Base Load Power Hub (BLPH)

CONTRACT HSSE PLAN
ONSHORE PHASE

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1 INTRODUCTION

1.1 Project Overview

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

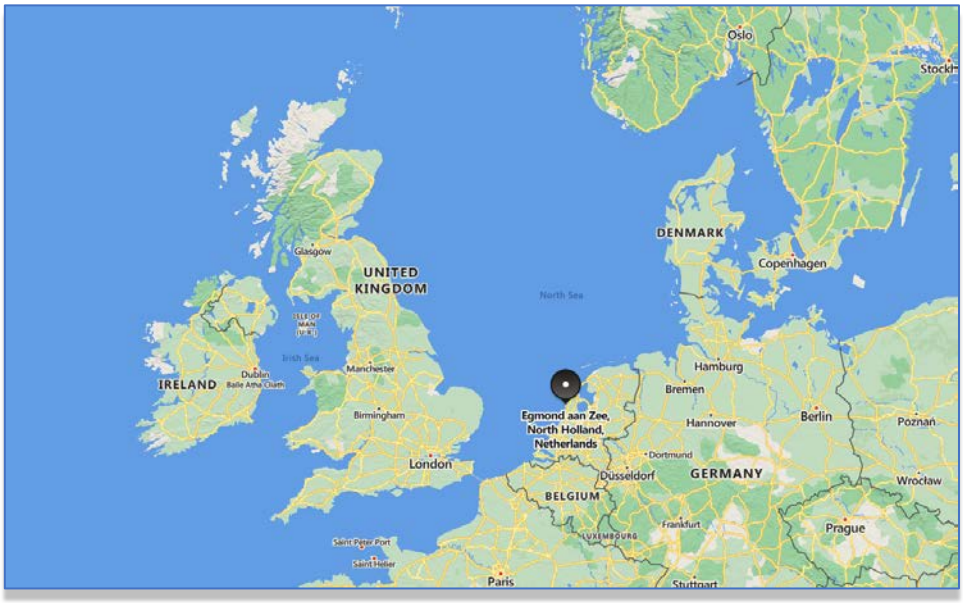


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

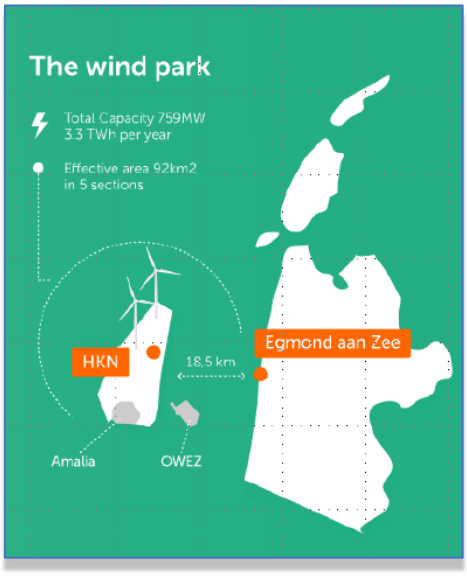


Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

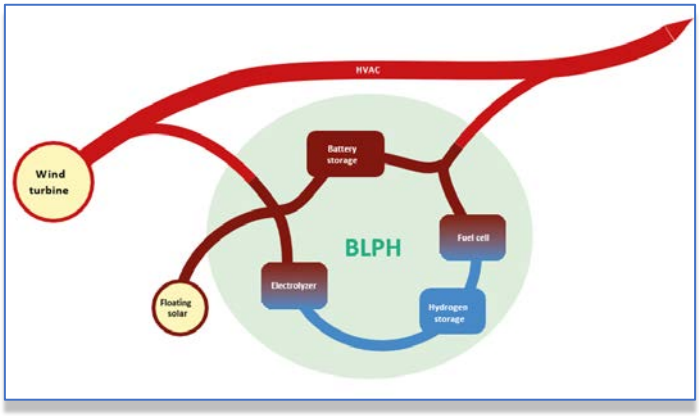


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting

wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH is to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

2 DOCUMENT PURPOSE

This document defines the health, safety, and environmental protection program that Rosetti Marino SpA (hereinafter CONTACTOR) applies during onshore project works carried out within CONTRACTOR's worksites.

Health, safety, and environmental protection program to apply with during the transportation and installation phase will be outlined in another document.

Those works include fabrication, inspection and testing, storage, commissioning, preservation, load out and sea fastening.

This document is applicable to the project works carried out within CONTRACTOR's worksites. Its extension to other sites will be subject to revision.

The rules and programs outlined in the document aim to ensure compliance with applicable International Standard, IOGP report n.577 and the contractual and legislative HSSE standards during the various phases of the project.

If applicable requirements differ from the standard set in this document, the more stringent one shall be applied.

The document defines:

- Principal roles involved in the management of health, safety, and environmental aspects during project activities.
- The CTR's policy on health, safety, and environmental protection.
- The infrastructures and equipment for the project.
- The regulation of contracting and subcontracting activities.
- Risk Management.
- Education, Information and Training Program.
- HSSE Key Performance Indicator
- Audit and inspections program.
- Emergency and management of unplanned events.

<u>General management of HSSE aspects</u>

During the planning of the work execution and the erection sequence, the HSSE aspects of the project are evaluated, and a HIRA workshop is carried out to ensure that the construction, the assembly of the product take place in compliance with safety and environmental standards, reducing or eliminating the risks present during the operational phases and resolving any interference in the activities.

This workshop is conducted with the support of engineering and the active participation of the Construction Manager (regarding issues related to constructability) and the Project HSSE Manager (for all aspects related to Health, Safety and Environmental Protection).

The meetings and workshops outcomes are recorded in MOMs/reports and sent to the interested parties and tracked by Project HSE manager for follow-up.

A general HIRA (Hazard Identification and Risk Assessment) shall be carried out prior to the stating of construction works; Following the first HIRA, specific HSSE analysis (which may include HIRA updates, method statements, Job safety Analysis, lifting plans, etc. …) are carried out during the life project in liaise with the subcontractors involved.

HSSE analysis together and related control measures, agreed with subcontractors during the coordination meetings, are additions to the control measures outlined in this document.

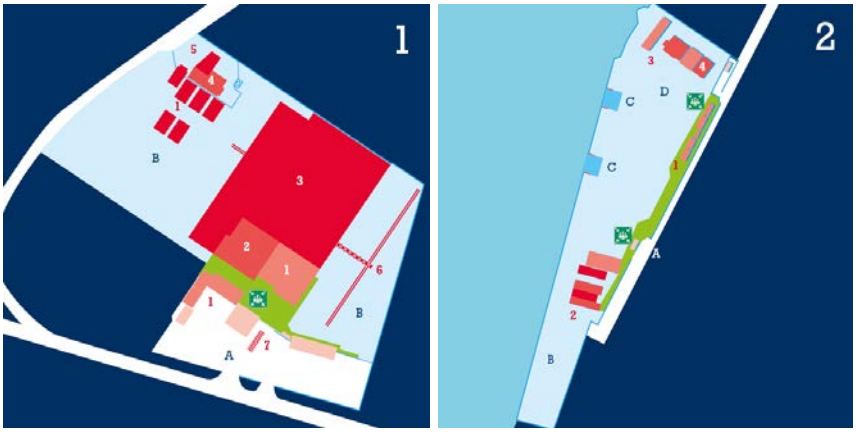
CONTRACTOR 's work sites.

The corporate site (VTS), which includes the offices and the workshop for prefabrication, is in Via Trieste, 230.

The Construction Yard (Piomboni Yard or YPB), where both workshop activities and assembly activities of large structures are carried out, is in Via del Marchesato, 37.



Figure 4 – CONTRACTOR'S WORK SKITE (Ravenna)



The engineering activities are carried out in the **offices in Milan**, located in Palazzo F7, Str. 1, 20090 Milanofiori - Assago.

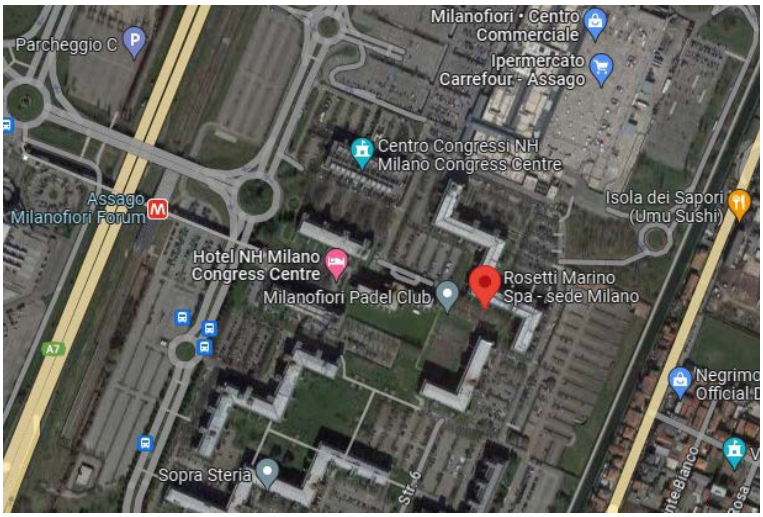


Figure 5 – CONTRACTOR'S WORK SKITE (Milan)

