment
 - (h) use engineering control
 - (i) use administrative controls,
 - (j) provide and ensure use of adequate personal protective equipment

Continual improvement of the Health & Safety Management System and of overall Health & Safety performance

Participation of and consultation with workers' representatives in the decision making process as it relates to the Health & Safety Management System

5.3 Organisational roles, responsibilities, accountabilities and authorities

The Managing Director has responsibility for safety delegated to him by the Chief Executive. The MD delegates this authority and responsibility to his Directors and Senior Managers, with ultimate responsibility resting on the Plant Manager for health & Safety Management at the Regas Plant.

In practice, the Plant Manager delegates operational responsibility for management of Health & Safety to the Nominated Safety Engineer.

The management team has access to the full Health & Safety resources of the company and may call upon its Health & Safety Manager for advice and assistance at any time.

The responsibilities, accountabilities and authorities for roles within the Health & Safety Management System will be assigned and communicated to all staff. This will be formally documented and retained within the Integrated Business Management Information System. In the event of structural change, these roles and responsibilities will be reviewed.

Workers who assume responsibility for those aspects of Health & Safety management over which they have control are required to report dangerous situations so that action can be taken.

As set out in the Regas Plant O&M Safety Rules, RGU-42-DP-001, everyone has the right to object on safety grounds; *"Any individual receiving instructions in the application of these Rules shall report to the Person issuing those instructions any objections on safety grounds to carrying them out. Any such objections shall then be dealt with in an Approved manner."*

Plant Manager Responsibilities

- Create Health and Safety Policy for the organisation in line with corporate policy
- Conduct a review at least annually and amend or redefine as necessary the Regas Plant Health & Safety Policy, and associated procedures and provide the resources and the process to ensure implementation.
- Assign the responsibilities of Nominated Safety Engineer.
- Facilitate the selection of a Safety Committee and Health & Safety Representatives.
- Report to the appropriate stakeholders any Health & Safety issues that impact on the company's statutory or commercial remit.
- Participate in performance reviews and analysing audits of the Health & Safety Management System.
- Promote a Health & Safety culture within the organisation and systems to proactively improve Health & Safety.
- Ensure that adequate resources are available to implement safety policy and safety objectives

Nominated Safety Engineer (Production Manager) Responsibilities

- To advise management, employees and their representative on matters relating Health & Safety including:
- Create and develop policies procedures and objectives
- Communicate the organisations Health & Safety Policies and procedures to staff contractors and others as required.
- The promotion of a positive Health & Safety culture in the organisation including assistance to line managers in implementing an effective Health & Safety Policy
- Advise on the formation of Health & Safety plans; This will include goal-setting, deciding priorities and establishing adequate systems and performance standards, setting short and long term Health & Safety objectives.

- Manage the day to day implementation and monitoring of policy and plans. This will include exercising the major accident response plans, accident and incident investigation, reporting, analysis and recording.
- Keep abreast of technological changes, new statutory requirements or other changes that could affect the organisations activities.
- Communicating the organisations policy and procedures to staff, contractors and others as required.
- Communicating required notifications to the Maltese Health & Safety authorities
- Ensure that suppliers and contractors are familiar with and comply with the organisations Health & Safety Policy
- Monthly reporting to the Plant Manager and to Regas Plant's Head Office Health & Safety Manager on safety statistics and progress against Health & Safety objectives and the Safety Improvement Plan.
- Reporting to the Plant Manager and to Head Office in the event of any LTA/LTI or other serious incident at the plant; Priority 1 incidents must be immediately reported to the Regas Plant's Head Office where they come to the attention of the Chief Executive.
- Reporting on Health and Safety system performance at Management Review to act as a basis for continual improvement.
- Acts as chairman of the Regas Plant Health & Safety Committee

Department Managers and Team Leaders Responsibilities

- Implement of Regas Plant O&M Health & Safety Policy across all the process of the organisation.
- Ensure that appropriate responsibilities are delegated and monitor that these responsibilities are discharged.
- Be familiar with the legal requirements relating to health and safety.
- Ensure that all staff within their responsibility are trained in health and safety matters as necessary and kept informed of all health and safety information provided either by the Regas Plant O&M team or the Maltese Health and Safety Authorities.

- Ensure that personal protective equipment is issued and used as and when required.
- Report to their senior managers on any problems related to Safety, Health and Welfare and liaise with the Health and Safety Manager as necessary.
- Ensure that suppliers and contractors are aware of and comply with the organisation's Health & Safety Policy
- Assist in the investigation of notifiable accidents and dangerous occurrences and implementation of report recommendations.
- Take appropriate action where a member of staff fails to discharge their responsibility for Health and Safety.
- Promote awareness of Health & Safety amongst all staff.

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Shift Team Leaders Responsibilities

- Act as Senior Authorised Persons under the Regas Plant Safety Rules; Responsible to the Plant Manager for the operation of the regas plant, including the release of plant and apparatus for work, during his shift.
- Ensure that he is fully briefed on operational and safety aspects by the departing Shift Team Leader before starting his shift and for briefing the incoming Shift Team Leader before leaving the plant at the end of shift.

Health and Safety Committee Responsibilities

To improve work place Health & Safety by:

- Attending regularly at Health & Safety committee meetings and positively contributing to the role of the committee.
- Contributing to the setting and achievement of the health and safety objectives and targets
- Being involved in the design, operation, monitoring and review of the Health & Safety Management System including input to the Health & Safety Policy
- Being a conduit for two-way communication between management & staff
- Being involved in the decision making process for Health & Safety issues
- Contributing their first-hand knowledge of the work process and hazards
- Fostering a team approach to Health & Safety issues and contributing to the creation of a Health & Safety culture within the organisation by promoting safety awareness

- Identify required H&S training for staff

Responsibilities of all Employees

- Be aware of their individual Health & Safety obligations as outlined in the Health & Safety Policy and the Annual Safety Plan
- Take notice of Safety and Health posters and literature.
- Warn colleagues and inform the Manager of any hazard observed in the workplace.
- Know the fire drill; obey fire or emergency instructions for whichever office or building they may be in
- Know what to do in the event of an accident and act accordingly. Take ownership as appropriate
- Wear personal protective equipment whenever necessary.
- Find out whether a work location is likely to be hazardous, and ensure that personal protective equipment is available to him/her and that adequate controls are in place.
- Avoid misusing anything provided for his/her Safety.
- Obey the health and safety instructions in force at any location you work in or may visit.
- Attend training sessions, particularly if any job to be undertaken requires special instruction.
- Ensure that any items he/she specifies, designs or details are free from hazard to the constructor, user, installation supervisor, operator or anyone else.
- Be free from the influence of drugs or alcohol during working hours and not to bring either on to the premises without permission of the company.
- Ensure compliance with all legal requirements when driving.
- Not to endanger others by his/her actions or neglect.
- Take action to rectify any unsafe practice he/she may observe.
- Ensure accidents and dangerous occurrences are reported promptly.

- Show by example that Regas Plant O&M team is a safety-conscious organisation.
- Practice and promote Safety Health and Welfare at work.

5.4 Participation and Consultation

The Regas Plant O&M Management sees worker participation as a key factor in the success of its Health & Safety Management System. Management will therefore encourage such participation and will establish, implement and maintain processes for participation and consultation in the development, planning, implementation, evaluation and actions for improving the Health & Safety Management System by workers at all levels, including workers' representatives at the Regas Plant.

Worker participation and consultation will be facilitated and positively encouraged, in line with stated Regas Plant O&M policy as follows:

- Provision of the necessary mechanisms, including a Health & Safety Committee, providing time, training and the necessary resources
- Information about the Health & Safety Management System and its supporting procedures and processes will be freely and easily available to all staff
- Identification and removal of any barriers which may exist, or be perceived to exist, and where barriers cannot be entirely removed they will be minimised to the utmost possible extent. This will include a management commitment to respond to workers' inputs and suggestions.

The opinions of workers will be actively sought out and management gives a commitment that no worker has any need to feel apprehensive about identifying risks and hazards, suggesting better ways of doing things or of objecting to an instruction if he/she has a genuine safety concern. Workers will be empowered to take on this responsibility in their own interests and in the interest of their colleagues.

In particular, the Regas Plant O&M team will give particular emphasis in ensuring that non-managerial workers can participate, through the Health & Safety Committee and the Workers' representatives, in:

- Determining how they participate and are consulted
- Identifying hazards and assessing risk
- Actions to control hazards and risks
- Identifying training and competency needs and assessing training provided
- Determining the information that needs to be communicated and how best this should be done

- Determining control measures and their effective use
- Incident investigation, non-conformities and corrective actions

The Regas Plant team will emphasise the inclusion of non-managerial workers in consultation with respect to:

- Determining the needs and expectations of interested parties
- Establishing the policy
- Assignment of organisational roles, responsibilities, accountabilities and authorities with respect to Health & Safety Management
- The application of legal and other requirements
- Establishing Health & Safety objectives
- Determining the Health & Safety controls for outsourcing, procurement and contractors
- Deciding what needs to be monitored, measured and evaluated
- Planning, establishing, implementing and maintaining the internal safety audit program
- Establishing the continual improvement process

6. Planning (ISO 45001:2016, 6)

6.1 Actions to address risks and opportunities

6.1.1 General

The purpose of planning in the Health & Safety Management System is to prevent undesired effects (such as failure to apply of legal requirements, or work-related injury and ill health), by anticipating hazardous events and their likelihood and consequences, and applying appropriate risk controls, in order to achieve the intended outcomes. It also identifies opportunities that can offer a potential advantage or beneficial outcome, such as improved safety performance.

Planning is not a single event but an on-going process, anticipating changing circumstances and continually identifying risks and opportunities, both for the workers as individuals and for the organization. In planning the Health & Safety Management System, the context, the views of the Regas Plant workers and other interested parties, and its scope have been taken into consideration.

This is to ensure that the Health & Safety Management System can achieve its intended outcomes, prevent or reduce undesired effects and achieve continual improvement.

As the Health & Safety Management System develops, workers will participate in planning.

The Regas Plant O&M team will identify hazards and assess the Health & Safety risks and its Health & Safety opportunities.

It will determine its applicable legal and other requirements assess other risks and identify other opportunities applicable to the Health & Safety Management System.

This information is used to determine how the risks and opportunities should be managed.

Planning also includes determining how to incorporate the actions deemed necessary or beneficial into the Health & Safety Management System through objective setting, operational control or other parts of the Health & Safety Management System, e.g. resource provisions and competence.

Mechanisms for evaluating the effectiveness of the preventive and protective measures will also be planned and will include monitoring and measurement techniques internal audit and Management Review.

The Regas Plant O&M Management recognises that changes can present both risks to workers, and opportunities to improve the performance of the Health & Safety Management System, and consequently they need to be carefully planned before being implemented through a process of Change Management.

So as to more effectively run the Health & Safety Management planning process, and to provide an audit trail, the Regas Plant O&M team will maintain documented

information, such as for the identification of workplace hazards, the assessment of Health & Safety Management System risks and identification of Health & Safety opportunities.

The processes established and the outcome of the implementation of these processes will be maintained as documented information to facilitate internal and external communication of these processes and their outcomes.

This documentation can be used in further planning and when conducting internal audits.

6.1.2 Hazard Identification and Assessment of Health & Safety Risks

6.1.2.1 Hazard identification

Explanation:

Hazard	A source or situation with a potential to cause injury and/or ill-health
Risk	The effect of uncertainty
Effect	A deviation from the expected, and can be either positive or negative.
Uncertainty	A state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood

Risk is often characterised by reference to potential “events” and “consequences”, or a combination of both.

Risk is frequently expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence. Occupational Health & Safety Risk can therefore be understood as the likelihood of occurrence of a work-related hazardous event or exposure and the severity of injury and/or ill-health that can be caused by the event or exposure.

Hazard identification at the Regas Plant was built into the design and planning process for development of the plant, and involved the EPC contractor, J&P Avax, as well as the owner consortium and the Maltese authorities.

AECOM, the Owner’s Engineer for ElectroGas Malta Ltd., prepared a Safety Report as required under the COMAH/Seveso directives. This report covers the whole EGM site.

It includes an overview of the Combined Cycle Gas Turbine (CCGT) and Liquefied Natural Gas (LNG) Terminal project and general information on Major

Accident Hazards and on potential effects on human health and the environment in the event of a major accident.

Hazards related to the physical and chemical properties of the materials being stored and handled, the arrangement of equipment, operating conditions, chemical reaction, as well as hazards from natural and human environment (external hazards) are considered. The Hazard Identification is completed with the review of past major accidents on similar facilities/activities and includes HAZID and HAZOP reviews.

As part of the Consequence Analysis, the safety distances have been assessed for the identified major accident scenarios, using dedicated modelling software tools.

The Risk Assessment includes the evaluation of the likelihood and severity of major accident scenarios prior to risk ranking. The external risk ranking, i.e. with regards to members of the public exposed outside the plant boundaries, is presented in the present document. The internal risk, i.e. with regards to operators and personnel within Enemalta Power Plant boundaries, is evaluated as part of the Risk Assessment document.

The Safety Report consists of the following referenced documents:

Reference	Designation	Issued by	Date
ENEM-AEC-E0-00-RP-SE-00005	Description of the Environment	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00004	Description of the Installations	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00003	Hazard Identification	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00002	Consequence Analysis	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00010	Risk Assessment	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00007	Safety of the Installations	AECOM	October 2015

Hazard Identification

(d) Hazards from Dangerous Installations

(iii) Liquefied Natural Gas and Natural Gas

LNG is natural gas which has been converted to liquid form for ease of storage and/or transportation. LNG takes up about 1/600th of the volume of natural gas. Depending upon its exact composition, natural gas becomes a liquid at approximately -160°C and atmospheric pressure. LNG's extremely low temperature makes it a cryogenic liquid.

LNG is odourless (if no odourising substance is added), colourless and non-corrosive.

It is a mixture of methane (by far the major component), ethane, propane and butane with traces of heavier hydrocarbons and some impurities, notably nitrogen. LNG must not be confused with Liquefied Petroleum Gas (LPG), which is a mixture of mainly propane and butane. LPG liquefies much more easily than LNG. In fact, LPG is stored as a liquid

under pressure at ambient temperature, whereas LNG is stored as a liquid only at very low temperatures and ambient pressure.

Flammability is the property which makes natural gas desirable as an energy source, and for the same reason is a safety hazard. It is very important to note that natural gas is flammable but LNG (the liquid form of natural gas) is not because of the lack of oxygen in the liquid. Since LNG begins vaporising immediately upon its release from a container, the important issue is when will the vapour become flammable and for how long.