2.1 Abbreviations & Definitions

AED	Automated External Defibrillator
ASC	Yard approved switchboard
CEI	Comitato Elettrotecnico Italiano
CM	Construction Manager
CPE	Collective protective equipment
CPY	Company
CTR	Contractor
ERT	Emergence Response Team
HIRA	Hazard Identification and Risk Assessment
HSE	Health, Safety and Environment
IIF	Incident & Injury Free
ISO	International Standard Organization
JSA	Job Safety Analysis
LTIF	Lost Time Injuries Frequency
MSDS	Material Safety Data Sheet
NDT	Non-destructive testing
PHSEM	Project HSE Manager
PLE / MEWP	Piattaforma di lavoro elevabile / Man Elevating Working Platform
PMT	Project Management Team
POS	Piano Operativo di Sicurezza (Subcontractors safety plan)
PPE	Personal protective equipment
SPMT	Self propelled modular transporter
STARRT / TBT	Safety Talk Analysis Reduction Talk / Tool Box Talk
VTS	Head Qarter CTR Site located in Via Trieste, 230 - Ravenna
YPB	Fabrication Yard "Piomboni" located in Via Del Marchesato, 37 - Marina di Ravenna (RA)

For this document, the words and expressions listed below shall have the meaning assigned to them as follows:

Definitions	Description
ACCIDENT	An unplanned, unwanted event which leads to injury, damage or loss, at yard or externally.
Applicable Laws	LAWS relating to HSE, including by obtaining any required permits, certifications or authorisations, prior to conducting the relevant part of the WORK
Asset Damages	Accidents that cause damage to an equipment/object in use. Such an accident may require the suspension of operational activities in order to repair or replace the equipment.
COMPANY	CROSSWIND
CONTRACTOR	Rosetti Marino SpA
Control Measures	Precautionary measures which reduce or eliminate risk by taking compensatory, mitigation and corrective actions.

Definitions	Description
Crisis	An acute situation which falls outside of normal business continuity and emergency response arrangements. It significantly threatens (actually or potentially) the safety or well-being of people, the environment, the organisation's reputation and/or its financial position. Ultimately it may put an organisation's license to operate at risk.
Emergency	An Emergency is an unforeseen event/situation that includes one or more of the following: • Has a high probability of escalating to cause immediate danger to life, health, property or environment. • Is immediately threatening to life, health, property, or environment. • Has already caused loss of life, health detriments, property damage or environmental damage
Emergency Response	Actions taken during an emergency to: • Eliminate and/or control and/or manage the harm, loss or impact of the same • Prevent further harm • Promote recovery
Emergency Response Team (ERT)	The team of individuals that responds to an emergency at the asset/location. In most foreseeable cases this shall mean the local site-based emergency response teams at the various locations.
Environmental Accidents	Accidents involving the release of substances from plants and equipment that could be harmful to the environment, including both noise and radiation.
Equipment	Means all equipment, instruments, machinery, plant (floating or otherwise), tools, materials, supplies, scaffolding, temporary works, buildings and structures (including warehouses, offices, docks, berths, moorings and camps) and all other items supplied, consumed or used by CONTRACTOR or its SUB-CONTRACTORS and vendors in the performance of the WORK.
Hazard	A source of danger with the potential to cause illness, injury or death to personnel or damage to property, facility, or environment
Hazardous Situation	Set of conditions and/or circumstances that lead to an increased exposure to hazards of people, property, or environment. In this type of incident, the unplanned and uncontrolled event is more likely to happen, but has not occurred: If it did, it would fall under the category of "near miss" or any other category for "accident" (according to the severity of consequences).
HSE standards	HSE standards that would be expected in accordance with the practises, methods, specifications generally followed by a competent and experienced contractor in the international oil and gas industry in similar circumstances, as the IOGP Report 577/Feb 2017 "Fabrication site construction safety recommended practices" attached in Exhibit E

Definitions	Description
Impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services
Incident	An unplanned, uncontrolled or undesirable event or chain of events that has the potential to result or that has resulted in at least one fatality, injury, illness, environmental damages, financial loss (material loss or production shortfall) and/or affecting company's reputation.
Initial risk	The risk prior to implementation of the risk reduction measures.
Life Saving Rules (IOGP - CrossWind)	Rules focus on the activities which, through rigorous data analysis, have been shown to result in fatalities most likely. Each Rule consists of an icon and simple life-saving actions individuals can take to prevent a work-related fatality.
Near Miss	An unplanned, unwanted event that had the potential to lead to injury, damage or loss (but did not, in fact, do so).
On-scene commander	The person, among the staff of the asset holder, in charge at the scene of an incident.
Risk	An unwanted event characterized by its likelihood of occurrence and the extent of consequences arising from the occurrence of this event.
Risk Analysis	Is the process to comprehend the nature of risk and to determine the level of consequence and likelihood.
Security Threats	A Security Threat is a malicious act that aims to corrupt or steal data or disrupt the systems of an organization or the entire organization.
SUBCONTRACTOR	Means any company or person to whom CTR has subcontracted directly or indirectly at any level the performance of any part of service / work.
Qualified Person (PEI):	"Person with the technical capacities to perform electrical works under tension. The eligibility shall be certified and issued in return for a training process exceeded successfully, that include theoretical and practical exercises."
Expert Person (PES):	"Person with education, knowledge and experience relevant, able to analyze the risks and to avoid the dangers that electricity can create". This person have an appropriate training, gained experience and general knowledge of electrical safety. This must also be able to organize independently and safely any type of electrical work and to detect and prevent electrical hazards associated, applying the appropriate measures to eliminate or reduce them. PES has also the ability to deal with unexpected events that can occur during electrical works and the ability to properly inform and educate a PAV to perform a work safely.

Definitions	Description
Warned Person (PAV):	"Person adequately warned by PES to avoid the hazards that electricity can create." This person have a proper training, acquired knowledge on safety of electricity works and ability to understand instructions from a PES; it must have the ability to organize and execute safe work after receiving instructions from a PES. Also, it must have the ability to face difficulties unexpected, although it might not be able to face them properly in autonomy.
Work	All work to be carried out including supply of all material and performance of all services to be provided by CONTRACTOR in accordance with the CONTRACT.

2.2 Description of Activities

Project activities include:

- Project task management
- Engineering
- Procurement
- Construction
- Pre-commissioning
- Commissioning including integrated testing

Work shall be carried out in accordance with current in-force Legislation, the IOGP Standards Report 577 and CTR and contractual standards.

The project tasks are detailed in the following table:

Work phase	Activity	Job
1. Construction		
1.1 Temporary support	Preparation of the ground by means of a heavy-duty machinery, totem handling by crane, trolley, overhead crane, forklift, use of aerial platform, assembly and dismantling of provisional works, positioning of the material, cutting by hose, oxygen fuel cutting, thickness by applying plates.	ASSEMBLING & ERECTION SCAFFOLDING
1.2 Topside structure construction	Material handling (beams, sheets, nodes, profiles) by crane, SPMT, overhead crane, forklift, use of aerial platform, assembly and dismantling of provisional works, positioning of the material (beams, sheets, knots, profiles), squaring by hoists and tirfor, positioning boulders, preheating by flame, preheating by resistance, grinding, wire welding, electrode welding, cutting by hose, oxygen fuel cutting, gouging, installation of nails for insulation.	FABBRICATION (Handling – scaffolding – hot works)
2. Coating/Sandblasting		

Work phase	Activity	Job
2.1 Topsides coating	Container handling by crane, material handling (paints, pallets, sand, machines) by forklift, use of aerial platform, assembly and dismantling of temporary works, assembly and removal of shielding from the work area, sandblasting in an equipped cabin, external sandblasting, spray painting in equipped booth, external spray painting, brush painting.	PAINTING & SANDBLASTING SCAFFOLDING
3. Equipment		
3.1 Installation of Mech. equipment	Handling equipment (by crane, forklift, manual), use of aerial platform, assembly and dismantling of provisional works, positioning of equipment, positioning by rollers, positioning by hoists and tirfor (Wire Rope Winch), drilling by drilling, grinding, wire welding, electrode welding, oxygen fuel cutting, fixing by bolts.	INSTRUMENTAL WORKS SCAFFOLDING
4. Architectural		
4.1 Internal insulation	Panel handling (by crane, forklift, manual), assembly and dismantling of provisional works, cutting and shaping of panels, positioning of insulating panels, nail bending, application of adhesive tape, laying flooring, installation of walls and lining	INSULATION SCAFFOLDING
4.2 Installing Door, Window Profiles equipment	Load handling (by crane, forklift, manual), assembly and dismantling of provisional works, cutting and shaping of frames.	INSULATION SCAFFOLDING
5. Piping		
5.1 Piping Erection	Piping handling by crane, piping handling by forklift, use of aerial platform, assembly and dismantling of provisional works, cutting by hose, oxygen fuel cutting unit, positioning of piping, positioning by hoist, drilling by drill.	PIPINGS PONTEGGI
5.2 Fit up del piping	Use of MEWP, assembly and dismantling of provisional works, flame preheating, grinding, wire welding, electrode welding.	ASSEMBLAGGIO & ERECTION PONTEGGI
5.3 Piping welding	Use of MEWP, assembly and dismantling of provisional works, preheating by flame, grinding, wire welding, electrode welding, gasket installation, fixing by bolts.	ASSEMBLAGGIO & ERECTION PONTEGGI
6. HVAC		