The LFL for methane is 4.4% and the UFL is 16.5% both by volume in air. Outside of this range, the methane/air mixture is not flammable. LNG is considered as a non-toxic substance.

The amount of liquefied flammable gases, Category 1 or 2 (including LPG) and Natural Gas, stored and handled within the process (around 58 000 tonnes >> 200 tonnes) will mean that the Delimara CCGT, the Regas Plant and LNG Terminal will be upper tier COMAH establishment.

(iv) Process Equipment

Hazards from process equipment (vessels, pipelines, valves and flanges) can be overpressure, overfilling and loss of containment. As LNG and/or NG are stored and handled within this equipment, consequences in case of loss of containment are related to flammable dispersion, fire and/or explosion.

(e) Hazards from Natural Environment

Environmental loads, including extreme weather conditions (high wind and high waves), lightning, soil subsidence as well as seismic activity are all taken into account in the project design. Therefore, scenarios related to these causes can be discarded from the risk assessment as they are managed by the normal design process.

(f) Hazards from Human Environment

(ii) Hazards from Third-Party Activities (Domino Effect)

The Delimara CCGT, Regas Plant and LNG Terminal are built within Enemalta site boundaries. Enemalta is an Upper Tier Establishment, in accordance with COMAH Regulation (Seveso Directive). The latest version of its Safety Report is dated July 2013.

Enemalta's activities generate significant hazards related to handling and storage of Heavy Fuel Oil (HFO) and Diesel Oil (DO), including unloading from ship (oil tanker at quay), storage tanks and transfer of products by pipeline into the power plant. These are flammable liquids that may lead to fire (pool fire) in case of Loss Of Process Containment with ignition.

Some third-party events may produce domino effects in new facilities. They are considered in the risk assessment.

With regards to the other COMAH Establishments, none of their consultation zones overlap Delimara CCGT, Regas Plant and LNG Terminal. Therefore, no other domino effects are expected.

(iv) Hazards from Communication Networks

Impact, direct or otherwise, by an aircraft could potentially damage the Delimara CCGT, Regas Plant and LNG Terminal, including process equipment and associated pipe-works.

As the new facilities are out of the landing / take-off approach routes for Malta / Luqa Airport, no specific design requirement has been implemented for any aircraft impact.

Vehicle collision and ship collision scenarios are considered as possible during normal operations, and evaluated through the risk assessment.

(v) Other Human Hazards

Vandalism and terrorism are considered for the risk assessment.

HAZID and HAZOP Reviews

The HAZID (HAZard IDentification) is a technique used for early identification of potential hazards and threats. It is especially suited to the identification of non-process related hazards such as extreme weather, third-party activities, ship collision, etc. The effect or possible consequence of an untoward incident is itemised and the possible causes determined.

The HAZOP technique is suitable for identifying hazards associated with deviations from the design intent of the process. It draws upon the facility process and instrument diagrams (P&IDs) as the basis of the study and is used as an audit tool once the design is well understood and minor changes to the system can be incorporated easily.

Both techniques have been undertaken with all project contractors for the FSU, the LNG Terminal (including the jetty, the regasification unit and the BOG compressors) and the CCGT.

All the relevant events (incidents/accidents and near misses) from the past on similar facilities/equipment and/or handling similar products have been identified in order to build up knowledge about potential causes and consequences prior to HAZID and HAZOP reviews.

From these HAZID and HAZOP reviews, Major Accident Scenarios were identified and selected, to be evaluated through the consequence analysis and the risk assessment.

CONSEQUENCE ANALYSIS

The AECOM Safety Report deals with Consequence Analysis in document reference ENEM-AEC-EO-00-RP-SE-00002.

RISK ASSESSMENT

The risk assessment includes the evaluation of the likelihood and severity of major accident scenarios prior to risk ranking, where the hazards have been identified through HAZID and HAZOP reviews and the safety distances have been calculated as part of the consequence analysis.

(b) Evaluation of Scenario Frequency Levels

(ii) Methods and Assumptions

Causes of major accident scenarios may be categorized as follows: natural hazards, external hazards, mechanical hazards (equipment failure) and process hazards (including human error).

Natural hazards include extreme weather, lightning, seismic activity and erosion/subsidence. They are discounted as covered by design codes and standards.

External hazards include third party activities, aircraft crash, ship collision and vehicle collision, as well as terrorism/vandalism. Potential domino effects from Enemalta Power Plant have been identified based on latest version of Enemalta's COMAH Safety Report.

Generic failure frequency data for process equipment loss of containment, used for risk assessment, are those recently published by DNV, derived from the Hydrocarbon Release Database (HCRD) which has been compiled by the UK Health and Safety Executive (UK HSE). In addition, for rupture of the loading/unloading hose and the unloading arm during loading and unloading activities with ships, the values from Handbook Failure Frequencies 2009 for drawing up a Safety Report (Flemish Government, Belgium) are used. And estimate of frequency of rupture applied for the FSU tanks is extracted from OGP database.

In order to estimate the frequency at which a Critical Event (Top Event) and its associated consequences will result following one or several Initiating Events (Causes), the effect of any safeguards has been considered, including mechanical devices (e.g. pressure relief valve), instrumentation (e.g. alarms and/or safety trips). The probability of failure on demand for other safeguards is estimated based on available data from the literature or from the suppliers.

Finally, credits for circumstance factors (e.g. normal operation versus ship-to-ship transfer), probability of weather conditions (for F2 and D5 conditions), ignition probability and probability of effects of vapour cloud ignition have been taken into account. For scenarios located at the FSU,

the data from OGP / UKOOA look-up correlations provide estimated values of the probabilities of hydrocarbon releases igniting to result in an explosion (flash fire, VCE) and/or a sustained fire (pool/jet fire).

The probability of ignition may increase in the event that the flammable gas cloud reaches any of permanent ignition sources within Enemalta site or in the environment surrounding. Therefore, for scenarios located at the jetty pier, the Regasification Plant, the NG pipeline, the D3PP/GRS and the D4PP/GRS, “flat” ignition probabilities are assumed as a conservative approach.

The outcome was that ninety-nine out of three hundred and forty-four scenarios lead to consequence at Risk level 2 (tolerable if ALARP – **As Low As Reasonably Practicable**).

There were no scenarios at Risk Level 1 (unacceptable).

All other scenarios were at Risk level 3 (broadly acceptable).

Safety Critical Measures

Safeguards implemented in the project design and maintained during the life of the installation to prevent scenarios at risk Level-2 are commonly considered in this specification as Safety Critical Measures (SCMs). These safety measures can be mechanical, instrumental or procedural. They can also be active (which need energy sources) or passive systems (which do not rely on energy sources).

The Safety Critical Measures are located at the FSU and the Regasification Plant, including:

- Prevention measures: Procedures, Safety Instrumented Systems, Pressure Safety Valves;
- Mitigation measures: Fire, Spill and Gas Detection Systems and Emergency Shut-Down (ESD) valves
- Protection measures: Firefighting Systems.

These Safety Critical Measures allow for risk to be at ALARP level.

The Regas Plant

In the Operational phase, the REgas Plant O&M team will establish, implement and maintain a process for on-going proactive identification of hazards specific to the areas under its control.

This is covered by the documented procedure RGU-41-DP-001, Hazard Identification, Risk Assessment and Risk Control (HIRARC). This document specifies the responsibility for ensuring that hazards are identified, risk assessments are

carried out, and control measures implemented. It sets out the methodology to be used and the requirements in relation to communication.

A linchpin of a safety management system is an effective risk assessment process. Not only is risk assessment required under legislation, but a systematic and rigorous risk assessment system will identify potential sources of accidents in advance of work being undertaken and ensure that they are addressed by the establishment of effective control measures.

The legal requirement for risk assessments comes primarily from S.L. 424.15 (L.N. 44/2002) Workplace (Minimum Health & Safety Requirements) Regulations, and S.L. 424.18 (L.N. 36/2003), General Provisions for Health & Safety at Workplaces Regulations.

It is the Regas Plant O&M team's policy on risk assessment that all activities undertaken at the Regas Plant must be covered by prior risk assessment.

Hazard identification will proactively identify any source or situation, or combination of both, with the potential for work-related injury or ill-health.

This will include both routine non-routine activities. Routine activities are organised by means of Planned/Preventive/Predictive Maintenance (PM) tasks, which are individually risk-assessed and which are issued via the Regas Plant enterprise and asset management system, MAXIMO. PM tasks will include Work Instructions, and reference to standard forms or Documented Procedures to be used when carrying out the work.

Non-routine activities are referred to as Corrective Maintenance (CM) tasks, which are also issued through the MAXIMO system. Each activity must be risk-assessed as a condition of obtaining a safety document for the safe release of plant or apparatus for work. MAXIMO is interfaced to the Regas Plant NiSoft integrated software safety management system through which safety documents and isolation details are managed and recorded.

Some plant areas have risks associated with them owing to their location, such as LNG Pump Building, IFV skids, BOG Compressor Building, Switchgear Rooms, etc. These will be identified by means of Area Risk Assessments.

Sources might include, for example, COSHH substances, ionising radiation from NDT activities, stored energy in pipework or vessels, temperature, pressure, noise, electricity etc.

Situations might include, for example, Confined Space Working, Working at Height, and so on.

Physical conditions and human factors are taken into account when hazard identification and risk assessments are being prepared, and control measures decided upon and a final, on-the-spot review of hazards is carried out and recorded using the Work Area Safety Plan (WASP) RGU-41-RA-002 at the pre-work Toolbox Talk. Refer to Notes of Guidance RGU-42-NG-008, Setting to Work.

The Regas Plant Emergency Response Plan (which takes into account the Emergency Plan developed by AECOM for the ElectroGas Malta site as a whole – see table below), identifies likely emergency scenarios and provides instruction on actions to be taken in event of emergencies.

Reference	Designation	Contents
ENEM-AEC-E0-00-RP-SE-00013	General Data	Environment Site and Installations Process Dangerous Substances
ENEM-AEC-E0-00-RP-SE-00014	Alert and Evacuation	Emergency Alert and Immediate Actions Evacuation Procedure
ENEM-AEC-E0-00-RP-SE-00015	Detection, ESD and Fire Fighting Systems	Fire, Spill and Gas Detection Systems Emergency Shut-Down Systems Fire Fighting Systems External Fire Fighting Resources
ENEM-AEC-E0-00-RP-SE-00016	Roles and Responsibilities	Normal Operating Organization Emergency Control Systems Roles and Responsibilities Off-site Emergency Organizations Incident Reporting Requirements
ENEM-AEC-E0-00-RP-SE-00017	Emergency Response Scenarios	LNG Spill, Gas Release and Fire Scenarios FSU Specific Scenarios Medical Response Bomb Threat or Discovery of an Explosive Device Breach of Site Security Earthquake
ENEM-AEC-E0-00-RP-SE-00018	Emergency Drills	Training Requirements Periodic Drills

Station Operations personnel regularly review emergency situations as part of their normal work in order to maintain awareness and identify the best means of responding to incidents.

The Regas Plant O&M team will seek to liaise closely with the emergency services and involve them in the planning and execution of emergency response exercises.

The Regas Plant site lies within the overall EGM complex, which also contains the D4 CCGT and Floating Storage Unit (FSU). The FSU and D4 CCGT facilities are operated by their own respective O&M organisations.

The EGM site has an upper-tier COMAH/Seveso rating because the volume of LNG stored at the FSU constitutes a Major Accident Hazard

The EGM site in turn comes within the Enemalta site, which is also a COMAH site itself, based upon its volume of distillate storage.

Proximity to such major hazards outside the control of the the Regas Plant operator will be carefully considered both internally and in cooperation with the other operators at Delimara.

Included in risk-assessments will be the potential effects of the Regas Plant activities upon people who may be on site at the time, our neighbours and people visiting the

site. A Contractor Safety Procedure governs how outside contractors will be dealt with and a Control of Visitors Procedure details how people visiting the site are to be managed.

Because it is necessary for the Regas Plant O&M personnel to leave the confines of the Regas Plant (see 1.3 above) and traverse parts of the complex under the control of others to reach other areas falling under the responsibility of the Regas Plant O&M team, identification of hazards and assessments of risk must take into account dangers to personnel which these movements may entail.

Change presents a further source of hazard and risk, and the Regas Plant O&M team operates a formal Change Management Procedure to assess proposed changes to plant, equipment or controls. Change may also arise from changes in processes and procedures, which must be formally verified and approved before being communicated to those affected.

It is also the case that knowledge and understanding of hazards may change over time, arising from incidents and experience at the Regas Plant or elsewhere, and insights given by third-party studies. Legal and statutory requirements may change the way hazards and risks must be viewed and these too must be taken into consideration as part of the ongoing process.

6.1.2.2 Assessment of H&S risks and other risks to the H&S Management System

The process implemented at the Regas Plant for the assessment of risks from documented hazards is described in the HIRARC Procedure RGU-41-DP-003 and in the supporting standard forms, RGU-41-FC-001 Risk Assessment Proforma, RGU-41-FC-002 Work Area Safety Plan (WASP) and RU-41-FC-003 Area Risk Assessments. Note of Guidance RGU-42-NG-008, Setting to Work, also refers.

The system is proactive and compliance is mandatory.

A Register of Legal & Statutory Requirements and Compliance RGU-41-RD-001 has been established and is maintained. Changes to legislation are monitored by monthly reference to the Government Gazette on Department of Justice website. The activity is prompted by a PM task from the MAXIMO system.

As well as the hazards and risks dealt with above and in the HIRARC Procedure, there also exist risks which may affect the Health & Safety Management System itself.

Such risks may arise from;

- Inappropriate analysis of context or from analysis being outdated. By implementing a rigorous verification and approval process for documented procedures, by engagement and consultation with the Regas Plant O&M personnel and other interested parties, by internal audit and by reviewing the process on a regular basis, this risk may be avoided.

- Similarly, inadequate consideration of Health & Safety Management System requirements, management of change and other related Health & Safety issues in relation to strategic planning and other areas of the business, may be mitigated against.
- It is the responsibility of management to ensure that effectiveness the Health & Safety Management system is not impaired through failure to foresee and provide adequate resources, whether financial, personnel or other organisational imperatives.
- An adequate number of Regas Plant O&M staff will be trained in internal auditing and will be involved in cross-functional audit teams to implement an annual Health & Safety Audit program. Senior management will take an active part in ensuring that audit teams have the knowledge, resources and cooperation from all concerned to enable them to run effective audits.
- Management will endeavour to ensure the adequacy of succession planning for key Health & Safety Management System roles by a combination of Individual Development and Training Plans (ITDPs) and by inclusion of succession planning in scheduled Management Reviews of the System.

A training needs analysis is included in the development of the staff competency matrix. The ITDP process is undertaken annually and follows the following process;

- Review the individual's development needs
- Review the range of development opportunities
- Review individual safety training records
- Prioritise the individual's needs
- Agree actions
- Implement the ITDP
- Evaluate the transfer of knowledge to the workplace

Active engagement by top management in the activities of the Health & Safety Management System is a requirement of the ISO 45001 Standard and also the documented responsibility of management.

The Regas Plant O&M team's commitment to safety comes from the Chief Executive down, and senior managers have safety responsibilities as shown in the organisation chart in section 5.1.2 above.

This translates into the responsibility and accountability of the Regas Plant Manager to provide leadership and to demonstrate real commitment. Poor engagement by top management would be an unacceptable risk and should never arise.

- A commitment has been given to address the needs and expectations of relevant interested parties, without which the Health & Safety Management System would certainly be impaired. Management will ensure that workers and their representatives are actively involved through the Safety Committee and through consultation through the various processes and procedures relating to Health and Safety Management.
- Failure of the Health & Safety Management System to drive good safety performance would present a major challenge. However, through correct implementation and management of reviews and continual improvement initiatives, any slippage will be quickly identified and addressed. Compliance with all Health & Safety procedures, instructions, laws and regulations is mandatory and non-negotiable. Failures, whether inherent in the system or because of human factors are not acceptable.
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6.1.2.3 Identification of Health & Safety Opportunities and other opportunities

The Regas Plant O&M team will implement, and maintain systems to help the team identify opportunities to improve both Health & Safety Performance as well as the Health & Safety Management System itself.

Safety has been designed into the Regas Plant by the contractor during the equipment procurement and construction stage and by conducting a HAZOP/HAZID study.

The Regas Plant O&M team will use HIRARC process to identify, reduce, and where possible, eliminate hazards and consequent risks in the Regas Plant's operational phase.

The Regas Plant O&M team will operate a carefully managed process to manage change (ref procedure RGU-41-DP-004, Plant Modifications), which includes hazard identification, risk assessment and implementation of control measures as necessary.

The Regas Plant O&M Management encourages all its personnel to be involved in managing safety. To this end, a schedule of Internal Safety Audits will be planned and implemented annually, with special emphasis on periods of heightened activity, and when contractors are on site. Included will be Du-Pont style behavioural safety audits (form RGU-41-FC-011) and ongoing assessment of contractor safety performance.

The Regas Plant O&M team will operate an Incident/Near Miss reporting system and staff will be requested to report every potentially dangerous occurrence, event or behaviour they find during the course of their work. Actions arising will

be recorded in MAXIMO as Work Requests so that responsibilities can be assigned and progress to conclusion more easily tracked and reported. In addition, a register of reports will be maintained, which will be freely available to staff so that they can track progress against reports raised.

The result of audits and Incident/Near Miss (form RGU-41-FC-010) reporting will be actions to improve safety by identifying and removing or minimising risk, to find better and safer ways of working, and to heighten safety awareness.

In order to improve the visibility of management's commitment to the Health & Safety Management System, the Plant Manager will personally conduct monthly safety audits and raise Work Requests to address non-conformances or to have improvements actioned.

In addition, managers and supervisors will be given monthly targets for safety audits which must be completed.

The outcome of Internal Audits, Du-Pont style behavioural safety audits, incident and Near Miss reports will be discussed at Health & Safety Committee meetings. Safety Work requests will be treated as priority issues at each morning production meeting and at weekly reviews of the MAXIMO live backlogs for each department/section.

Accident/Investigation is carried out in compliance with procedure RGU-41-DP-006. The outcome of investigations will be discussed at the regular Safety Committee meetings. Formal investigations of serious accidents/incidents will include Safety Committee members on the investigation team and reports will be discussed with, and made available to, Committee members and other staff representatives.

The Regas Plant O&M team will liaise closely with its Head Office Safety Team for the reporting of LTIs and P1 (high severity) accidents and incidents. These are recorded in the company's safety management system and progress to closure of open cases tracked and reported upon.

In addition, the Regas Plant O&M team will send monthly safety reports to the Head Office Safety Team and will be involved in quarterly safety briefings held (using on-line meeting system) between the company's overseas locations to share experiences and knowledge.

Accident notification to OHSA will be as required by the Work Places (Health, Safety and Welfare) Regulations, S.L. 424.09 and the Regas Plant O&M management will cooperate fully with any investigations required by the competent authorities.

6.1.3 Determination of applicable legal requirements and other requirements

Requirements are summarised as including but not necessarily limited to

- Mandatory requirements; laws, regulations, corporate requirements, provisions of collective agreements that relate to the health and safety of workers where these are given legal effect;
- Commitment requirements; voluntary commitments to interested parties to which the organisation subscribes e.g. rules, guides and technical references
- Other requirements to which the Regas Plant O&M team voluntarily subscribes that relate to the Health & Safety Management System.

In respect of its legal and statutory requirements regarding Health & Safety, the Regas Plant O&M team will establish a formal register of Legal and Statutory Requirements and Compliance, ref. RGU-41-RD-001.

This document takes as its starting point the Occupational Health & Safety Authority Act (CAP 424) and examines each clause of the act and of the Subsidiary Legislation setting out the various Health and Safety Regulations S.L. 424.01 to S.L. 424.33, inclusive.

The document identifies each clause with which the Regas Plant O&M team must comply and explains how this is achieved in practice by reference to internal procedures and instructions designed to ensure compliance.

The Register is reviewed annually and when any change in the legal and statutory requirements occurs.

The Malta Government Gazette will be consulted each month by Technical Services Department and any changes or new laws or regulations relevant to the Regas Plant operations will be brought to the attention of management for further action.

Requirements other than legal and statutory are dealt with through procedures and planned tasks managed through the MAXIMO.

The need for compliance will be communicated to the Regas Plant O&M staff through procedures, instructions, training and ongoing management and supervision as well as through the Safety Committee and workers representatives.

Where necessary, compliance issues with external statutory authorities will be through the means specified by the relevant regulations and by liaison with OHSa and others. This includes statutory reporting issues.

Because the Regas Plant O&M team uses a common integrated business information management system across the ISO 45001, ISO 9001, ISO 14001 and ISO 55000 Standards (see section 1.4 above), legal and statutory requirements will always be taken into account in the maintenance and improvement of its Health & Safety and other business systems.

6.1.4 Planning to take action

The Regas Plant O&M team will identify and assess risks and opportunities and how the organisation will plan and carry out the necessary actions arising.

Legal and other requirements are identified and the mechanism by which compliance will be achieved will be identified.

In each case, where actions are identified as being necessary to close gaps or to address issues, the Regas Plant O&M team will use the MAXIMO system to assign, track, close and maintain records of these actions. Continual improvement actions will be managed using the same process.

The Regas Plant O&M team will operate an integrated business management information system across the ISO 9001, 14001, 55000 and 45001 standards to ensure that the actions planned and carried out are integrated into the overall business management system.

The company will utilise the Plan, Do, Check, Act cycle to keep the actions arising from the planning stage under review on a continuous basis through daily, weekly, monthly review sessions as well as through formal Management Review of the Health & Safety Management System. The Quality, Environmental and Asset Management strands of the business management system will follow similar review processes, with actions arising being fed back into the planning cycle once again.

The hierarchy of controls will be used as a driver in the planning process i.e. (a) eliminate the hazard, (b) substitute with less hazardous materials, processes, operations or equipment, (c) use engineering controls, (d) use administrative controls, (e) provide and ensure use of adequate personal protective equipment.

Action plans will take into account the company's own Safety Rules, procedures, processes and international best practice, as well as the requirements driven by legislation and regulation.

6.2 Health & Safety objectives and planning to achieve them

6.2.1 Health & Safety Objectives

The principal health & Safety objective is to maintain and at the same time to improve safety performance at the Regas Plant.

By eliminating, insofar as practicable, workplace hazards and by controlling to an acceptable level that which cannot be removed, the overall goal is to achieve zero LTIs.

This will be done with reference to the Regas Plant O&M team's Health & Safety Policy, Safety Rules, Codes of Practice and Procedures, best international practice and compliance with legal and statutory requirements.

Essential in achieving these goals are;

- Provision of a safe system of work
- Educating and communicating
- Increasing safety awareness and involvement
- Internal auditing
- Seeking continual improvement
- Management of change

The Regas Plant will have an annual Safety Improvement Plan, which will identify specific Health & Safety goals to be achieved and which will require the involvement of both management and staff to achieve.

Health & Safety objectives will be measured and the results fed back to correct and modify planning where necessary.

6.2.2 Planning to achieve Health & Safety objectives

As previously explained planning Health & Safety objectives at the Regas Plant does not exist in isolation but is an integral part of everyday activities at the Plant.

Safety is considered as a prerequisite for every job undertaken as is demonstrated by mandatory Risk Assessments and application of the Plant Safety Rules (Electrical & Mechanical). The MAXIMO system manages work allocation and Risk Assessments, and this is integrated with the software safety management system, NiSoft Eclipse.

Procedures, codes of practice, notes of guidance, legal requirements, and so on, are all utilised and referred to as a matter of course in planning to achieve the overall objective of zero LTI.

Every activity, whether a planned maintenance task, a corrective maintenance job, action arising from an audit non-conformance, incident or near miss, is planned through MAXIMO. This applies also to specific safety goals required by the annual Safety Improvement Plan.

In this way, it will be clear for every Health & Safety Objective that;

- What is to be done is clearly identified

- The resources needed will be stated
- Responsibility for results is assigned and clear for all to see
- Target completion is specified

Health & Safety Work requests can easily be collected in the MAXIMO system and reports prepared for weekly/monthly live backlog reviews. They can similarly be reviewed and discussed at regular meetings of the Health & Safety Committee, and can be viewed at any time by any staff member with access to the system.

On completion, history will be written and saved, thereby preserving a record of every safety-related activity undertaken and completed.

Results are evaluated on the basis of effectiveness.

Also included in planning to achieve is emergency preparedness and the capacity to respond effectively.

The Regas Plant is part of a complex subject to COMAH/Seveso directives. It exists within the ElectroGas Malta site, which is an upper-tier Seveso site, which in its turn is part of the Enemalta site which is also subject to Seveso directives.

Therefore, the Emergency Response Plan has its own considerations and objectives but must refer to the overall ElectroGas Malta complex Emergency Plan. The EGM Emergency Plan in turn must coordinate with the Enemalta Emergency Plan. The Regas Plant Emergency Response Plan is contained in the controlled document RGU-41-DP-002.

Because the Regas Plant O&M team operates an integrated business management information system, Health & Safety objectives and actions are visible and effective through the entire business.

7. Support (ISO 45001:2017, 7)

7.1 Resources

The resources required at the Regas Plant for the safe and efficient generation of electricity are many and diverse, and each resource brings with it Health & Safety considerations above those needed only to establish, implement and maintain the Health & Safety Management System itself.

Resources necessary include but are not necessarily limited to the following;

(b) Human resources

People are the single most importance resource and are consequently both the main ingredient and the subject of the Health & Safety Management System.

Employees at the Regas Plant are required to bring with them the knowledge, skills, experience and competence to safely and effectively carry out their specific tasks. This applies both the Plant's directly employed personnel as well as to contractors and sub-contractors who come to site to undertake various works or projects.

When dealing with contractors, it is not possible to ascertain behavioural competency or to be sure of their capacity to perform. Instead reliance is placed on having the contractor (who must be "Safety Approved") make a formal declaration that his personnel and sub-contractors are both fit and competent to undertake the task for which they are to be employed at the Plant.

(c) Financial

It is the responsibility of management to ensure that the Health and Safety Management System is adequately provided for in annual budgets and to uphold the maxim that there is never a choice to be made between cost and safety; If something cannot be done safely, it cannot be done.

Financial resourcing may include provision of the correct safety equipment, training, PPE, financing of the annual Safety Improvement Plan, maintenance of safety systems, and so on.

(d) Infrastructure

This term covers a wide range such as adequate buildings, offices and workshops in which to work with at least the degree of comfort required by legal and other standards. This would encompass adequate lighting, ventilation, sanitary and hygiene facilities, for instance.

It may also be considered to cover plant and equipment, IT, communications, firefighting, containment systems, alarm systems, roads, storage, and so on.

All of these are necessary for the functioning of the Health & Safety management System and each has its own safety considerations which must be assessed and their hazards and risks minimised.

7.2 Competence

When the Regas Plant O&M team uses the term “competence” it refers to not simply technical ability or knowledge, but also to a set of behavioural competencies that can be measured and observed, and which describes *how* people perform their roles.

The behavioural competencies of all staff will have been assessed initially at selection and these are used continually as part of staff development so that people know what is expected of them.

Each staff member will have a training needs analysis carried out and the resulting gaps, if any, will be used to prioritise training delivery.

Each staff member will have an individual training record and will be assessed against a competency matrix, which is designed to identify all the skills required and record demonstrated competency against those considered necessary to safely carry out various tasks. Where certificates of competency are required by law or regulation, these will be mandatory and copies will also be kept in the training record.

With regard to Health & Safety, no assumptions will be made and competency assessments will include;

- Education, previous training, qualifications and experience
- The person’s work environment
- Familiarity with the procedures, instructions and control measures put in place following hazard risk assessments
- Requirements applicable to the Health & Safety Management System
- Rights and responsibilities based upon legal and statutory requirements
- Understanding that compliance with Safety Rules and the Health & Safety Management System is mandatory
- Consequences and implications of non-compliance
- Duties and responsibilities associated with defined roles, such as the levels of competency for “Persons” as defined in the Safety Rules
- Understanding that under the Safety Rules, every employee has the right to object on safety grounds

- Understanding that every employee has the right to remove themselves from any situation of imminent danger

Staff will be trained and encouraged to audit and to participate in the management of their Health & Safety and Safety Committee members/workers representatives will receive specific training to enable them to fulfil their roles.

For contractor personnel, reliance is placed on a written declaration from the “Safety Approved” contractor in respect of the individuals presented for work at Delimara 4, and in addition, each person must undergo and pass a Site Safety Induction program to demonstrate that they understand the basic safety hazards, know what to avoid and how to respond in the event of an emergency.