Work phase	Activity	Job
6.1 Installation of HVAC ducts	Pipeline handling by crane, pipeline handling by forklift, manual handling of pipelines, use of aerial platform, assembly and dismantling of provisional works, oxygen fuel cutting, positioning of pipelines, positioning by hoists, drilling by drill, installation of gaskets, fixing by bolts.	HVAC PONTEGGI
6.2 Equipment installation	Equipment handling by crane, Equipment handling by forklift, use of aerial platform, Assembly and dismantling of provisional works, positioning of equipments, positioning by rollers, positioning by hoists and tirfor, drilling by drilling, grinding, wire welding, electrode welding, cutting by hose, fixing by bolts.	HVAC PONTEGGI
6.3 Tubing installation	Manual handling of the tubing, bar shaping by pipe bending, bar cutting by pipe cutter, fittings installation, support installation and bolts.	HVAC PONTEGGI
6.4 Cable Laying	Handling cable coils by crane, handling of cable reels by forklift, manual handling of cables, cable routing with the aid of towing rollers, cable wiring.	HVAC PONTEGGI
7. Electrical/Instrumental Works		
7.1 Installation of electrical supports	Handling of electric supports by crane, handling of electric supports by forklift, use of MEWP, assembly and dismantling of provisional works, cutting by hose, positioning of electrical supports, positioning by hoists, drilling by drill, fixing by bolts.	E&I MECH COMPLETION SCAFFOLDING
7.2 Installation of cable trays	Cable trays handlings, use of MEWP, assembly and dismantling of provisional works, cutting by flexible, positioning of cable trays, positioning by hoists, drilling by drill, fixing by bolts.	E&I MECH COMPLETION SCAFFOLDING
7.3 Installation of lights and panels	Handling lights and panels by crane, handling lights and panels by forklift, use of aerial platform, assembly and dismantling of provisional works, cutting by flexible, positioning of lights and panels, positioning by hoists, drilling by drill, fixing by bolts.	E&I MECH COMPLETION SCAFFOLDING
7.4 Cable laying	Laying cables with the aid of towing rollers, cable wiring.	DISCIPLINA ELETTRICA
8. NDT		

Work phase	Activity	Job
8.1 NDT	Magnetic controls, controls by penetrating liquids, ultrasonic controls. Radiographic testing (TBC).	NDT
9. Commissioning		
9.1 Piping testing	Flushing and washing lines, cutting lines, mounting flanges and vent valves, connection of measuring instruments and connections for filling and pressing, pressure test, line restoration.	COMMISSIONING
9.2 Testing	Verification of insulation, blank tests, tests in operation. Conduct Onshore Integrated Testing of the Platform to fully test it	COMMISSIONING
10. Final Activities		
10.1 Weighing	Installation of jacks, connection of load cells, weighing.	WEIGHING
10.2 Load Out	Barge docking, opening manholes, tracing and positioning supports on barge, welding supports on barge, positioning trolleys, balancing, handling, balling barge.	LOAD OUT
10.3 Sea Fastening	Support handling by crane and trolley, support handling by forklift, assembly and dismantling of provisional works, positioning of supports, squaring by hoists and tirfor, grinding, wire welding, electrode welding, oxygen fuel cutting, gouging.	GRILLAGE & SEA FASTENING

2.3 HSE Policy

ROSETTI MARINO

HEALTH, SAFETY AND ENVIRONMENTAL (HSE) POLICY

ROSETTI MARINO is an **EPC Contractor** operating in the Energy and Shipbuilding industries worldwide. With a strong global presence, the company stands out for its **commitment and flexibility, expertise, teamwork, accountability and consistence, drive, and open and honest communication.**



We are committed to protecting the health and safety of everybody who works with us, lives in the communities where we operate, or uses our products. Wherever we are, we conduct our business with respect and care for the environment, ensuring **sustainable** business growth.

We ensure this commitment by:

- Demonstrating an active HSE **leadership** that engages managers, employees and subcontractors.
- Acting on people's values and mindset for an **Incident and Injury Free** workplace, strengthening, at all levels, a generative HSE culture, and the belief that accidents and injuries are not tolerable.
- Managing HSE performances as a line responsibility with clear authorities and **accountabilities**.
- Fostering the principle that HSE is everyone's responsibility, and that we all have the authority to **intervene** when we see unsafe actions or conditions, reinforcing good behaviors and overcoming the "blame culture".
- Applying a systematic approach to **risks** and **opportunities** management, to achieve constant HSE performance improvement, which includes setting objectives and performing regular indicators monitoring, auditing and reviews.
- Designing our workplaces and products to minimize the risk for **people**, and developing work practices to further reduce the risks **ALARP** (As Low As Reasonably Practicable).
- In conjunction with the Health & Sanitary Authorities, with the support of the Company Competent Doctor and with all interested parties, implementing an adequate **safety protocol** to guarantee the healthiness of the workplaces, **preventing and fighting the spread of viruses and pandemics** (such as SARS-CoV-2), informing and training the workers on the **health and hygiene behaviors** to be adopted.
- Encouraging the use of the best available technologies to reduce the impact of our operations on the environment, particularly with regard to an **efficient** use of energy and materials, waste minimization and pollution prevention.
- Carrying out regular training and **development** activities, to enable personnel to get full understanding of their role and of the reference-operating environment.
- Providing relevant information to **subcontractors** and requiring them to provide proper resources for the sound HSE performance of their work.
- **Consulting** and involving workers, their representatives, local communities, government authorities, customers and other stakeholders.
- **Complying** with applicable standards, regulations and laws.
- Working to achieve the best practices in HSE and **continually learning** from experience.

Ravenna, 20 January 2021

Oscar Guerra
Chief Executive Officer

MOD-ORG-01-05

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Figure 6 HSE POLICY

2.4 SAFE LIFE Program

SAFE LIFE program aims to harnesses the passion of committed people and channels it to instil a robust safety culture among the project team.

SAFE LIFE implementation in CONTRACTOR organization (based on IIF® - Incident and Injury Free) has produced replicable results and projects worldwide.

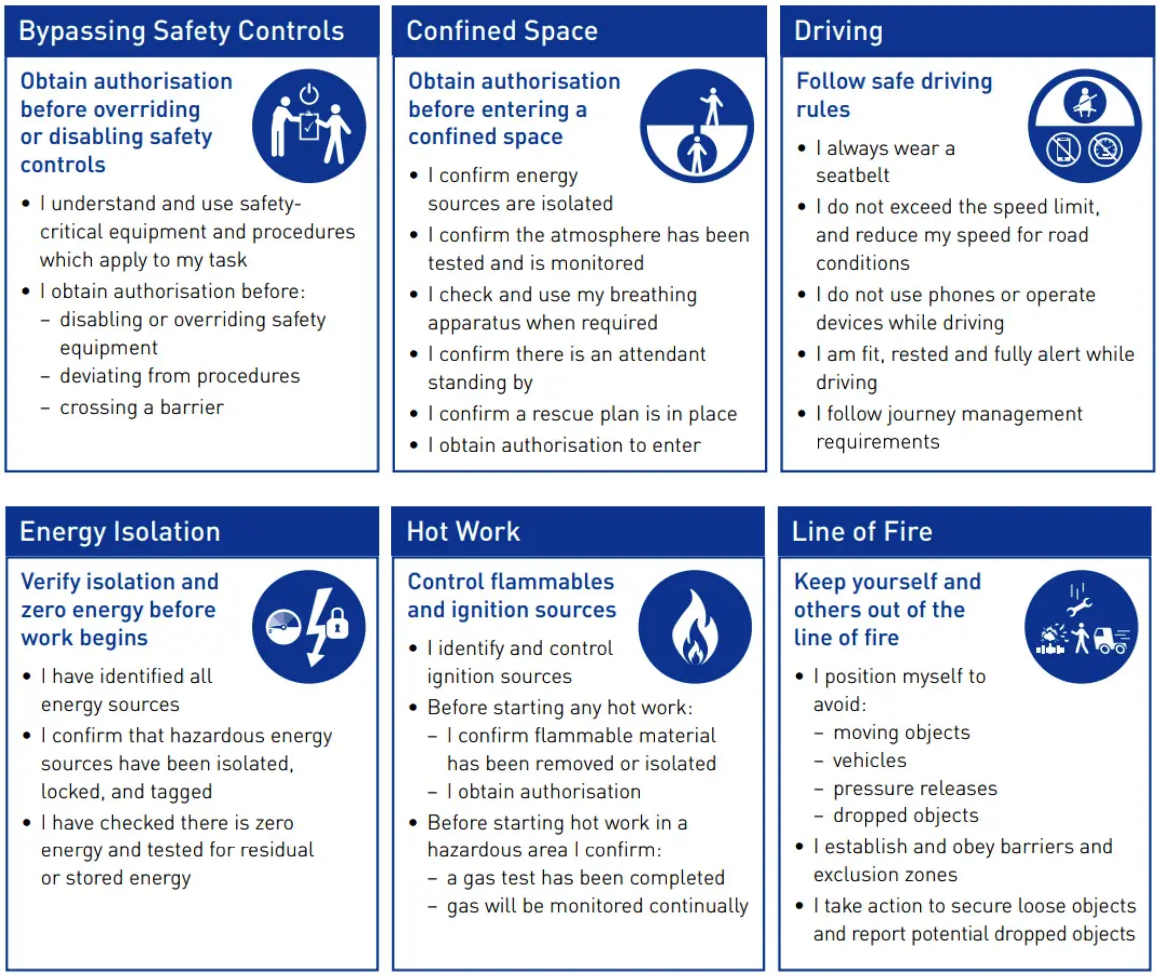
At project level the program will be developed on the following main steps:

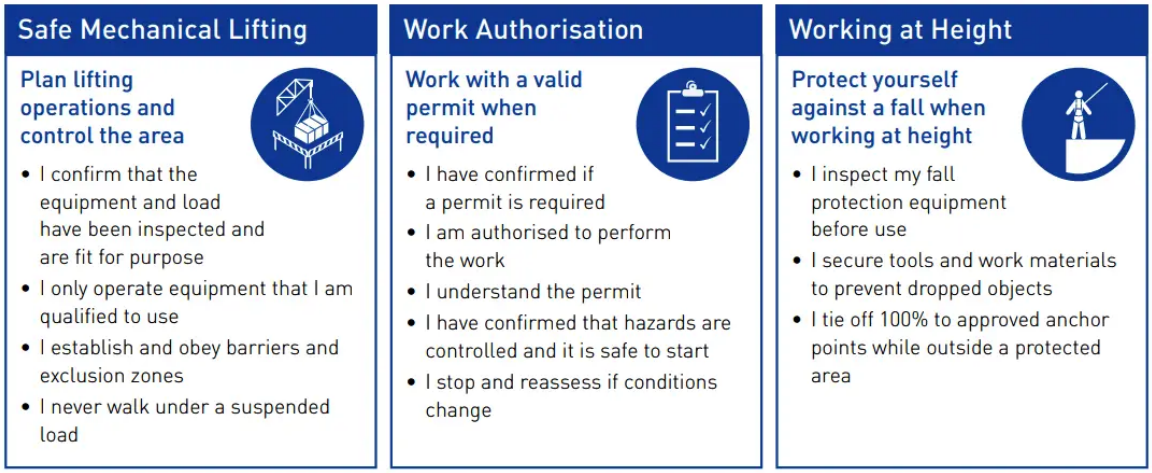
Activities	Participants	Duration schedule
<u>Leadership HSE Commitment Workshop</u> A workshop aimed at having leadership explore both their leadership of, and personal relationship to safety. The workshop is designed to have them leave clear on their commitment and taking aligned action to implement this commitment in tangible ways that will directly result in fewer people getting hurt. We will also generate a wider sense of relationship and partnership between the participants. **A shared massage to communicate the Safety vision and commitment will be depicted in a charter that will be displayed at the worksite.**	Client PMT RM PMT RM Main Subcontractors PMT RM SENIOR MANAGERS (Facilitator RM Corporate HSE Mgr)	4 hrs at project beginning
<u>Senior Leadership Engagements</u> This is the team that will lead and manage the HSE commitment across the organisation. Accountabilities include integrating the vision, taking actions as required, measuring and evaluating the effectiveness of the HSE Leadership Road Map process, and developing their collective leadership skills	Client PMT RM PMT RM Main Subcontractors PMT RM SENIOR MANAGERS (facilitator Project HSE Mgr)	2 hrs Quarterly meeting
<u>SAFE LIFE orientation training</u> SAFE LIFE orientation training for all the project workforce, this will be part of Project HSE induction	All Project personnel	Monthly
<u>STOP Safety Observation Card</u> Feedback on workplace HSE through Stop Safety Observation Card.	All Project personnel	Weekly

Management HSSE Site Visit Management HSSE Yard Tours / Site Visits and SAFE LIFE Conversation held	Client PMT RM PMT RM Main Subcontractors PMT RM SENIOR MANAGERS	Weekly Monthly

2.4.1 Life Saving Rules (LSR)

The nine Life-Saving Rules are shown in Figure. These Rules focus on the activities which, through rigorous data analysis, have been shown to most likely result in fatalities. Each Rule consists of an icon and simple life-saving actions individuals can take to prevent a work-related fatality.





It is important that the Rules are understood by all individuals, their supervisors, and their leaders, and that management has created the conditions necessary to enable everyone to follow the Rules.

CTR, through induction meetings, Toolbox Talks and safety campaigns, will address LSR to all project team and will ensure compliance and understanding of critical safeguards.

2.4.2 Stop Authority

If a competent, trained worker deems that a situation is unsafe or there is imminent danger, they have the obligation and responsibility to stop the work before an incident happens.

CTR ensures the employees the right to put a stop to unsafe work, even when they normally don't have the authority to bring the work to a halt.

Steps to stop the work are communicated during the induction meeting and the message shall be reinforced during coordination and HSE meetings and Toolbox Talks. These steps are:

- Stop the work
- Notify the supervisor or manager
- Correct the situation
- Resume the work (if safe to do so)
- Report the event to HSE Dept through the safety observation card.

2.5 Use of Alcohol, Drugs and Tobacco

Alcohol and drug abuse can reduce performance and compromise the health and safety of workers.

Consumption of drugs and alcohol, and anybody under the influence of the same, is not permitted at site. Violations will be reported to the authorities.

Within the CONTRACTOR sites, smoking is allowed only and exclusively in dedicated areas and clearly identified by suitable signs.

No employee may enter the workplace in a manifest state of drunkenness or alteration due to the intake of drugs.

Drug tests and alcohol tests are carried out in agreement with the Company Physician Company for certain types of work and / or work contexts.

CTR, in liaise with Company Physician, will evaluate whether further diagnostic tests (i.e. alcohol test and drug test) are necessary to verify the suitability of the worker to perform critical activities that will be carried out during the integrated test.

More information are outlined in section 3.2.2.

If the Company Physician diagnoses a problem of abuse of prohibited substances, the employee will be advised to follow a rehabilitation program. The Company Physician will issue a non-fit to work medical certificate in the case of a situation of particular importance and gravity.

2.6 HSE Objectives for The Project

The objectives of this HSE Plan are to minimize Health & Safety risks to personnel and damage to assets, by the implementation CTR Management Systems and full compliance with law and contractual HSSE requirements.

The principal objectives of this plan are:

- Safe and incident free completion of the Project works with no harm to personnel, no damage to environment and assets.
- To ensure full compliance with HSE current legislation, Contractual requirement and corporate CTR HSE Management System.
- Promote & enhance an HSE culture and proactive attitude.
- Set procedures and control measures aimed to eliminate or mitigate hazards/risk on site to As Low As is Reasonably Practicable (ALARP).
- Monitor incidents/accidents reporting and investigation towards avoidance.
- Monitor the periodic review and effectiveness of the HSE management systems.
- Ensure Environmental protection in compliance with the current legislation.

2.6.1 Project Key Performance Indicators

CTR adopts a ZERO Incident approach in line with target. Thus, the HSE targets for the project are:

	KPI	Target
lagging	Fatalities	0
	Lost Time Incident Frequency Rate	0.41
	Total Recordable Case Frequency Rate (*)	1.02
	Major Environmental Spill	0
Leading	Senior Management Visits	1 per month
	No. of Site HSSE Inspections	1 per week
	% of HSSE Observations Closed within 30 days related LSR violation	Min 90%

Note: "target may be subject to review by CTR in agreement with CPY.

(*) targets for LTIFR and TRCFR been calculated considering the value over the last 24 months less than 15%.

2.6.2 Monitoring of HSE performance

HSE performance will be monitored by PMT on weekly and monthly basis

HSE Performance will contain the following criteria as minimum:

- Man-hours worked. (at CTR site for the project and during offshore works)
- Lagging indicators
  - Number of fatalities
  - Number of LTI
  - Number of Recordable Injuries (fatalities, lost work day cases, restricted work day cases, and medical treatment cases)
  - Lost days due to injuries
  - LTIFR = Number of LTIs x 1,000,000 / Man-hours worked
  - TRIFR= Number of Recordable Incidents x 1,000,000/ Man-hours worked
  - Number of First Aid Cases
  - Number of Property Damage Incidents
  - Number of Incidents
  - Number of Near Miss Reports
  - Number of Hazardous Situation

- Number of LSR violation
- Number of Security Breaches
- Number of Observation Cards (negative)

- Leading indicators:
  - Number of Stop Cards reported by non HSE staff
  - Number of site inspections
  - Number of Emergency Drills
  - Number of Audits/Inspections
  - Number of HSSE Meetings
  - Number of Training Hours
  - Number of site visits (Snr. Management)
  - Number of HSSE Inductions
  - Number of HSE initiatives (i.e. safety campaigns, HSE celebrations)

- Environmental KPI:
  - Number of environmental spills
  - Emission to air (estimation H2 release during integrated test)
  - Fuel consumption (for maritime operation with vessels)
  - Waste production (for maritime operation and offshore work)
  - Complaint from environmental events
  - Breach of the environmental Permit

2.7 Roles & Responsibilities

Responsibilities are assigned through Level 1 and 2 Proxies and Accepted Assignments, distributed according to the "Tree of Responsibilities and Proxies" reported in document DOC-CPY-01, applicable revision.

The responsible roles of the Subcontractors shall be appointed before the start of activities by the employers.