7.3 Awareness

Every employee at the Regas Plant will be made aware of the Company’s Policy Statements;

Health & Safety Policy	RGU-00-PS-001
Quality Policy Statement	RGU-00-PS-002
Environmental Policy Statement	RGU-00-PS-003
Chemical Safety Policy Statement	RGU-00-PS-004
Prevention and Eradication of Drug, Alcohol and Substance Abuse in the Workplace (DASAPS)	RGU-00-PS-005
Asset Management Policy	RGU-00-PS-006

Every employee will receive training in basic firefighting, hearing conservation and basic first-aid.

Every employee, excepting those in finance/administration/clerical areas, will be trained in the Company’s Safety Rules RGU-42-DP-001, and individuals with responsibilities (Senior Authorised Persons, Authorised Persons, Competent-Persons etc.) will receive specific training and must demonstrate competency before being allowed to assume these roles.

Every employee will receive training on the EGM Emergency Response Plan and the response required of them in various emergency scenarios.

Every employee will receive training at the appropriate level on the Health & Safety Management System RGU-41-DP-001 and a number will be trained as Internal Safety Auditors.

The following is a list of site specific training that will included in the Regasification Plant Training Plan:

- Fire fighting and First Aid external course
- Personnel Protective Equipment
- Documentation preparation and change control
- Operation training simulation adjustment and training
- Certification for dangerous material handling
- ISPS port officer operator
- Live plant operation training and maintenance training on equipment
- HSE LNG related in-house training courses

Every employee will be informed as to the importance of their taking an active and meaningful part in the management of Health & Safety and the benefits this will bring to all employees.

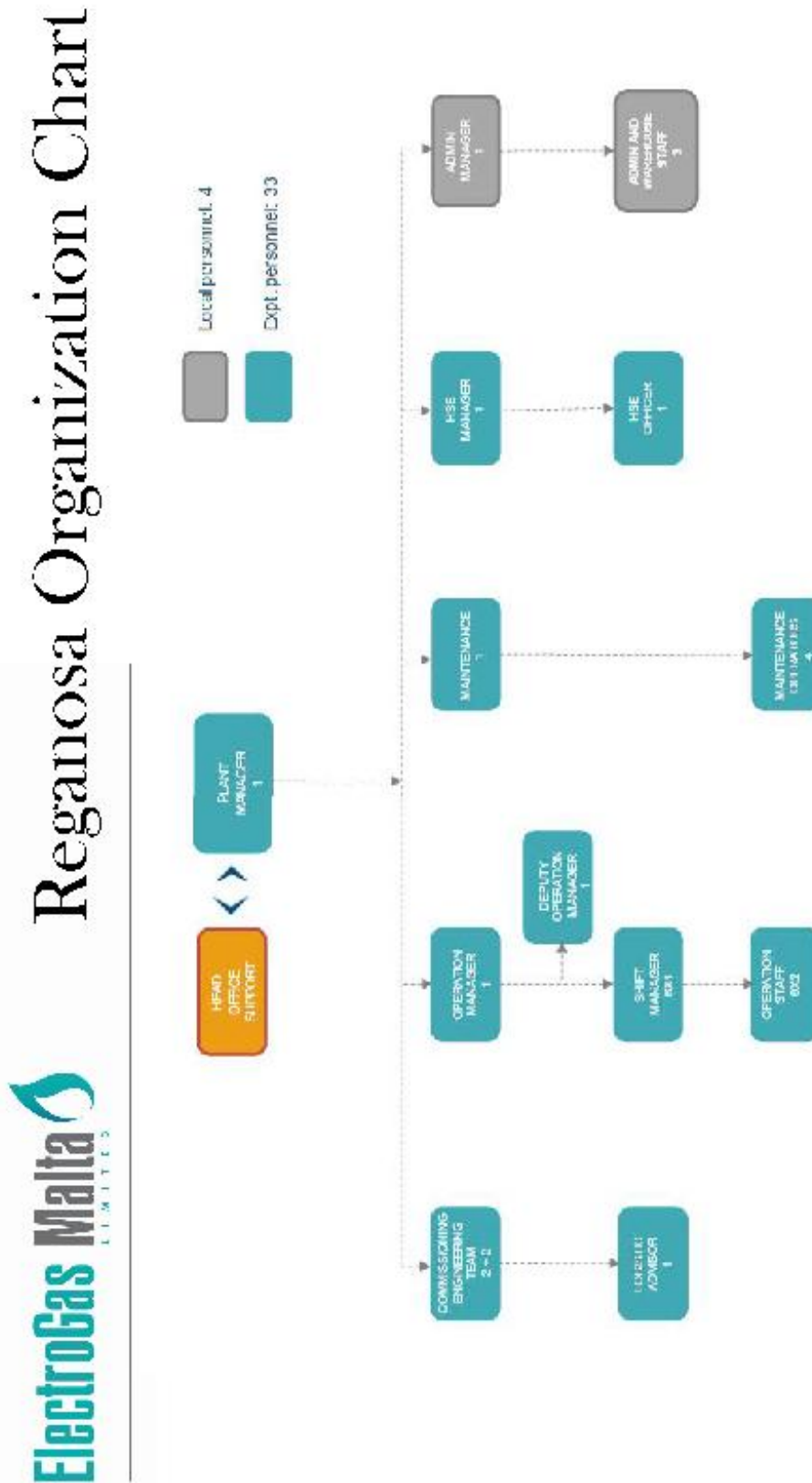
Every employee will have the hazards, risks and control measures relevant to their work explained to them and will be require to both demonstrate understanding and to comply at all times.

It will be clear to every employee, whether staff or contractor, and compliance with the Safety Rules and such procedure and instructions as are approved by management from time to time, are mandatory and that repeated violations will lead to dismissal/removal from site.

Each employee will be aware that he or she has the right to remove themselves from any situation of imminent danger and that they must report all unsafe situations, acts or behaviours to their line manager/supervisor as quickly as possible – and in confidence if they feel this to be necessary. Accident/Incident/Near Miss reporting structures are provided to support this desired behaviour.

With the exception of blatant disregard for the Safety Rules and procedures, the Regas Plant O&M Management will seek to operate a “no blame culture”, where we learn from our experiences and from the experiences of others in order to build a strong safety culture based on collaboration and improvement.

7.4 Information and communication (7.4)



The Regas Plant O&M team will establish and maintain channels for the flow of information both formally and informally, upwards, downwards and across the organisation at the Regas Plant. In addition, it will provide ensure that channels of communication exist with external interested parties both for routine and for emergency situations.

Internally

Formally, internal communication of matters related to Health & Safety and to the Health & Safety Management System is conducted at its highest level through the Safety Rules and procedures/instructions related to the provision of safe systems of work, which are the foundation of safety at the Plant.

There will be regular meetings of the Safety Committee, where any Health & Safety topic may be raised, discussed and minuted, and where actions are decided and progress reported upon. Safety performance and statistics are open for review and comment.

The Nominated Safety Engineer ensures that every new procedure or instruction, and every change to such a document is made known to the relevant people following completion of the revision process.

Similarly, every plant modification involves an approval process, after which any changes to plant and equipment are circulated and explained.

There is a safety conversation around every task carried out, in the form of Risk Assessments and the provision of Safety Documents required before work is allowed to proceed.

The Plant Manager communicates downward to his management team, who in turn brief their Team Leaders, who then brief their staff. Staff, in turn are encouraged to communicate any safety concerns or observations upwards to their line manager/supervisor and have the ability to track the progress of incident/near miss reports through a formal Accident/Incident/near Miss Reporting system and register so as to be satisfied that their concerns are being properly dealt with.

Provision is made for staff to have team discussions where issues which they feel have an impact on their health and safety and can bring these to the attention of management through the Safety Committee/worker representatives and/or through their line manager/supervisor.

Toolbox Talks are held prior to the commencement of work, where staff involved are briefed on and discuss specific hazards and risks and where the work crew complete and sign off on a Work Area Safety Plan (WASP).

Informally, every Shift change involves a handover discussion between the departing and arriving Senior Authorised Person (Shift Team Leader), where safety information (as well as operational information) is shared and passed on. The Shift Log provides a formal record of activities, including safety, carried out on each shift.

On the morning of each normal workday, there is an Operations (Production) meeting chaired by the incoming Senior Authorised Person (Team Leader). This meeting is

attended by the Plant manager, Production Manager, Technical Services manager, Station Chemist and Maintenance Supervisors (Team Leaders). The first topic to be considered at this meeting is safety i.e. what happened on the previous shift, any Safety Work requests arising, and the safety needs of each job planned for the coming day.

Each afternoon, there is a safety meeting to consider the work planned for the following day and to ensure that the Senior Authorised Person fully understands the implication both for safety and availability, and to ensure that he/she is in possession of valid Risk Assessments etc., so that Safety Documents can be prepared overnight and be ready for the following morning.

During maintenance outages, this process may be the subject of a separate meeting with the Permit Engineer (a Senior Authorised Person whose sole task it is to manage Safety Documents for the period) and the relevant Managers, Supervisors and, where appropriate, contractors.

Each week, there is a “live backlog review” meeting chaired by the Plant Manager and attended by the Management team, Supervisors, Station Chemist and either or both of the engineers attached to Technical Services Department. Again, the first topic here is the Safety Work request backlog, with each section/department being challenged to explain if safety jobs have not been completed by their due date and to discuss the issues surrounding new and outstanding safety jobs as appropriate.

Informally, the safety conversation is ongoing.

Every time a supervisor, Manager or Senior Authorised Person goes out on the plant, his/her priority task is to be aware of unsafe situations, acts and behaviours and to address them appropriately and promptly.

Operations Technicians will, on a regular basis prompted by a MAXIMO PM, discuss together possible emergency scenarios and explore how they would most effectively respond to them.

The EGM Emergency Response Plan is communicated and available to all, but it is recognised that without practice, such plans are quickly forgotten and therefore the information must be communicated to staff in a way other than through regular evacuation drills. This is done by making a realistic emergency exercise, involving the emergency services and as many staff as possible, the highlight activity during the Plant’s annual Safety Week.

In this way, there is a constant internal communication, with safety information being shared in all directions.

Externally

Interested parties with who the Regas Plant O&M team must, as an organisation, communicate regarding safety on a routine basis include;

- ElectroGas Malta; Communication is generally at Plant Manager-level and can take the form of formal reports, formal meetings or informal day-to-day discussions and briefings as required.
- The Grid and D3 Operator, Enemalta; Operationally, the Control Room communicates routinely with the Enemalta to declare availability, to inform of issues and to receive dispatch instructions. It will from time to time be necessary for work on plant/apparatus to be carried out by either the Regas Plant O&M team or Enemalta that involves putting in place safety arrangements across operational boundaries.

This arises where safety isolations must be implemented on one or both sides of the boundary. A formal procedure will exist to ensure that the safety process between the two sides is properly carried out and recorded using the Record of Interconnection Safety Precautions.

The Regas Plant receives LNG from the FSU and supplier natural gas to the D\$ CCG Plant and again, there is ongoing operational communication with both of these Operators. A similar formal system exists to ensure safety across boundaries of systems.

- On the legal and statutory side, the Regas Plant O&M team would expect to be in regular contact with both OHSA and ERA, mainly in the form of submission of routine reports but also to arrange safety related inspections e.g pressure vessels inspections, cryogenic pipework inspections and so on.

This communication would normally be expected to occur between the Technical Services Manager and the competent authorities' representatives, although Operations and Maintenance Managers as well as Senior Authorised Persons will also communicate and exchange information from time to time as appropriate.

- The Government Gazette will be consulted at least monthly by Technical Services Department to ensure that the Station is made aware of any changes or additions to the body of legal and statutory regulation with which it must comply. This information gathering is an essential part of legal and statutory compliance.
- Contractors will feature in the task of managing Health & Safety at the Regas Plant, and a special Contractors' Safety Procedure RGU-41-DP-007 has been prepared for this purpose.

Contractors wishing to be considered for work at the Regas Plant 4 must first read, understand and undertake in writing to abide by this procedure. In this way, and unless they lose the status through unacceptable safety performance, they become Safety Approved Contractors and eligible to work at the Regas Plant.

Contractors will be audited on their safety performance and the results communicated to them, with the requirement that they engage and address and non-conformances or improvement opportunities highlighted. In addition, some specialised contractors will be required to conform to specific standards and/or codes of practice.

- Communication with suppliers in relation to safety may take the form of additional terms and conditions to purchase orders above the standard commercial terms. An example of this would be chemicals suppliers who must provide Material Safety Data Sheets with the products they supply.
- Communication and exchange of safety information will take place with the Company's Head Office in terms of the reporting of safety performance and Accident/Incident Reporting from the Regas Plant O&M team to Head Office and the communication of Safety Alert Notifications from Head Office to the Regas Plant O&M team when the occasion arises. Additional intra-company communication takes place on a quarterly basis when the Company's overseas locations engage in a safety shared-learning teleconference to discuss Health & Safety topics and events which have occurred and from which the sharing of experience can be beneficial to all.

Emergency Response Protocols

It is important that communication protocols exist in the event of emergencies, when both staff and external agencies must know how to expect important information to be imparted, by whom, to whom and in what form.

The EGM Emergency Response Plan covers this in some detail.

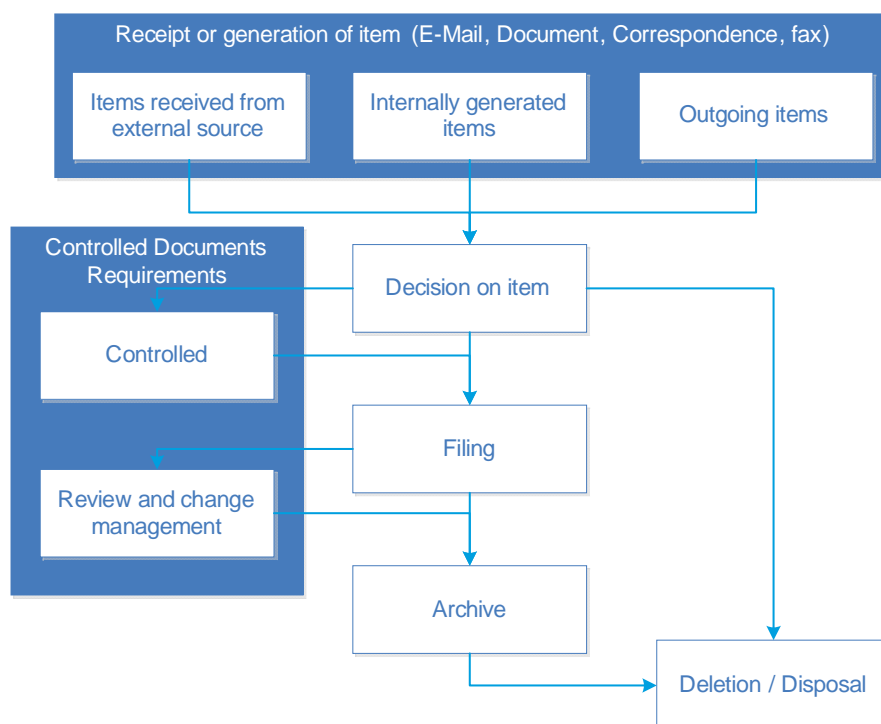
7.5 Documented information

7.5.1 General

The procedure Communications, Document & Data Control, RGU-00-DP-002, has been created to govern the management of correspondence and documentation, including communication through formal meetings, briefing notes, etc., and seeks to ensure such items are controlled, traceable and accessible, as appropriate.