Subcontractors are qualified on the basis of their technical and professional skills, which they give evidence by submitting HSE documents (complete list of document is listed in document MOD-HSE-03).

The updated org chart will be available to subcontractors on the CONTRACTOR Portal and/or will be shared during coordination meetings.

Among the group of people involved in the project, the key positions identified for the management of HSE aspects. Mandatory trade trainig is reported in section 4.

2.7.1 Project HSE Manager

The Project HSE Manager is responsible for ensuring that the Health, Safety and Environment Polices and Management System are implemented throughout the project site, by ensuring:

- The objectives outlined within the CTR Health Safety and Environment Policies and Management Systems are fully understood and implemented within the organisation and on all facilities.
- The safe systems of work are implemented to potential, thereby mitigating, or minimizing risks of the activities being carried out.

- That project specific HSE Objective and targets are monitored and met.
- That the project specific HSE plan is always adhered to during the project.
- That there are adequate number of qualified HSE personnel assigned to the project as per scope of work.
- Effective interface communication on HSE matter with CPY and interested parties.

2.7.2 Project HSE Officers

HSE OFFICERS shall:

- Advise project management on all safety related issues, requirements, procedures & safe work methods
- Evaluate potential hazards & advise on ways to prevent injury to personnel, fire & damage to property
- Monitor site according to client safety standards, regulations and requirements through site visits and inspections and report and correct unsafe work methods or conditions.
- Co-ordinate accident / incident investigations including determining of causes, recommending corrective actions and follow up. Assess accident trends and review overall safety performance.
- Evaluate use and suitability of personal protective equipment provided, ensure they meet required standards of client, and, where necessary make recommendations for improvement.
- Participate in all daily/weekly/monthly operational/progress meeting where safety is a subject on the agenda and coordinate with supervisors in conducting weekly/daily toolbox meetings for workforce.
- Prepare and submit the necessary reports relative to safety program and supervise the maintenance of all safety related records.
- Conduct Job Safety Analysis & prepare Risk Assessments for specific activities in consultation with Project Engineer.
- Participate with client fire & safety department in training programs, emergency plans and exercises.
- Periodically review the project safety plan with the project execution team to re affirm its adequacy and applicability to the specific tasks and conformity to the client requirements.
- Participate in safety meetings and convey information to supervisors and workers in the toolbox meetings.

2.7.3 Project Manager

The Project Manager has the highest authority at project level to ensure the implementation of Project HSE Plan and thereby have accountabilities in all areas of the project. Those related to HSE are included here:

- All matters related to HSE
- Approves site specific HSE plans, procedure, and Risk Assessment Register.
- Allocation of resources to ensure that the HSE policies, objectives and activities incorporated or inferred in the project HSE plan are carried out.
- Visibly communicating Health, Safety, Environmental and Security messages.
- Defining and supervising the project management team.
- Ensure the proper investigation of all incidents and near misses and implementation of their corrective actions.
- Leading weekly HSE meetings.

- Ensuring adequate measures have been taken to reduce all identified risks to As Low as Reasonably Practicable (ALARP).
- Ensuring Contractors and their subcontractors meet the project HSE requirements.
- Monitoring progress and closing issues associated with HSE Corrective Action register.
- Ensure proper emergency response communication is established.
- Ensure full safety compliance by all departments.
- Continuously monitor the project's safety status and adherence to regulations by all personnel.
- Include HSE in agenda of every project review meeting and give priority to HSE related matters.
- Set up safety incentive programs to recognize and motivate employees.
- Initiate disciplinary actions necessary to develop a good functioning HSE program.
- Ensure that all accidents are reported as per CTR and client's standards and requirement.
- Conduct premobilization HSE coordination meetings with sub-contractors.
- Urge any members of the staff to satisfactorily fulfil HSE responsibilities.
- Set a personal example on site by following HSE procedures, practices, and rules.
- Ensure that each foreman, supervisor or engineer are evaluated on his HSE performance.
- Project Manager is responsible for ensuring that CTR HSE MS is implemented within their department. Engineer shall monitor the workplace to ensure that safe conditions are maintained. Where risks are identified Engineer shall ensure that these are rectified, as far as is reasonably practicable.
- Ensuring the employees, contractors and visitors are made aware of Health Safety and Environment Policies and Management Systems.
- Ensuring the employees, contractors and visitors attend the CTRHSE induction course.
- Establish that all equipment, plant, and substances used are suitable for the task and are kept in good working condition.
- Ensure personnel working in their department receive adequate HSE training, information, instruction, and supervision to ensure that work is conducted safely.
- Taking immediate and appropriate steps to investigate and rectify any risk to health and safety arising from the work activities.
- Bring to the prompt attention of Senior Management any health & safety issue that requires their attention.
- Ensure that all accidents and 'near misses' are properly recorded, reported and the investigation is carried out.
- Suitable risk assessments are carried out covering all processes and activities on work under their control and that adequate records are maintained.
- Matters concerning HSE raised by an employee are thoroughly investigated, and where necessary, effective action taken. Matters that cannot be effectively remedied are to be referred to the MR for advice and guidance.

2.7.4 Construction Manager

The Project Construction Manager shall:

- Ensure the Project HSE aspects are controlled and mitigated.
- Ensure Site HSE standards are implemented.

- Direct, coordinate and control all construction activities related to the project.
- Before to engage a Subcontractor:
  - Verify before the execution of the work, the suitability of the subcontractors involved, following the technical qualification stage performed by the CTR Procurement Dept.
  - Liaise with subcontractors and self-employed workers to the implementation of the health and safety measures to mitigate the risks at site and the environmental protection.
  - Verify, also with the support of the project staff competence, conformity to standards of equipment's and machineries and HSE documentation (safety plans, Scaffolds plans).
  - Hols a premobilization HSE meetings with sub-contractors (kick-off meetings).
- Encourage and reinforce the SAFE LIFE approach throughout the project.
- Control, also with the support of the project staff, the proper compliance with HSE standards by all workers that operate on project work site.
- Establish that all equipment, plant, and substances used are suitable for the task and are kept in good working condition.
- Immediately stop the activities in case of any identified high risk, request immediate actions to mitigate the risk to acceptable levels and report in writing to the Project Manager, the non-compliance detected, any worker in fact, and the consequent decision to suspend the activities.
- Update control measures in relation to organizational and productive changes that have relevance for health and safety at work, and in relation to the evolution of prevention and protection techniques both.
- Set a personal example on site by following HSE procedures, practices, and rules.
- Participate in Toolbox meetings, orientations, and safety audits periodically.
- Matters concerning HSE raised by workers are thoroughly investigated, and where necessary, effective action taken. Matters that cannot be effectively remedied are to be referred to the PM (and activities are stopped if the risk is significant).

2.7.5 Commissioning Manager

Commissioning Manager shall manage the commissioning activities and ensure they are carried out in accordance with HSE and contractual requirements, actively enforcing and monitoring its implementation. Commissioning Manager shall:

- define the boundaries of each system/subsystem package.
- apply means of identification to the boundaries of each system/subsystem package and Restricted Access Areas.
- participate in the identification of Restricted Access Areas.
- participate in the assessment of the activities to be performed under the commissioning procedure.
- liaise and communicate with CPY Representative.
- Participates to daily commissioning coordination meetings.
- Authorize PTW in commissioning areas.

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2.7.6 PTW Coordinator

A Project HSE officer, which during commissioning have the following specific responsibilities:

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- Is responsible for the correct issuing, management and recording of all Work Permit emitted for commissioning activities.
- If necessary, filling in, together with the Person Responsible for the Work, the JSA related to the activity to be carried out.
- Monitoring that preventive measures indicated by the PTW and highlighted in the JSA are correctly adopted by the Person Responsible for the Work.
- Keep the records on the PTW Register of the opening, renewal and closure of the PTW.
- Archive the PTW at the end of each work shift: temporarily if the PTW has to be renewed, definitively when the job is over.

2.7.7 Project Supervisors

Have responsibilities for ensuring:

- They are fully familiar with the CTR Health, Safety and Environment Policies and Management Systems, Client, as well as applicable regulatory requirements.
- That only suitably qualified persons are employed to carry out the work
- All workers engaged in the supervised works know what to do in case of fire and know the location of and how to use fire equipment.
- All workers engaged in the supervised works know the whereabouts of first aid facilities on all shifts.
- That they continually and actively develop safe working practices.
- Adequate supervision is always available, particularly where young or inexperienced workers are concerned.
- All incidents are investigated promptly to discover the cause and eliminate re-occurrence in conjunction with the HSE Department.
- That they accompany the HSE officer designated for their area, on regular HSE inspections.
- That the Foreman under their control carries out weekly inspection of their work areas.
- That the Foreman under their control carries out regular toolbox talk meetings.
- They co-operate with the HSE Department on all HSE matters.
- That all HSE rules are observed, and that protective equipment is worn or used.
- That all machinery and equipment is properly maintained and safe for use, by carrying out frequent inspections.
- That they consider any representation about HSE issues from other workers.
- Shall liaise with the department HSE committee representatives in all matters concerning safety and health from other employees.
- Shall attend HSE committee meeting when required.
- Shall ensure the Sub-contractors HSE coordinator are supported and informed on all aspects of the contract.

2.7.8 Foreman

Have responsibilities for ensuring:

- They are fully familiar with the Health, Safety and Environment Policies and Management Systems.