The integrated business information management system will record all the documents required across the ISO 45001 / 9001 / 14001 and 55000 standards and will be managed in SharePoint.

The procedure is described graphically in the figure below;



7.5.2 Creating and updating

Documents created within the organisation will follow the format and identification methods described in the procedure BMS Document Naming & Numbering, RGU-00-DP-001.

Certain items are subject to specific restrictions and additional measures for issue and to ensure they are up to date. These items are termed “Controlled documents” and shall be stored in the Business Management System (BMS) part of the Regas Plant IMS.

Controlled Documents shall only be kept on the BMS, any printed copies shall not be valid. As stated in RGU-00-DP-001 Document Naming and Numbering, the following Meta Data must be correctly selected for each document:

- Document owner number
- Document type indicator
- Issue date
- Review date
- Document revision number
- The Standard the document is related to
- If the document is live or being retired.

7.5.3 Control of documented information

The procedure Communications, Document & Data Control, RGU-00-DP-002 (see diagram in 4.5.1 above) sets out how documented information required by the Health & Safety Management System is controlled to ensure its integrity and availability.

8. Operation (ISO 45001: 2017, 8)

8.1 Operational planning and control

8.1.1 General

In section 6 above (ISO 45001:2017, clause 6), it was explained how the REgas Plant O&M team would plan to identify hazards and risks, assess risks, identify opportunities, identify and set objectives for the Health and Safety Management System, and plan to achieve these objectives.

Operational planning and controls will be established and implemented to improve health and safety and to eliminate hazards or, where elimination is not practicable, to reduce risk to the level of ALARP for the processes necessary to meet the requirements of the Standard and to implement the actions identified in Clause 6.

The criteria are to ensure that each of the processes will be free of undesired effects and completed in a safe, effective and efficient manner.

Operational control of the processes will be achieved by using control options with the highest reliability in preventing work-related injury or ill-health:

- The mandatory Regas Plant O&M Safety Rules as described in section 4.3. The Safety Rules Danger deal with danger inherent in the System arising from the design function of the Plant and Apparatus, and this philosophy requires that the Safety Rules, when implemented, will achieve the safety of personnel at work from these inherent dangers at the commencement and during the course of work. The rules to not deal with General Safety.
- The Safety Rules are supplemented by Safety Rules Procedures, Codes of Practice and Notes of Guidance.
- General Safety deals with danger arising from the environment at and in the vicinity of the work point and not associated with the System. Procedures and local safety instructions are provided and must be complied with.
- All the Regas Plant assets are described and identified in the MAXIMO asset management system. All work is issued through MAXIMO, which is integrated with the NiSoft Eclipse safety management system. Risk Assessments and Safety Documents are an integral and essential before plant is released and work is allowed to proceed.
- Where appropriate, work Orders from the MAXIMO system will come with a set of Work Instructions, which may incorporate safety requirements for a particular task.
- No worker will be asked to perform a task for which he/she does not possess the appropriate training or competency. Individual training records are held for each staff member and a “competency matrix” has been developed for the Regas Plant Operations and Maintenance.

- Based upon OEM (original equipment manufacturer) manuals, manuals supplied by the EPC Contractor, and the Regas Plant O&M team's best-practice experience, planned/preventive/predictive maintenance tasks have been developed. As with Corrective Maintenance, these PM tasks issue through the MAXIMO system at the appropriate intervals.
- When ordering spares and materials, care is taken to ensure that the engineering data and specifications held in the MAXIMO database are used to ensure that items ordered are to the correct specification. For new orders of previously unpurchased or un-stocked items, the accuracy and appropriateness of item specification will be verified through the tendering, purchase requisition, and purchase order approval process.
- Only contractors who have demonstrated their health and safety bona-fides and who are included on the List of Safety-Approved Contractors will be permitted to work on the Regas Plant site. A dedicated Contractor Safety Procedure and Safety Checklist have been developed, with which contractor compliance is mandatory.
- As a prudent Operator, the Regas Plant O&M team operates and maintains plant and equipment in compliance with the manufacturer's instructions and recommendations. Where safety mechanisms are included on machinery or plant, great care is taken to ensure that their ongoing satisfactory operation by means of regular testing, prompted by MAXIMO PM tasks.
- As a general rule, the hierarchy of controls will be employed when developing operational controls of processes, and this may often comprise both engineering and administrative aspects.
- The possibilities to adapt work to workers are limited. The overall process is a three hundred and sixty five day a year, twenty-four hours a day operation, and the product is electrical energy rather than a tangible, physical item capable of storage or movement. The System is inherently dangerous and requires the strictest compliance with Safety Rules and procedures.

Workers are encouraged to give their feedback on the organisation of work and work safety, so if there are improvements to be found, these will, after assessment, be implemented.

Care is taken to ensure that workers are properly trained and that they possess the necessary competencies. New entrants to site (e.g. contractors and visitors) are given a safety induction to make them aware of the hazards pertaining to the Regas Plant.

There should not be any situation where the absence of documentation could or would lead to deviations from Health & Safety policy or objectives. On the basis that

“if it isn’t written down, it never happened”, great care is taken to record and to maintain records, and to ensure that these records are available for inspection should the need ever arise.

The Delimara complex is somewhat unusual in having Enemalta the owner of the overall site and running its generation and grid control there, with the EGM complex within this geographical area and composed of three separate but interlinked functions (FSU, Regas Plant and D4 CCGT). Some of the Regas Plant areas of responsibility reside physically inside the areas controlled by both Enemalta and D4 CCGT.

There are a number of service terminal points (see section 4.3) where one of the entities gives services to or receives them from one of the other entities.

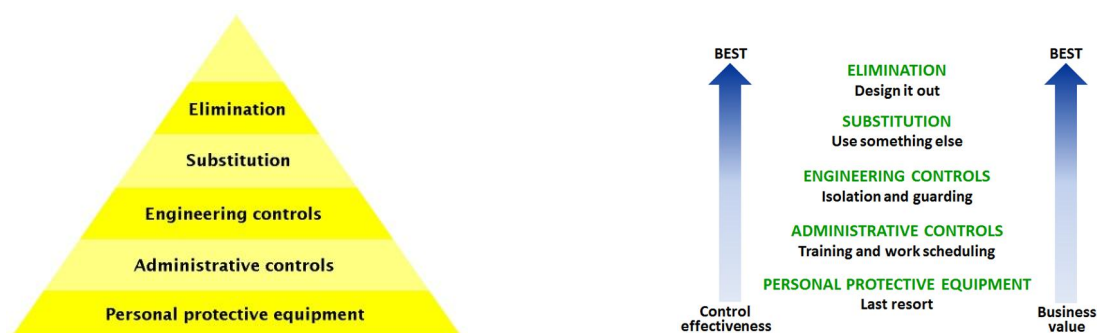
All these interfaces between the various entities are managed through formal arrangements for operating across system boundaries.

In terms of emergency response, the emergency plans of each entity, while serving the interests of their own personnel and areas of responsibility, will also overlap both horizontally and vertically for both operational reasons and to ensure compliance with COMAH/Seveso regulations.

The Regas Plant O&M team will ensure the effectiveness of the operational controls are monitored, measured, analysed and evaluated. Where non-conformances or improvement opportunities are identified, the necessary actions will be planned, assessed and implemented using the processes already described.

8.1.2 Hierarchy of controls

The Regas O&M team will consider the most effective control measures to minimise risks and implement those considered appropriate to the risks. Using the hierarchy of control, the following are the control measures:



The documented procedure Hazard Identification, Risk Assessment and Risk Control (HIRARC), RGU-41-DP-003 explains this in detail.

8.2 Management of Change

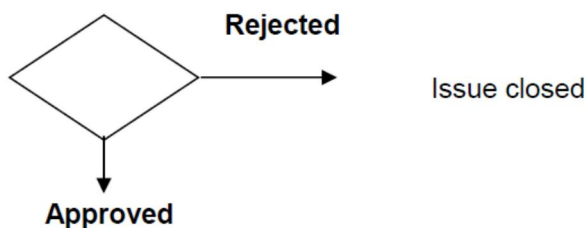
The Plant Modification Procedure, RU-41-DP-004 has been implemented to provide the Regas Plant O&M management team with a system for evaluating and approving technical changes, including associated hazards and risks.

This document applies to all new and existing plant, apparatus and systems installed and operated at the Regas Plant.

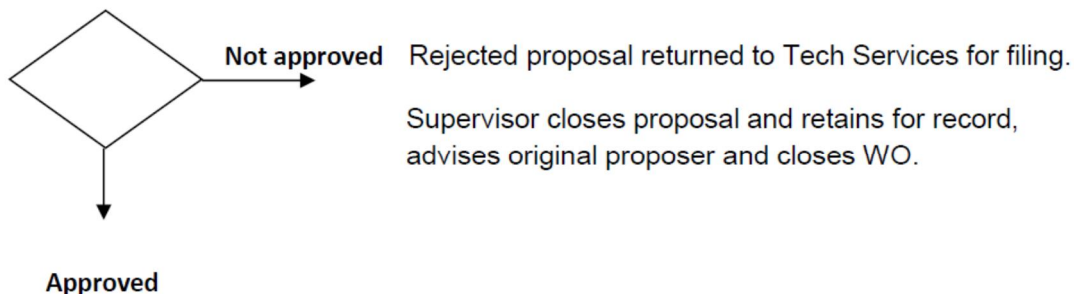
The process flow is outlined in the diagram below –

Modification process flow diagram

1. Modification Owner discusses with appropriate Manager/Supervisor and raises WR.



2. Modification Owner raises plant modification proposal, obtains registration number from Technical Services, and conducts HIRARC
3. Technical Services scans all documents and places them on the IBMIS.
3. Modification Owner circulates proposal to appropriate Managers/Supervisors etc. for review and comment.
4. Proposal returns to Modification Owner for assessment of comments etc. received during circulation.
5. Modification Owner makes any necessary amendments and forwards to Plant Manager for approval



6. For overlapping interests, Plant Managers of Delimara 4 and other affected Delimara operations agree.



7. Plant Manager returns approved proposal to Tech Services and advises the Modification Owner to implement the modification.

8.3 Outsourcing

The Regas Plant O&M team will put in place procedure RGU-30-DP-003, Qualification of Suppliers and Contractors, which explains how contractors, suppliers and service providers are assessed and evaluated prior to their inclusion on the respective Lists of Qualified Contractors (RU-20-FC-003) and Qualified Suppliers (RGU-20-FC-004) respectively.

Qualification of Suppliers and Contractors Questionnaire, RGU-30-FC-001, is used for the formal evaluation process.

Contractors, Suppliers and Service Providers may be Qualified on the basis of previous experience in supplying goods and services to the Regas Plant. The form Qualification of Suppliers & Contractors; Evaluation from known Performance, RGU-30-FC-002, shall be used to record this process.

Contractors must, in addition, comply with the Contractor Safety Procedure, RGU-41-DP-007 and become Safety Approved. Safety Approved Contractors are listed in the document RGU-41-FC-016.

At the discretion of the Plant Manager, Original Equipment Manufacturers and their approved agents may be exempted from the need for “qualification” on the grounds that these have been qualified during the Project phase. This exemption would be confined to the provision of spare parts for the original equipment or supply of the same type of equipment.

8.4 Procurement

The procedure Procurement of Goods and Services, RGU-20-DP-002, has been established to describe how the Regas Plant O&M team will manage and govern procurement.

This document defines the procedures and controls applicable to the placement of orders for materials, maintenance and services contracts, which will be implemented.

The objectives of this procedure are:

- To control purchases of goods and services
- To ensure the goods and services are suitable for the intended purpose
- To ensure value for money is obtained when procuring goods or services
- To ensure proper documentation is maintained to record the process of each procurement

It covers the following:

- Plant spares
- Chemicals
- Lubricating Oils
- Other Materials Orders (Non Stores)
- Maintenance & Service Contracts
- Other Service Contracts as required by needs of the Regas Plant

Suppliers and contractors must be pre-qualified (see reference to procedure RGU-30-DP-003 in 8.3 above).

Procedure RGU-30-DP-004, Receipt of Incoming Goods and Materials, has been put in place to detail the process for receiving, checking and placing items into storage at the Regas Plant.

It is intended that separation between the function of handling received materials and that of finance and administration of order processing is maintained according to good practice. This protects the individual, the Regas Plant O&M Company and ElectroGas Malta Ltd.

Items delivered to the Regas Plant Stores are subject to quality assurance checking, using form RGU-30-FC-004, Quality Plan for Incoming Goods and Materials.

In addition, there is a separate process for the Control of Incoming Substances Hazardous to Health. This ensures that MSDS (Material Safety Data Sheets) are supplied for such items and involves assessment by the Station Chemist and approval by the Nominated Safety Engineer before release to be issued for use at the Plant.

8.5 Contractors

Contractors are pre-qualified using the procedure RGU-30-DP-003 and may not be offered contracts for work at the Regas Plant until they commit to the Contractor Safety Procedure RGU-41-DP-007 and are added to the List of Safety Approved Contractors RGU-41-FC-016.

A Contractor Safety Checklist RGU-41-FC-017 must be satisfactorily completed before Safety Documents will be issued and contractor work is allowed to proceed.

Except in cases where a contractor employee has been trained and has been authorised as a Competent Person under the Regas Plant's Safety Rules RGU-42-DP-001, contractor staff are supervised by a Regas Plant O&M Competent Person.

The procedure RGU-20-DP-002 exists to describe the controls on Procurement of Goods and Services.

8.6 Emergency Preparedness and Response

The Emergency Response Plan developed by AECOM for the whole of the ElectroGas Malta site, ref table below, identifies likely emergency scenarios and provides instruction on actions to be taken in event of emergencies.

Reference	Designation	Contents
ENEM-AEC-E0-00-RP-SE-00013	General Data	Environment Site and Installations Process Dangerous Substances
ENEM-AEC-E0-00-RP-SE-00014	Alert and Evacuation	Emergency Alert and Immediate Actions Evacuation Procedure
ENEM-AEC-E0-00-RP-SE-00015	Detection, ESD and Fire Fighting Systems	Fire, Spill and Gas Detection Systems Emergency Shut-Down Systems Fire Fighting Systems External Fire Fighting Resources
ENEM-AEC-E0-00-RP-SE-00016	Roles and Responsibilities	Normal Operating Organization Emergency Control Systems Roles and Responsibilities Off-site Emergency Organizations Incident Reporting Requirements
ENEM-AEC-E0-00-RP-SE-00017	Emergency Response Scenarios	LNG Spill, Gas Release and Fire Scenarios FSU Specific Scenarios Medical Response Bomb Threat or Discovery of an Explosive Device Breach of Site Security Earthquake
ENEM-AEC-E0-00-RP-SE-00018	Emergency Drills	Training Requirements Periodic Drills

Station Operations personnel regularly review emergency situations as part of their normal work in order to maintain awareness and identify the best means of responding to incidents.

The Regas Plant O&M team will seek to liaise closely with the emergency services and involve them in the planning and execution of emergency response exercises, which will take place at least annually.

The Regas Plant site lies within the overall EGM complex, which also contains D4 CCGT and Floating Storage Unit (FSU). The FSU and D4 CCGT facilities are operated by their own respective O&M organisations. The EGM site has an upper-tier COMAH/Seveso rating because the volume of LNG stored at the FSU constitutes a Major Accident Hazard

The EGM site in turn comes within the Enemalta site, which is also a COMAH site itself, based upon its volume of distillate storage.

Proximity to such major hazards outside the control of the Regas Plant operator will be carefully considered both internally and in cooperation with the other operators at Delimara.

9. Performance evaluation (ISO 45001:2017, 9)

9.1 Monitoring, measurement, analysis and evaluation

9.1.1 General

The process used for monitoring, measuring and evaluating Health & Safety Management system performance is described in document RGU-00-DP-004, Performance Measurement. This results-based process will be used across the business.

The following shall be determined;

- (f) What needs to be monitored, e.g. Progress on meeting Health & Safety policies and objectives, legal and other requirements, effectiveness of operational controls, hazards and risks
- (g) The criteria against which performance can be measured by reference to KPIs and gap analysis
- (h) M&E methods employed so as to ensure validity of results
- (i) Strategically deciding what will be monitored and how
- (j) Strategically deciding what will be evaluated and when, including stakeholder involvement and timely dissemination of the results

Calibration and verification is dealt with under the Maintenance Department procedure RGU-30-DP-005, Inspection, Measuring, Monitoring & Test Equipment.

Following the Performance and Evaluation procedure, there are five steps involved in evaluating Health & Safety performance as follows;

- Step 1: Clearly identify what the health and safety objectives are.
- Step 2: Develop performance measures which indicate achievement of these objectives.
- Step 3: Collect information on these measures of effectiveness.
- Step 4: Analyse the results and decide upon improvements.
- Step 5: Implement changes and start again.

Step 1, Identifying Health & Safety Objectives

With reference to the Performance and Evaluation procedure, the desired objectives or goals are referred to as Outcomes.

The primary desired outcomes for the Health & Safety Management Systems are –

- Meeting the legal and other requirements applicable at the Regas Plant and
- Maintaining, as far as is practicable, a safe working environment for employees and contractors

To evaluate performance, the organisation will look at what it is doing to achieve these Outcomes.

The desired Outcomes will be achieved through, among others, through

- effective management with commitment and personal involvement at all levels of the organisation;
- work planning and control, so hazardous situations and conditions are avoided;
- facilities, equipment, education and training, to ensure healthy and safe working conditions and methods

To evaluate the Health & Safety Management System against these objectives, for example, it will be necessary to see what programs have been put in place to meet them e.g. training will be provided, so it is necessary to see how well training is contributing to ensuring “healthy and safe working conditions and methods”.

Here, facilities, equipment, education and training are inputs, healthy and safe working conditions and methods are the Output and the desired Outcomes are those defined above.

Other more specific objectives relate to strategies, commitment, roles and functions e.g.

Strategic goals:	Health and safety strategies will be developed annually to improve health and safety performance.
Commitment and responsibility goals:	Personal commitment to health and safety will be demonstrated at all levels.
Work environment goals:	Health and safety practices and procedures, and the work environment, will be regularly reviewed

Part of the evaluation of these goals will be to determine whether the arrangements have been made as committed to e.g. are the health and safety strategies being developed annually?

Evaluation will also include an assessment of how well these Outputs are contributing towards the Outcomes. Each individual strategy will be examined and a determination made as to how well it is achieving the aim of improving health & Safety performance.

The question of meeting legal and other requirements is dealt with in section 9.1.2 below.

Step 2, Developing performance measures

The second step involves the development of measures which will indicate progress towards achieving aims and objectives. These measures may be stated in objectives, or built into the health and safety programs established.

Whatever indicators are chosen to measure performance, they will be put in place beginning, when the objective, plan or program is established.

Long-term as well as short-term measures of performance will be sought. Measures to look at overall management of health and safety and to look at individual strategies and programs will be employed.

Short term measurements, long term indicators, quantitative measures, qualitative measures as well as measures of timeliness will be required.

Measures will yield information about the program or activity being evaluated e.g. for an objective to reduce the number of lost time injuries, then injury and illness records will be used to measure if this is being achieved, and by how much (quantitative measures).

Some short term measures include: an assessment of whether your plans are being implemented; the proportion of health and safety grievances which were resolved successfully at shop-floor level; and any reduction in the number of health and safety grievances.

The main aim of the health and safety management system is to reduce work related injury and illness. Some of the changes that take place in the workplace to achieve this goal may not show up in the short term. Long-term indicators therefore include: injury and illness rates; incidence of gradual onset injuries; and the hidden costs of injury and illness.

Quantitative measures are measures available from health and safety records. They include: the number of incidents; the number of employees trained; the number of work procedures developed, and the number of hazards identified and eliminated.

Qualitative measures give more information about the numbers, and are helpful in analysing the success and failure of particular strategies. Qualitative measures include: the types of issues being raised by employees and health and safety representatives; employees' level of awareness of the health and safety policy; how the health and safety performance is being taken into account in the performance assessment of supervisors and managers; and evidence that management is leading by example.

An important aspect of effectiveness is whether the activity happened in a timely way. Measures of timeliness include: whether the training timetable is being followed; whether the timetable for implementing the strategies is being observed; the response time for corrective action on inspections; or maintenance requests being handled promptly.

It will be necessary to plan the measures to be used when the respective programs or strategies are being set up e.g. to establish ways of collecting records about injuries and illnesses and to ensure that incident reporting is conducted as required.

Step 3, Collecting information on measures of effectiveness

Once it has been decided what measures to use, it will then be decided how this information will be collected, how often it will be collected, and who will collect it. These decisions will depend on the program or strategy being evaluated and the types of measures to be collected.

Information will be collected by reference to KPIs, the Register of Legal & Statutory Requirements, specifically constructed routine PM tasks, checklists and audits, among others.

Health & Safety KPIs (which will change and develop over time) are

- Number of LTIs
- LTI Frequency Rate
- Minor Injuries
- Minor Injuries Frequency Rate
- Near Miss / Incident
- Near Miss / Incident Frequency Rate
- Percentage of Incident/Near-miss reports satisfactorily closed out
- Good Catch
- Percentage of managers/workers with acceptable OSH training (ref Competency Matrix)
- Number of workplace inspections carried out
- Number of Safety Audits completed
- Number of unsafe behaviours recorded in behavioural safety audits
- Percentage of OSH CM jobs completed on target
- Percentage OSH PM jobs completed on target
- Percentage completion of Safety Improvement Plan
- Percentage staff OSH suggestions responded to
- Percentage of Scheduled Safety Committee Meetings held
- Percentage attendance at Safety Committee Meetings
- Percentage Contractor Safety Performance Evaluations up to date
- Percentage scheduled safety training completed

How often this information is collected will vary according to the nature of the measures, and the system or strategy being evaluated. For example, some indicators relating to training will need to be assessed at the end of every training course.

The overall performance of the Health & Safety Management System may only need to be assessed annually.

Whatever the respective timetable, information will be collected regularly so that changes can be identified.

Depending on what is being monitored and evaluated, evaluation teams may receive health and safety performance information from a work area or location. It may also be collected on a health and safety system operating throughout the workplace. In both cases the role or function of collecting the information will be clearly allocated.

In specific locations, supervisors or line managers can collect information on the areas under their control. Small workgroups or teams can collect information on their own area.

It is considered essential that stakeholders e.g. the Health and Safety Committee and Health and Safety Representatives should be involved in evaluation.

Step 4, Analysis results and deciding on improvements

Measurement is not an end in itself. It is necessary to analyse these records and to understand the information so it can be used to identify improvements to both the Health and Safety Management system as well as particular strategies.

The results of monitoring and information collection will show whether a strategy is achieving its objective (desired Outcome), or if performance is up to the standard set. If the desired Outcome has not been achieved or the desired improvement target has not been met, then the information collected will be examined to determine the reasons. This will help to identify and arrange improvements or changes to the objective or strategy.

If a strategy is not working, there are a number of questions to ask and it is important that these are addressed critically and without preconceptions;

- Was the objective realistic and achievable?
- Is the objective relevant to current technology and values?
- Was the strategy implemented as planned?
- Was there adequate training, information and understanding of the strategy?
- Were there resources available to implement the strategy?
- Did work organisation allow the strategy to work?

- Was responsibility for implementing the strategy allocated?
- Are the responsibilities understood?
- Did the information you collect accurately measure performance of the strategy?

The information gleaned from this analysis will be used to fine tune strategies, to reset standards and to identify areas of Health and Safety needing more systematic management.

Step 5, Implementing change and restarting the process

Once improvements to the Health and Safety Management System have been identified and agreed with stakeholders, the results will be made known and corrective action implemented.

Follow-up corrective action will be taken promptly to demonstrate management commitment to health and safety.

New or improved strategies will be implemented and then the evaluation process will begin again, using any lessons, mistakes and achievements to help the process. Effective evaluation is a continuous cycle of action, analysis and change.

9.1.2 Evaluation of compliance with legal and other requirements

The Regas Plant O&M team has established a Register of Legal and Statutory Requirements, and Compliance document reference RGU-41-RD-001, which sets out each clause in each piece of main and subsidiary legislation with which compliance is required at the Regas Plant, states how compliance is demonstrated and who is individually responsible in each case.

A process of gap-analysis will be applied to this register to identify shortcomings and non-compliances, and while a number of gaps may be expected at the outset, the objective will be to close these quickly and completely.

It is anticipated that once gaps have been closed, the frequency with which this register needs to be revisited will decrease and monitoring and evaluation can be conducted by examination of PM tasks completed with adequate history written, and by auditing, where non-conformance reports and accompanying MAXIMO Work Requests will be generated and tracked to completion. The Performance and Evaluation procedure RGU-00-DP-004 will be applied.

On a monthly basis, the Malta Government Gazette online will be consulted to determine whether there is any new legislation or modification to existing laws or

regulations requiring action. This activity will be prompted by a MAXIMO PM task and closed with history written.

Because the Regas Plant O&M team uses a common integrated business information management system across the ISO 45001, ISO 9001, ISO 14001 and ISO 55000 Standards (see sections 1.4 and 6.1.3 above), legal and statutory requirements will always be taken into account in the maintenance and improvement of its Health & Safety and other business systems.

Other requirements may arise from ElectroGas Malta Ltd. Procedure RGU-00-DP-004, Determination and Review of Customer Requirements and Satisfaction has been prepared to manage this process, and will also be used for other stakeholders with whom the Regas Plant O&M team acts as a representative of EGM and to whom it has Health & Safety obligations.

Similarly, requirements arise from contractor safety management, ref procedure RGU-41-DP-007, and so on.

9.2 Internal Audit

The Internal Audit Procedure RGU-00-DP-005 describes the methodology used by the Regas Plant O&M team for Internal Auditing across the Regas Plant integrated management system as part of the performance monitoring and evaluation process. The exception to this procedure is for specialised audits of the Plant Safety Rules, RGU-42-DP-001. Safety Rules audits are carried out using procedure RGU-42-DP-008, Safety Rules - Audit of Safety Rules.

Internal Auditors will be trained to IRCA Internal auditor standards, and the Nominated Safety Engineer will act as the Health & Safety Manager. As such, he will be responsible for the preparation of the audit schedule and plan and for ensuring that the audit procedure is followed and that Internal Audits are properly reported to the Management Review.

When planning Internal Audits, the Regas Plant O&M team will take into consideration the processes having priority in terms of the Health & Safety Management System, including the impact those processes may have on the outcomes of Risk Assessments.

Non-Conformances arising from audits will be linked to MAXIMO Work Orders so that responsibility and their progress to closure can be more easily monitored.

Typical subjects for Internal Audits will be –

- Legal and statutory requirements
- Management's Health & Safety priorities as identified from other parts of the performance monitoring and evaluation processes
- Health & Safety procedures, policies and codes of practice
- Risk assessments of both work processes and the Health & Safety Management System itself

- Contractor Health & Safety performance
- Follow-up from previous audits
- Incidents, non-conformities and corrective/preventive actions
- Staff involvement and participation
- Customer and other stakeholder requirements
- Progress towards the desired outcomes of Safety Improvement and other plans designed to deliver continual improvement

9.3 Management Review

The procedure RGU-00-DP-009, Management Review, describes how the management review process will be managed across the integrated business management system, including the Health & Safety Management System.

Management review shall, at regular intervals, and with proper planning, review the Health & Safety management System to ensure its continuing suitability, adequacy and effectiveness.