- That only suitably qualified persons are employed to carry out the work.
- All workers under his/her control knows what to do in case of fire and know the location of and how to use fire equipment.
- All workers under his/her control know the whereabouts of first aid facilities on all shifts.
- That they continually develop and demonstrate safe working practices.
- Accidents are investigated promptly to discover the cause and eliminate re-occurrence in conjunction with the HSE Department.
- That they carry out an HSE inspection of all work areas under their control on a weekly basis. That reports from the inspections are passed to the Supervisors for review.
- That they carry out risk assessments for all processes and activities under their control. That risk assessments are passed to the Supervisors for review
- That the results of the risk assessments are communicated to the persons carrying out the work.
- That they carry out Daily Supervised task information meetings with the persons working under their control. Records of the toolbox talks are forwarded to the HSE department.
- They co-operate with him, the HSE Department on all HSE matters.
- That all HSE rules are observed and that protective equipment is worn or used.
- They ensure that all HSE devices are always fitted and properly adjusted and maintained
- That all machinery and equipment is properly maintained and safe for use, by carrying out frequent inspections.
- That all defects in his/her workplace are promptly reported and rectified.
- The good housekeeping is maintained always is work areas under their control.
- That they consider any representation about safety and health from other employees.
- Shall liaise with the department HSSE committee representatives in all matters concerning HSSE from other employees.

2.7.9 Subcontractors

All sub-contractors engaged on the project at yard shall conduct their work activities in accordance with the provision stated in this document and in compliance with CTR & Client requirements, as well as relevant legislation for the work activities performed under the contract.

They:

- Shall make themselves familiar with and conform to CTR Health, Safety and Environment Policies and Management Systems
- Shall follow HSE rules.
- Shall wear appropriate HSE equipment and use appropriate HSE devices.
- Shall ensure that their work areas are maintained in a clean, tidy, and safe manner at all times.
- Will conform to all instructions given by the Supervisor/ Department Head or any other person with a responsibility for Health and Safety.
- Meet their legal and their HSE obligations as required by contract.
- Provide sufficient information in the form of an approved HSE management plan or procedures that clearly outlines how the sub-contractor intends to meet the HSE requirements of the project.
- Provide necessary resources, equipment, and materials for the safe execution of his scope of work in accordance with the requirements of his contract & specific requirements defined in this HSE plan.
- Consult and cooperate with Client personnel to ensure HSE plans are effectively implemented, and a safe working environment is maintained.

- Provide sufficient performance data and information that will demonstrate the sub-contractor's compliance with prescribed performance targets and commitment to continuous improvement.
- Complete designated safety activities and submit weekly and monthly performance reports to the HSE project representative.
- Respond positively to employee safety suggestions and take appropriate action to correct any unsafe conditions.
- Release their employees for safety training as required.
- Attend daily toolbox talks and construction meetings on a weekly basis or after a significant event.
- Reinforce positive safety initiatives and behaviour by being part of the safety observation process.

2.7.10 Workers

- Shall make themselves familiar with and conform to the CTR & CPY Health, Safety and Environment Policies and Management Systems
- Shall comply with HSE rules.
- Shall wear appropriate HSE equipment and use appropriate HSE devices.
- Shall ensure that their work areas are maintained in a clean, tidy, and safe manner at all times
- Will conform to all instructions given by the Supervisor/ Department Head or any other person with a responsibility for Health and Safety.
- Will report all accidents and damage to the section Supervisor/ Department Head whether persons are injured or not.
- Will make suggestions to improve health and safety.
- Shall report any hazardous defects in plant and equipment, or shortcomings in the existing HSE arrangements to their supervisor/ Department or HSE department. The situation should be rectified immediately if it safe to do so.
- Shall take reasonable care of their own health and safety.
- Consider the safety of others that may be affected by their acts and omissions.
- Shall work in accordance with information and training provided.
- Refrain from intentionally misusing and recklessly interfering with anything been provided for health and safety reasons.
- Shall NOT undertake any task for which authorization and / or training has not been given.
- Shall accept individual responsibility for their own safe behaviour as well as sharing responsibility with their fellow workers and line supervision to "look out for their own as well as their co-workers" safety.
- Shall participate proactively in the safety initiatives implemented by CTR.

2.8 HSE Management System

The HSE Management system is designed to provide a comprehensive system by which the HSE risks of the organization are managed, by the application of HSE processes and in all activities.

The structure followed, in compliance with ISO 45001:2018 & ISO 14001:2015 follows the below hierarchy:

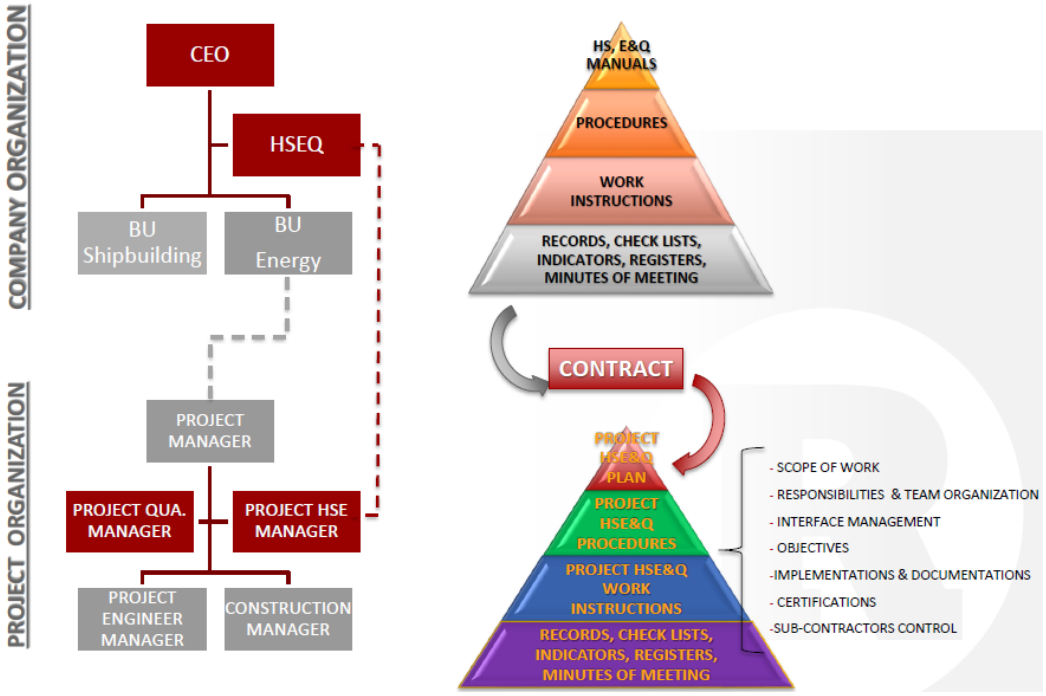


Figure 7 HSE MANAGEMENT SYSTEM

2.9 Construction Site Facilities

The plants and construction site machines, made available to the Subcontractors by CTR are:

- Yard Fire line (hydrants).
- Electricity distribution network.
- Technical gas distribution network (ArCO2, Oxygen, Propane mixture).
- Water distribution network.
- Compressed air distribution network.
- Means for handling within the covered areas (bridge cranes and jib cranes)

When loaning of equipment, the bailor shall:

- Declare that equipment is conforming to in-force safety standards, perfectly working and serviced as per manufacturer instructions.
- Provide the declaration of conformity to safety standards and manual of use and maintenance.

The borrower shall:

- Use the equipment in compliance with safety standards and doble check for defects or malfunctions.
- Ensure training to the appointed operators.

The loaning shall be formalized using the template MOD-HSE-39

2.9.1 Fire Line (hydrants)

Fire protection is also provided by the hydrants, connected to fire line, covering the indoor area (warehouses, workshops) and the outdoor yard along the quay. More details on the firefighting facilities with be outlined in next sections.

2.9.2 Electricity Distribution Network

Inside the construction site there is a network for the distribution of electricity (380V, 220V, 48V and 24V), which can be used by means of switchboards serving all work areas.

The temporary electrical plants to power tool and equipment's shall be provided by authorized switchboard suitable for outdoor plugged to the yard power distribution points.

Subcontractors, whose need electricity to power tools and equipment construction sites shall have:

- Suitable multicore electrical cables.
- Transformers suitable for adapting the voltage of the site grid to the needs:
- Electrical switchboards for construction sites in compliance with the applicable technical standards.

Before to power temporary electric plants the following documentation shall be made available:

- Certificates of conformity of electrical switchboards.
- Certificates of conformity of any installed transformers.
- Declaration of conformity of the installation

The construction yard is considered a damp and wet place, therefore the use of very low voltage (50 V) is mandatory on hand tools, alternatively they shall be protected by electrical separation (one tool for each output of the isolation transformer).

Portable lamps are permitted only if they are 24V with anti-explosion protection.

Any containers to be used as workshop shall be equipped with an electrical panel with a differential device having an operating current not exceeding 0.03 A, which constitutes additional protection against direct contacts.

It is mandatory to connect these containers and any prefabricated barracks for various uses (warehouse, changing rooms, offices, toilets, etc.) to the ground.

Only approved materials and equipment shall be used; all electrical work shall be carried out in compliance with the applicable CEI standards.

Electrical equipment and systems shall only be repaired or replaced by qualified and authorized personnel.

To prevent direct and indirect contact of operators with live parts, all electrical equipment shall be equipped with a power supply, insulation, earthing, protection, etc. system. in compliance with the CEI standards in force.

In the event of defects or faults in the electrical equipment, you shall immediately inform your manager.

In general, cables, machines, tools, etc. shall be protected against accidental contact with people or things.

Each worker shall before each job and in any case daily:

- Verify that all power tools, equipment, or tools have the manufacturer's plate indicating the specifications regarding the type of current, voltage, phase, etc. and take these specifications into consideration when working on the unit.
- Avoid modifying the electrical systems without authorization.
- Avoid touching two poles at the same time, or one pole and earth.
- Always work in a dry area, with dry hands and feet.
- Use, if necessary, foot pads and insulating gloves.

- Respect the safety signs of dangerous areas. Use portable safety transformers or other safety devices, according to CEI standards, when required.
- Turn off the power before repairing any electrical tools.

Revision notes:
Electrical equipment shall be safe rated according to hazardous area assessed for critical work phases as spray panting works and in presence of explosive gases, in particular large quantities of H_2 present at site during integrated tested and pressure testing (to be carried out with H_2).

More details on the use and management of electrical temporary equipment area defined in the relevant corporate procedure (ref doc nr. IDL-HSE-98 "Initial check of working equipment" and ref. doc. Nr. PRO-HSE-30 "Management of temporary electrical installations").

For Works with Media Voltage (AC - 1.000-15.000 volt) a method statement shall be issued by Commissioning department and personnel involved in the operations shall be trained as per standard CEI 11-27 and CEI EN 50110-1 and competence shall be stated in writing by the Employer.

2.9.3 Technical Gas, Water and Compressed Air Distribution Network

The oxidising, combustible, and inert gases necessary for the processes (preheating, flame cutting and welding) are distributed by systems serving the workshops.

By means of a similar distribution system, compressed air and water can also be used from the same work areas.

The technical gases shall be used, and handled, in accordance with the contents of the relative safety data sheets, with the regulations in force and with what is reported in the following sections.

These safety data sheets are available at the warehouse and consulted if necessary.

The technical gases distributed are listed below:

- ArCO2 (Argon – Carbon Dioxide) for welding work.
- O2 (Oxygen) for cutting and preheating.
- C3H8 (Propane) for cutting and preheating.

During pressure testing and integrated tests large quantities of H_2 will be temporary stored and used at site.

2.10 Subcontractors

Before the start of the works, the subcontractors shall submit suitable documents for verification by the Legal Department, the HSSE Department and the CM.

The documents are indicated in the corporate document (doc. Rif. Nr. MOD-HSE-03).

For the request for subcontracting, each sub-contractor shall be subject to the prior approval of CONTRACTOR which reserves the right to deny said approval if such sub-contractor is not to the liking of CTR.

Furthermore, before the start of the activities, CM and the Subcontractors shall:

- Cooperate in the implementation of the prevention and protection measures against occupational risks affecting the work activity object of the contract.

- Coordinate the protection and prevention interventions against the risks to which workers are exposed, informing each other also to eliminate risks due to interference between the works of the various companies involved in the execution of the overall work.

Before to start the works the following action shall be undertake and documentation issued and approved.

Vendors engaged by CPY shall comply with the site rules and with the safety provision outlined in this document.

Exceptions are permitted by law for services of an intellectual nature, to the mere supply of materials or equipment, to works or services whose duration does not exceed five man-days.

2.10.1 Preliminary inspection

Before the start of the works, PHSEM (Project HSE Manager), the person in charge of CTR and/or CM, and the managers in charge of the Subcontractor, carry out an inspection to assess the risks, interferences, dangerous areas, and emergency response procedures in place. The results of this verification are formalized in a specific report (MOD-HSE-34), a copy of which is delivered to all the participating parties and kept available at the site.

2.10.2 Identification badge

Each operator of external companies who enters the construction site shall be provided of a personal identification badge (according to current legislation and/or internal procedures) with the minimum following information:

- General information (name, surname, date of birth, photo).
- Employer.
- In the case of self-employed workers, the indication of the client.

This card shall be made available for verification by personnel and control bodies.

2.10.3 Subcontractor's Safety Plan (POS)

The Subcontractor Safety Plan shall be issued and submitted to CTR by each Subcontractor, in accordance with in-force legislation and/or internal procedures, with reference to this specific project.

The Subcontractor Safety Plan, which shall be transmitted before starting of activities, may be considered an information document, complementary to this document, subject to verification of the contents by the project HSE staff, in collaboration with the CM.

Starting from the guidelines indicated in this document, Subcontractor shall accurately define the ways in which to organise, execute and manage the work assigned to them with reference to risk prevention and protection.

In the POS, Subcontractor shall define plans, programs, and how it carries out its activities, highlighting the risks and the safety measures to minimize and control them.

The Subcontractor Safety Plan shall be drawn up for the specific job that the Subcontractor is called upon to carry out and shall be signed by the Employer.

At least the following information shall be entered in the Subcontractor Safety Plan (as per Annex XV of Legislative Decree 81/2008):

- Data of the executing Subcontractor, which includes:
  - Subcontractor name.
  - Name of the employer and/or legal representative.

- Addresses and telephone numbers of the registered office and site.
- Name of the HSE Manager of the Subcontractor.
- Name of the Workers' Representative for Subcontractor or local safety, where elected or designated.
- Name of the Subcontractor Physician

- Construction site master data, which includes:
  - Specific activities and processes carried out on site by subcontractors.
  - Members of the ERT and in any case, in the management of emergencies on site.
  - Number and related qualifications of employees of the contracting Subcontractor and of self-employed workers working on site on behalf of the Subcontractor.
  - Declaration of suitability of the construction site electrical system and the earthing system.
  - Statement by the Employer regarding fixed metal scaffolding that all fixed metal scaffolding will be erected, used, and dismantled as required by the relevant PIMUS.
- Description of the construction site activity, which includes:
  - Organization of work and work shifts.
  - Environmental management.
  - Schedule of the works.
  - Construction site equipment, machinery and systems and declaration by the employer of:
    - Compliance with current legislation.
    - Availability on site of the relative use and maintenance manual.
    - Compliance with the periodic checks required by law.
  - Warehouses and material storage areas.
  - Processing waste management methods (reference to corporate procedures).
  - Emergency Response management (reference to worksite emergency procedures).
  - Construction site lay-out indicating fences, accesses and escape routes, circulation routes for men and vehicles, location of site identification sign and safety signs, material storage areas, garages and barracks, cable routing and location of electrical switchboards, site plant, location of fixed workstations - equipment - lifting equipment - temporary works - scaffolding - etc.
- List of dangerous substances used on the site with the relevant safety data sheets.
- Noise assessment report of subcontracted activities.
- Report of the vibration risk assessment.
- Identification of the preventive and protective measures adopted in relation to the risks associated with one's work on site, highlighting, for each work activity, the points indicated below:
  - Description of the working phase.
  - Start and end of the working phase.
  - Composition of the work teams involved.
  - Equipment used.
  - Overlapping with other work phases managed by the Subcontractor.
  - Assessed risks:
    - Deriving from the characteristics of the site and which can affect one's own activities.
    - Transmitted to the surrounding environment.
    - For interference with other work activities managed by the Subcontractor.
    - Intrinsic to the work activity.
  - Prevention and protection measures for the four types of risks mentioned in the previous bullet point (indicate the operational safety procedures to eliminate or reduce the risks: who does what, how and when they do it, what is used to do it, etc.).
  - Personal Protective Equipment to be used.

- Assess of the residual risk of the phase/sub-phase.
- List of Personal Protective Equipment supplied to workers employed on site and divided by job.
- Documentation regarding the information and training provided to workers employed on site.

2.10.4 Plan of Assembly, Use and Disassembly of Scaffolding (Pi.M.U.S.)

Subcontracts that carries out the assembly, maintenance and dismantling of scaffolding, shall issue a plan for assembly, use and dismantling of scaffolding (Pi.M.U.S.).

This plan shall include detailed instructions and the execution plan for erection and dismantling of scaffolding.

The plan also shall include calculation reports and drawings which indicate the correct methods of assembly, maintenance, use and disassembly of the scaffolding.

The plan is prepared to have an operational tool on site that gives clear technical indications on the correct assembly, disassembly, use and maintenance of scaffolding.

The various Pi.M.U.S.s, which shall be transmitted to CTR by the scaffolding Subcontractor, shall considered an specific HSE plan, complementary to this document and are distributed to the various user companies.

The Pi.M.U.S. it shall be specific for the type of used scaffolding and it shall include all the useful information for its assembly, use and disassembly, as required by current legislation and/or internal procedures.

The CM transmits, with the collaboration of the PHSEM, the Pi.M.U.S. to all companies that use scaffolding, prior to the start of activities and whenever changes occur.