Management review of the Health & Safety Management System shall include, but may not be limited to the following –

- (c) The status of actions from previous management reviews
- (d) Changes in internal and external issues relevant to the Health & Safety Management System including;
 - 3) Legal and other requirements
 - 4) Health & Safety risks and opportunities
- (e) The extent to which Health & Safety policy and objectives have been met
- (f) Information on health & Safety Management System performance including trends in;
 - 7) Incidents, non-conformities, corrective actions, and continual improvement
 - 8) Worker participation and outputs of consultation
 - 9) Monitoring and measurement results
 - 10) Audit results
 - 11) Results of evaluation of compliance
 - 12) Health & Safety risks and opportunities
- (h) Relevant communications with interested parties
- (i) Opportunities for continual improvement
- (j) Adequacy of resources for maintaining an effective Health & Safety Management System

Outputs from the Management Review shall include decisions related to –

- Conclusions on the continuing suitability, adequacy and effectiveness of the Health & Safety Management System
- Continual improvement opportunities
- Any need for changes, including resources
- Actions needed, when objectives have not been met.

These outputs will be communicated to relevant stakeholders and workers representatives e.g. the Safety Committee.

The process will be properly documented and records retained.

10 Improvement (ISO 45001:2017, 10)

10.1 Incident, non-conformity and corrective action

The following procedures will apply –

- RGU-41-DP-006, Accident/Incident Reporting and Investigation
- RGU-00-DP-006, Non-conformance Management
- RGU-00-DP-007, Corrective and Preventive Action

In addition, because plant trips or incidents may have a health and safety component, the Plant Trip or Incident Report form, RGU-40-FC-003 is also relevant.

The purpose of these procedures and reports is to provide a framework to help ensure that there will be a timely reaction to incidents or non-conformances, resulting in direct action being taken to control or correct it and to deal effectively with the consequences.

When an incident or non-conformance is found, action will be taken to determine its root cause, implement corrective action to prevent recurrence and to examine whether there are other similar incidents or non-conformances that may require proactive action. The Safety Committee and other appropriate interested parties will, as far as practicable, be involved in investigations of accidents or serious incidents/non-conformances. A formal risk-assessment will be conducted, which will assess both the risks themselves and risks as they may apply to the Health & Safety Management System, which may also be changed if this is deemed necessary.

Management System, which may also be changed if this is deemed necessary.

In deciding on corrective any actions, the hierarchy of controls i.e. (a) eliminate the hazard, (b) substitute with less hazardous materials, processes, operations or equipment, (c) use engineering controls, (d) use administrative controls, (e) provide and ensure use of adequate personal protective equipment, will be applied and the Plant Modification Procedure, RGU-41-DP-004, will be adhered to whenever changes are recommended. The effectiveness of mitigation measures or changes will be reviewed.

Records of accidents, incidents and non-conformances will be retained and the outcome of investigations and corrective/preventive actions will similarly be maintained and made available to staff and other interested parties.

10.2 Continual improvement

The procedure RGU-00-DP-008, Continual Improvement, applies.

10.2.1 Continual improvement objectives

Continual improvement is intended to be a step-by-step approach to gaining improvements in the Health & Safety Management System over time and is therefore an ongoing and unending search for enhancements.

Its objectives are, in collaboration with staff, to prevent as far as possible the occurrence of accidents, incidents and non-conformances, to promote a proactive and positive culture of health and safety in the workplace, and to secure and retain improvements in health and safety performance going forward.

10.2.2 Continual improvement process

In conjunction with the general objectives described above, management will ensure the ongoing implementation of the Continual Improvement procedure and use information gained from Performance Evaluation, Risk Assessments, Incident Reports, and so on to help prioritise and set specific health and safety objectives which can be measured and for which people are held accountable through KPIs, Safety Improvement Plans etc.

Clauses and sub-clauses of the Health & Safety Management System Standard Requirements providing inputs into continual improvement are –

Clause/sub-clause	Description
4	Context of the organisation
5.4	Participation, consultation and representation
6.1	Actions to address risks and opportunities
6.2	OH&S objectives and plans to achieve them
7.4	Information and communication
9.1	Monitoring, measurement, analysis and evaluation
9.2	Internal Audit
9.3	Management review
10.1	Incident, con-conformity and corrective action

Appendix A – List of Procedures for Commissioning Phase

Document Reference	Rev	Title / Description
2779-15-ME-LI-00001	0	SPARE PARTS FOR ERECTION COMMISSIONING AND STARTUP
2779-15-GE-QP-00001	2	IFV - COMMISSIONING PROCEDURES / COMMISSIONING MANUAL
2779-25-PR-QP-00001	0	BOG COMPRESSORS - SITE TEST PROCEDURE (COMMISSIONING)
2779-30-OM-MA-00003	0	D4PP GRS COMMISSIONING MANUAL
2779-30-OM-MA-00004	0	D3PP GRS COMMISSIONING MANUAL
2779-60-GE-QP-00001	0	AUXILIARY COOLING WATER SYSTEM (COMMISSIONING)
2779-60-GE-QP-00001	1	AUXILIARY COOLING WATER SYSTEM (COMMISSIONING)
2779-74-GE-QP-00001	0	FIRE PROTECTION SYSTEM COMMISSIONING & TESTING PROCEDURE
2779-50-GE-QP-00001	1	WATER GLYCOL SYSTEM COMMISSIONING PROCEDURE
2779-25-GE-QP-00004	0	BOG SYSTEM COMMISSIONING PROCEDURE
2779-30-GE-QP-00001	1	NATURAL GAS SYSTEM COMMISSIONING PROCEDURE
2779-72-GE-QP-00001	0	COMMISSIONING PROCEDURE NITROGEN SYSTEM
2779-73-GE-QP-00001	0	COMMISSIONING PROCEDURE DEMINERALISED WATER SYSTEM
2779-50-GE-QP-00001	2	WATER GLYCOL SYSTEM COMMISSIONING PROCEDURE
2779-75-GE-QP-00001	1	COMMISSIONING PROCEDURE POTABLE WATER SYSTEM

PART 3

Delimara FSU

Safety Management System

CONTENTS

- 1. Introduction**
- 2. FSU O&M Organization Chart**
- 3. Corporate Major Accident Prevention Policy**
- 4. FSU SMS Documentation**
- 5. FSU Safety Critical Operation Manuals**

1. Introduction

Bumi Armada Berhad will maintain and operate the Floating Storage Unit (FSU), on behalf of ElectroGas Malta, as part of the LNG Terminal at Delimara.

The scope of this Safety Management System is two-fold, firstly to describe Bumi Armada Berhad's lifecycle approach to the identification & assessment of major accident hazards, and secondly to define the minimum standard expected with respect to the implementation of the FSU operations in compliance with relevant statutory requirements whilst as ensuring that risk levels are as low as reasonably practicable (ALARP).

Bumi Armada Berhad is committed to compliance with all health, safety & environmental (HSE) regulatory, flag state, classification, client and contractual requirements. In accordance with this commitment, Bumi Armada Berhad has implemented their Compliance Assurance Management System (CAMS) in order to ensure compliance with all identified regulatory, contractual and other requirements applicable to the activities the group is responsible. Bumi Armada Berhad further respects the legal frameworks and regulatory approaches of the Flag States within which our FSU facility is registered as well as the Country within which we operate.

Bumi Armada Berhad's aim is to ensure that the FSU O&M team:

- Identifies and has access to all relevant, current & applicable HSE regulatory requirements and that our HSE management system conforms to these identified requirements;
- Communicates these requirements to appropriate Company/AMO personnel; and
- Promote awareness and understanding of these requirements.

The ElectroGas Malta complex, of which the FSU is one part (the others being the CCGT Power Station and the Re-gas facilities respectively), is designated as an upper tier COMAH/Seveso site.

COMAH Regulation

Due to the large amount of LNG stored and handled (> 200 tonnes), ElectroGas' new plant will be an "upper tier" establishment as defined by the Control of Major Accident Hazards (COMAH) Regulations that implement the Seveso III Directive (Directive 2003/105/EC). The Directive has been transposed into Maltese law through the Control of Major Accident Hazards (COMAH) Regulations - L.N. 179 of 2015.

In Malta, the competent Authority is the Occupational Health and Safety Authority (OHSA) together with the Environment & Resources Authority (ERA) and the Civil Protection Department of the Ministry for Home Affairs and National Security (CPD). OHSA takes the lead in coordinating the administrative actions of the COMAH Competent Authority.

Application of the Seveso III Directive depends on the inventory of dangerous substances, defined using CLP Regulations (classification, labelling and packaging of substances) allowing the COMAH Regulations to continue to be applicable.

The main approach of the Seveso Directive remains the same: Identification, Controls & Mitigation. Seveso III Directive has the same component parts: Safety Management of sites capable of producing major accident hazards, Emergency Planning, Land-use Planning & Inspection.

Seveso III covers the consequences for both human health and the environment. The main difference between the current Seveso III Directive and the old Seveso II is in the area of Information to the Public, Access to Justice, Public Participation and Inspection.

Finally, the main objective of the COMAH Regulations is to put focus on Major Accident Hazards involving dangerous substances which can cause serious damage or harm to people and/or the environment and that the operator shall prevent and mitigate the effects of those major accidents. "Major accident" means an occurrence (including in particular, but not limited to, a major emission, fire or explosion) resulting from uncontrolled developments in the course of the operation of any establishment and leading to serious danger to human health or the environment, immediate or delayed, inside or outside the establishment, and involving dangerous substances.

Safety Report

The Article 10 of the Seveso III Directive requires that an operator of an upper-tier Seveso type establishment produce a safety report. No significant additional requirements were introduced from previous Seveso II Directive.

The key features of the safety report can be described by means of the following questions (extracted from "Guidance on the preparation of a safety report", MAHB).

The safety report is intended to demonstrate that:

- A Major Accident Prevention Policy (MAPP) and a Safety Management System (SMS) have been put into effect;
- Major accident hazards are identified and necessary measures have been taken to prevent such accidents and to limit their consequences for man and the environment;
- Adequate safety and reliability have been incorporated into the design, construction, operation and maintenance of any installation;
- Internal emergency plans have been drawn up, supplying information to enable the external emergency plan to be drawn up;
- Information for land-use planning decisions has been given.

The safety report is to include the following minimum data and information that are specified in more detail in Annex II of the Seveso III Directive:

- Information on the MAPP and on the SMS;
- Presentation of the environment of the establishment;

- Description of the installation(s);
- Hazard identification, risk analysis and prevention methods;
- Measures of protection and intervention to limit the consequences of an accident.

The safety report has been completed by ElectroGas Malta as the operator for the entire site even though it has contracted separate O&M contractors to operate the Power Station, Re-Gas Facility and FSU, respectively. The FSU O&M team will advise the ElectroGas Malta should any such modification have taken place

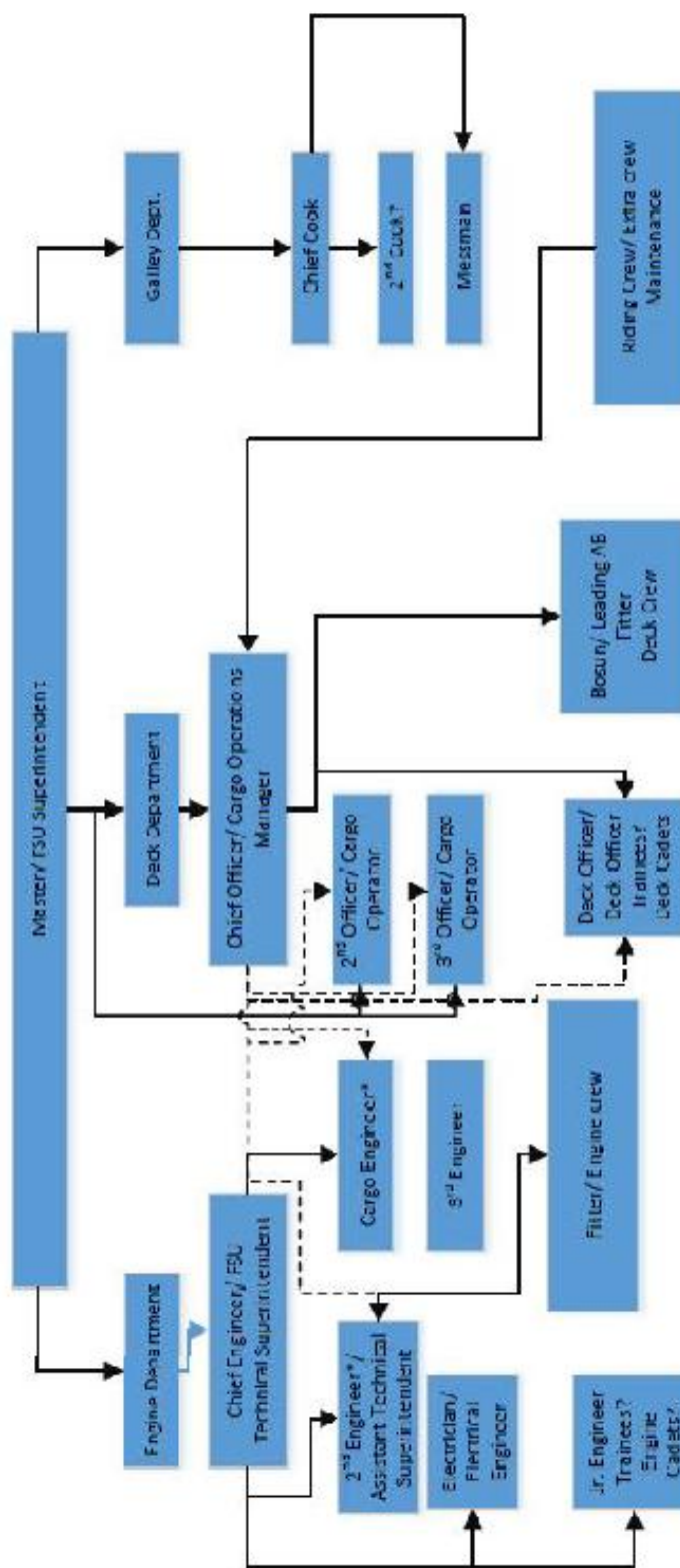
The Safety Report consists of the following referenced documents:

Reference	Designation	Issued by	Date
ENEM-AEC-E0-00-RP-SE-00005	Description of the Environment	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00004	Description of the Installations	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00003	Hazard Identification	AECOM	October 2015
ENEM-AEC-E0-00-RP-SE-00002	Consequence Analysis	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00010	Risk Assessment	AECOM	March 2016
ENEM-AEC-E0-00-RP-SE-00007	Safety of the Installations	AECOM	October 2015


The safety report will be reviewed and, if necessary, updated at least every five years, or at the initiative of the Operator or at the request of the Competent Authority, or in case of a “significant” modification of the establishment, the installation, the storage facility, the process, the nature of dangerous substance(s) or the quantity of dangerous substance(s).

2. FSU O&M Organization Chart

ElectroGas Malta LIMITED BUMI Organization Chart



3. Corporate Major Accident Prevention Policy

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CORPORATE MAJOR ACCIDENT PREVENTION POLICY



BUMIARMADA

A2	16-Aug-2016	Roland Martland	Minor Revision Re-Issued for Use	Ed Benham	Roland Martland
A1	20-Jun-2016	Roland Martland	Minor Revision Re-Issued for Use	Ed Benham	Roland Martland
A0	08-Jan-16	Roland Martland	Issued for Use	Ed Benham	Chan Chee Beng
R0	03-Sep-15	Roland Martland (Head HSSEQ)	Initial Issue	Ed Benham (HSE Manager)	Chan Chee Beng (CEO)
REV NO	DATE	BY	DESCRIPTION	CHECK	APPR
OWNER : Corporate HSSEQ - Roland Martland					


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DESCRIPTION OF CHANGES

Section Affected	Description of Change	Rev
All	Minor Modifications	A0
5.2.4/5.2.7	Text altered to reference environmental critical activities based on UK Regulator Comments	A1
3.2	Text altered to change reference to latest EU directive on major accident hazards	A2

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1.0 Purpose

- 1.1 This Corporate Major Accident Prevention Policy (CMAPP) describes mandatory governance requirements for the management of hazards arising from BAB's operations that could lead to a major accident and cause harm to people, the environment and adversely impact BAB's ability to continue to function as a business.
- 1.2 This CMAPP supports and enhances the HSE requirements in BAB's HSE Policy and subordinate Health, Safety, Security, Environmental and Quality Management Systems (HSSEQMS), with regards to the management of major hazards.


2.0 Scope

- 2.1 This CMAPP is applicable to all of BAB's activities where major hazards are present and appropriate risk controls are needed. Major accidents in BAB's business consist of, but are not limited to:
 - Process safety accidents
 - Transportation accidents
 - Structural integrity accidents
 - Marine integrity accidents
 - Environmental pollution accidents
 - Major health accidents

3.0 References

- 3.1 The Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 (UK Government)
- 3.2 Directive 2012/18/EU of the European Parliament and Council – the control of major-accidents hazards involving dangerous substances

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4.0 Definitions and Acronyms

4.1 Definitions

Major Accident – Company Definition

An uncontrolled release of energy causing, or with significant potential to cause, death or serious injury to persons engaged in Company activities and/or significant adverse effects to the environment.

Major Accident – Offshore Industry Definition

Refer to: The Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 – Regulation 2.

Performance Standards - A statement defining the functionality, availability, reliability and survivability of Safety and Environmental Critical Elements, SECEs and any interdependence between them.

4.2 Acronyms

ALARP – As Low As is Reasonably Practicable – Term used to represent the risk level assigned by the Company to major accident consequences based on an evaluation of the cost or practicability of implementing additional risk reduction measures versus the reduction in risk achieved (usually applied to safety risk only but can be applied to all risks).

SECE – Equipment, plant or computer systems provided for the purpose of either preventing, controlling, mitigating or recovering from a major accident.


5.0 Compliance Requirements

5.1 CMAPP Accountability and Responsibility

The accountability for ensuring compliance with this CMAPP is applicable to all BAB group legal entities - herein referred to as "Company" - resides with the Company CEO.

The CEO shall assign specific responsibilities to the Core Management Team, CMT, for its implementation. The CMT shall allocate additional CMAPP responsibilities to specified management within the Company.

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The Company's Board of Directors shall also exercise and record their duties to demonstrate suitable oversight of the risks associated with major hazards and the effectiveness of Company management controls.

5.2 CMAPP Management System Elements

The basis of this CMAPP is largely derived from the United Kingdom Safety Case requirements (Ref para 3.1) and the European Union, (EU) Directive (Ref para 3.2).


The following sections describe the CMAPP system elements.

5.2.1 Major Accidents - Organisation, Personnel & Competency

The Company shall ensure that:

- The organisational structure and contractual relationships are designed and resourced in order to minimise the likelihood of a major accident and the adverse health, safety and environmental consequences should one occur;
- All Company employees and contractors' personnel are made aware of the possible causes, likelihood and consequences for major accidents and the Company's relevant standards, procedures and work instructions;
- The responsibilities of all Company employees and contractors' personnel for major accident risk control are defined in job descriptions, procedures and work instructions;
- All Company employees and contractors' personnel are selected and trained to ensure that they have the necessary competency to control major accident risks;
- Management systems are in place to co-ordinate the Company's HSSEQ activities across all Company business entities to ensure its effectiveness in managing major hazards;
- Reports are issued regularly on the Company's performance in meeting targets for major accident competency and training requirements of identified employees and contractors;
- Competency exists via a designated Company Board member capable to understand and advise the Board on major hazard risks to the Company and the adequacy of the risk controls that are in place.

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5.2.2 Major Accidents – Leadership and Culture

The Company's management at all levels shall demonstrate a commitment to safety leadership and a focus on promoting a robust major accident risk management culture by:

- Conducting major hazard leadership visits to business entities focused on major hazard risk controls;
- Providing communication to, consultation with and encouraging feedback from personnel on major accident improvement plans and issues and concerns identified from incidents, internal and external reviews and audits;
- Requiring project and operations' management to report on major hazard risks to the CMT;
- Providing a feedback process for all employees to comment on the safety culture climate in the Company via surveys and the reporting of safety violations to line management and/or the Company's Whistle Blowing Committee;
- Recognising personnel who display positive behaviours that support a robust safety culture.


The overriding objective shall be to attain a culture in the Company that aligns with the characteristics of high reliability organisations.

5.2.3 Major Accidents - Identification & Evaluation of Hazards

The Company shall ensure that for potential major hazards under its direct operational control:

- The identification and evaluation of major hazards covers all phases of our projects and routine and non-routine operations;
- Major hazard risk controls, including people, processes and plant are provided such that risks are reduced to ALARP;
- The identification and evaluation of major hazards are detailed in project and operational plans, standards and procedures and made available to relevant personnel;
- The results of major hazard risk assessments are analysed and areas for improvement identified, prioritised, scheduled and communicated;
- The responsibility for managing the process of hazard identification and risk assessment is allocated to personnel competent to execute such duties.

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5.2.4 Major Accidents - Operational Control

The Company shall ensure that Major Accident Hazard (MAH) risks are reduced to ALARP by exercising control over all aspects of the company's operations by ensuring that:


- Safety and environmental critical operating procedures and work instruction are identified and developed in order to reduce the likelihood and consequence of a major accident, with a particular emphasis on minimising human error;
- Operations management consult with and provide suitable feedback mechanisms for relevant personnel to comment on the effectiveness of safety and environmental critical operating procedures and works instructions;
- Safety and environmental critical operating procedures and work instructions are reviewed on a regular basis and updated to reflect changes in industry best practices and operational experience;
- SECEs are identified and maintained according to a defined examination scheme throughout the operational asset life in order to ensure risks remain ALARP;
- Operational Risk assessments, ORAs, take place when SECEs are impaired.
- The Board is briefed on a regular basis on the effectiveness of risk controls applied throughout the asset lifecycle as regards MAH governance standards, procedures, work instructions and guidance.

5.2.5 Major Accidents - Management of Change, MOC

The Company shall ensure that all operations have processes in place to manage changes to our people, process and plant that affect major accidents risks by ensuring that:

- MOC procedures are developed for projects and operations that enable the identification and approval, at an appropriate level, of changes that affect MAH risks;
- MOC is applied to permanent and temporary changes that affect MAH risk;
- Appropriate MOC reviews, including any changes to competency requirements, are implemented to ensure that changes are effective and MAH risks remain ALARP.

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5.2.6 Major Accidents – Managing Emergency Response

The Company shall define suitable major accident emergency and crisis response plans and procedures by ensuring that:


- Approved major accident Emergency Response Plans, ERPs, are in place;
- Relevant personnel are competent as regards specific emergency response duties under the ERPs;
- The ERP details the response of relevant personnel in the event of a major accident and is tested by means of regular exercises;
- The ERP defines the arrangements for the co-ordination with national and international emergency response services;
- The ERPs and crisis response procedures are reviewed and tested periodically to ensure their continued effectiveness;

5.2.7 Major Accidents - Monitoring Performance

The Company shall define the requirements for monitoring and recording the Company's performance in managing MAHs, which shall include:

- Risk based, Key Performance Indicators, KPIs, set at Company, operating entity, asset and system level;
- Active (leading indicator) performance monitoring, including inspections and testing of SECEs and checking compliance with safety and environmental critical training, procedures and work instructions;
- Passive (lagging indicator) performance monitoring, including failure of safety and environmental critical plant, equipment and instrumentation and uncontrolled releases of energy such as loss of primary containment from process systems;
- Compliance with legislation relevant to major safety and environmental accident management;
- Performance against major safety and environmental accident prevention assurance and verification activities where relevant;
- Performance against project and operational KPI's covering major safety and environmental accident precursors, near misses and accidents;

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- Effective close-out of corrective and preventive actions identified from all monitoring activities;

5.2.8 Major Accidents – Audit, Review, Feedback and Improvement

The Company shall ensure that people, process and plant risk controls continue to remain effective, in order to demonstrate that major accident risks are controlled to ALARP by:

- Risk based reviews and audits regarding the application of the CMAPP and related HSSEQMS;
- Investigation and review of incidents that have, or could have, caused a major accident and close-out of corrective and preventive actions;
- Providing regular feedback to all personnel on major accident risks, issues and concerns;
- Developing and implementing a continuous Company major hazard risk assessment review process to improve our ability to manage major accidents;

MAH performance measures, issues and concerns shall be reviewed by the entity management team and action plans developed and passed to the CMT and Board for review and approval. The progress of major hazard action plans shall be reported throughout the Company and to contractors' personnel as appropriate.

6.0 Appendices

None

4. FSU SMS Documentation

The FSU Safety Management System comprises of the following suite of documents;

No	Document Number	New Document Title
1.	BAB-CORF-CMA-HSSEQ-POL-0006	Corporate Major Accident Prevention Policy
2.	OPS-CBGF-ALL-HSE-PPT-0001	Site Safety Induction
3.	OPS-CBGF-ALL-COT-PRO-0002	Contractor Selection & Management Procedure
4.	OPS-CBGF-ALL-CME-STD-0001	Compliance Management Standard
5.	OPS-MALT-ALM-CME-REG-0001	Compliance Register
6.	OPS-CBGF-ALL-HSE-STD-0001	Operational Risk Management Standard
7.	OPS-CBGF-ALL-AIM-STD-0001	Asset Integrity Management Standard
8.	OPS-CBGF-ALL-OPS-STD-0001	Operations Management Standard
9.	OPS-CBGF-ALL-CME-STD-0002	Performance & Audit Management Standard
10.	Various	Position Descriptions
11.	OPS-CBGF-ALL-COT-STD-0001	Procurement & Contractor Management Standard
12.	OPS-CBGF-ALL-TRG-STD-0001	Competency & Training Management Standard
13.	OPS-CBGF-ALL-HSE-PRO-0001	Risk Assessment Procedure
14.	OPS-CBGF-ALL-DMG-PRO-0001	Document Control Procedure
15.	OPS-CBGF-ALL-HSE-PRO-0002	MOC Procedure
16.	OPS-CBGF-ALL-HSE-PRO-0011	Incident / NC Reporting Procedure
17.	OPS-CBGF-ALL-HSE-PRO-0012	Incident / NC Investigation Procedure
18.	OPS-CBGF-ALL-CME-PRO-0002	Internal Auditing Guideline
19.	OPS-CBGF-ALL-HSE-STD-0003	Internal Auditing Procedure
20.	OPS-MALT-ALM-DMG-REG-0001	Document Register
21.	OPS-CBGF-ALL-AIM-GDL-0001	CMMS Administration Guideline
22.	OPS-CBGF-ALL-AIM-GDL-0002	Inspection & Maintenance Lane / Strategy Development Process Guideline
23.	OPS-CBGF-ALL-AIM-GDL-0003	Corrosion Management Guideline
24.	OPS-CBGF-ALL-AIM-GDL-0004	Flexible Hose Assembly Integrity Guideline
25.	OPS_CBGF-ALL-AIM-SPE-0001	CMMS Functional Specification
26.	OPS-CBGF-ALL-AIM-PRO-0001	Operations Performance Standard Development Procedure
27.	OPS-CBGF-ALL-AIM-PRO-0002	Maintenance Deferral & Backlog Management Procedure
28.	OPS-CBGF-ALL-AIM-PRO-0003	Temporary Repair and Anomalies Management Procedure
29.	OPS-CBGF-ALL-HSE-MAN-0003	PTW System Manual
30.	CBGF-HSE-FRM-0011	Emergency Drill Schedule
31.	OPS-CBGF-ALL-COM-GDL-0001	Safety Representative & Safety Committee Guideline

5. FSU Safety Critical Operation Manuals

No	Document Number	New Document Title
1	OPS-MALT-ALM-MAR-PLN-0001	Ballast Water Management Plan
2	OPS-MALT-ALM-ENV-PLN-0002	Waste Management Plan
3	OPS-MALT-ALM-HSE-PLN-0006	Shipboard Oil Pollution Emergency Plan
4	OPS-MALT-ALM-MAR-MAN-0001	Initial Start Up Manual
5	OPS-MALT-ALM-MAR-MAN-0002	Ship to Ship Transfer Manual
6	OPS-MALT-ALM-MAR-MAN-0003	Cargo Handling Manual
7	OPS-MALT-ALM-MAR-MAN-0004	LNG Send Out Manual
8	OPS-MALT-ALM-MAR-MAN-0005	Inwater Survey In Lieu of Dry Docking
9	OPS-MALT-ALM-ENG-MAN-0001	Engine Room Operating Manual
10	3954-MM-PO-900-001	PID Cargo System
11	3954-MM-JD-435-001	Side By Side Arraignment Armada LNG Mediterrana
12	3954-MM-JD-435-002	SBS Gemmata
13	3954-MM-JD-435-003	SBS Hispania Spirit
14	3954-MM-JD-435-004	SBS Mitre
15	3954-MM-JD-435-005	SBS Castello De Santisteban
16	3954-MM-SD-799-001	ESD & PSD Cause and Effect Diagram