2.10.5 Lift Plans

When required and in the case of particularly complex lifting in terms of weight, load size or in the case of lifting with multiple lifting means, a specific lifting plan shall be prepared which has at least the following contents:

- Data of contractor in charge of the lifting.
- Identification of the place of intervention.
- Descriptive report (description of the area; description of the operational phases; description of the means used; description of the equipment used; description of the personnel employed; positions; safety distances, admissible weather conditions, etc.).
- Program of activities (start date of work; execution schedule; duration of the lifting phases; overall duration of the lifting, etc.).
- Verification of the suitability of the means used (Identification of the work vehicles with relative capacities, etc.; Indication of the permissible loads according to the real operating conditions "outreaches distances heights etc"; indications of the real maximum load foreseen "weight with adequate dynamic increases etc"; safety contingencies).
- Verification of the suitability of the hoisting and SWL (hooks; hooks; ropes; chains, etc. with relative capacity; permissible loads according to the operating conditions; actual maximum expected load; safety contingencies).
- Supplementary checks to be carried out for lifting (suitability of the supports "saddles, cradles, etc." suitability of the structures/auxiliary equipment/plants/insulations that remain installed on the equipment to be lifted).

- Bearing verification of the soil areas subjected to loads during transport and lifting (description of the bearing surface; description of any preparation activities; description and dimensions of the distributors; permissible load; expected load; comparison and determination of safety margins).
- Details of the particular working conditions and dangers present in the area in which "lifting/transit" activities are performed (cables and overhead pipes; caves and underground pipes; dangerous substances and preparations present in the overhead pipes; dangerous substances and preparations present in the underground pipes; gases or fluids under pressure or at high temperatures in the overhead/underground pipes; sewers; distances; problems connected with any accidental impact; verification of probabilities, analysis of the consequences).
- Procedures to be implemented in the event of accidental impact.
- Training for personnel involved in the activities.
- Checks to be carried out before lifting (weather conditions; training documentation; exclusion zone identification; periodic checks of the cranes; signs; delimitations; Personal protective equipment for workers, etc.).
- Indication of the personnel involved and duties.
- Other issues related to lifting, documentation, working environment, etc.
- Technician's endorsement to the agreed method statement.

List of Attachments (non-exhaustive)

- layouts with the positions of the vehicles involved in the lifting.
- layouts with the pipes and overhead ducts.
- layouts s with underground pipes and shafts.
- drawings with the phases of lifting.
- drawings relating to the equipment to be lifted / moved.
- Documentation relating to the weights to be lifted.
- Documentation relating to the means to be used for lifting with capacity diagrams and periodic checks, etc.
- drawings of hoisting systems.

3 PREVENTION AND PROTECTION MEASURES

For the project activities analysed in this document, the prevention and protection measures identified in the following paragraphs shall be complied with.

In particular, the risk factors related to the type of activity to be carried out are assessed and the control measures necessary for their management are identified, providing the operators with the appropriate provisions, and ensuring that they have been correctly followed in carrying out the project.

3.1 HSE Documents

The HSE standards and rules are outlined in the following documents:

- CTR corporate HSE policy (DOC-COR-02).
- Applicable HSE corporate procedures and work instructions.
- In force legislation and international standards of good practice.
- Work Sites Emergency Response Plan (PRO-HSE-36, PRO-HSE-37).
- Corporate Risk Assessment Document (DVR-HSE-01).

The HSE project documentation (e.g.: HSE plan, HSE training programme, HSE audit plan) is managed through CTR and is available at the offices of the HSE Dept.

Each Subcontractor will provide at least one e-mail address to join CTR web portal for document management Portal and to receive all documents issued for the project.

3.2 Control Measures

3.2.1 Health at the Workplace

The main risks for health to be taken into consideration are:

- Noise: checks aimed at reducing acoustic pollution, identifying noisy areas, adopting suitable PPE.
- Respiratory tract disease: indoctrination of operators (e.g. welders or blast paint and insulation operators) as to potential risks, good local and general ventilation of workplaces, utilisation of suitable PPE in the case of poor ventilation.
- Manual handling: distance of load from body, posture, body position, bending and twisting, distance to cover, repetitive movements, load unexpected movements.
- Contact of skin or body with hazardous substances: material safety data sheets, chemical assessments, process phases observations, use of cleansing agents.
- Heath Stress: drink a lot of water, take a break in the shade, alternate work with rest, alternate heavy works.

3.2.2 Medical Fitness

CTR shall ensure that all Subcontractor personnel engaged in the project works are medically fit and healthy (and do not suffer from pre-existing injuries or illnesses that could be further jeopardised by the WORK). All shall possess a valid Fitness to Work (FTW) certificate.

Additional recognised medical testing for HSE Critical roles shall also be assured by Contractor.

These personnel are subject to pre-employment and periodic and random Drug and Alcohol testing programme as per table below. CTR can ask for additional test if reasonable suspicion exists regarding influence of alcohol, drugs or other narcotic substance.

Critical Roles	Alcohol limit =0,0g/l	Freq. per year	Drugs or other narcotic substances limit =positive	Freq. per year
Mobile lifting plants operators (Forklifts, Cranes, MEWPs, etc.)	x	1	x	1
Drivers	x	1	na	na
Workers working at height (> 2m) where collective preventative measures to control risk are not practicable	x	1	x	1

Activities involving work in pipes, ducts, containers, such as tanks and similar, in which there may be gases, vapours, flammable dust and explosives	x	1	x	1

Contractor is responsible for the removal, replacement and consequence management of any personnel found to breach Drug and Alcohol requirements.

The Limits established for alcohol is 0.0 g/l (blood concentration) and for drugs or other narcotic substances is the positive result of the test.

3.2.3 Medical First Aid

Construction is generally considered as a high-risk activity due to severe accidents caused by machinery, equipment or heavy loads; working in confined spaces or at heights are usually very demanding tasks.

The risk importance and the scope of work are to be considered in the medical first aid assessment process. Personnel in charge of said evaluations shall be qualified. Medical first aid interventions shall be carefully planned, such as: communication between the first rescuers; call for medical first aid; number and training of medical first aid team members; selection of medical first aid facilities; how long external medical assistance would take to arrive; shift work is involved. First aid facilities shall be kept in a safe place and duly signalled to be easily identifiable.

Every Subcontractor shall have personnel trained for emergency and medical first aid who shall liaise with CTR. emergency team leaders at yard.

CTR ERT Leaders are trained with a valid international medical qualification like Basic Life Support (BLS).

CTR shall ensure that first aid cover is available on all shift by managing roster and planned or un-planned absence so that the appropriate number of first aid personnel are provided in the workplace.

CTR ERT will be available during all working hours.

In terms of first aid facilities, in each CTR is present a sickbay (with first aid equipment) and in Piomboni Yard there's also a helideck where the Emergency Helicopter may land.

On construction site, there is moreover a dedicated team trained on the use of defibrillator. AED are present at each site with instructions both in English and Italian.

3.2.4 Prevention and Control

Risk management starts by arranging adequate organizational and technical measures to remove risk at source or to protect workers through collective measures. Should said measures be not sufficient or should it be impossible to implement them, it is necessary to adopt personal protection equipment. It is essential to involve everyone in the selection of protection and prevention methods to be adopted.

3.2.5 Coordination

Different disciplines, carried out simultaneously during construction, determine a significative interference risk.

To reduce these risks, coordination meetings will be held, by the CM, to assess, manage and control the interference risks.

When carry out overlapping work, the CM, with the support of the PHSEM, will assess and arrange for the necessary safety control measure as the preparation and implementation of collective and individual protection works and/or work restrictions.

3.3 Risks Assessment

A dedicate HIRA will be carried out before the starting of the project works with CPY involvement.

Furthermore, CTR holds coordination meetings with Subcontractor in weekly basis and before the execution of critical works. The meetings are aimed to review the risk assessment of planned works and to ensure all control measure I place.

In this section is carried out the risks assessment related to the interfering activities planned for the execution of the project (as per point 3.3.1 "Interfering risk matrix") as required per art. 26 D.Lgs. 81/08 (Italian Law – Occupational Health and Safety Code).

The risk assessment criteria is outlined in the corporate procedure ref. nr. IDL-HSE-07

Risk Management Process to determine significant hazards and risks in the design and engineering phase is outlined in the project document 123A90-DDL-SAF-RE-30002 (Design HSSE Plan).

3.3.1 Interfering risks assessment

Hazards	work environnement			Collisions			Slips and tarps			Fall to Sea			Fall from Height			Handling of loads			Mech.. Hazards			Dropping objects			Electrocution			Fire			Explosion			Exposure to chemicals			Confine Space Works			Noise			Vibrations			Ionising radiations			Artificial Optical Radiations			Biological agents		
activity	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C	Likelihood	Consequence	Risk = L x C
Work phase																																																	
1. Construction																																																		
1.1 Temporary support	2	1	2	2	3	6	2	2	4	0	0	0	2	2	4	2	3	6	2	3	6	2	2	4	2	3	6	1	3	3	1	2	2	1	3	3	0	0	0	3	3	9	0	0	0	2	3	6	2	3	6	1	3	3
1.2 Topside structure construction	3	2	6	2	3	6	2	3	6	0	0	0	2	4	8	2	3	6	2	4	8	2	4	8	2	4	8	2	3	6	2	3	6	2	3	6	0	0	0	3	3	9	0	0	0	2	3	6	2	3	6	1	3	3
2. Coating/Sandblasting																																																	
2.1 Topsides coating	1	1	1	2	3	6	3	3	9	0	0	0	2	3	6	2	3	6	2	3	6	2	4	8	2	2	4	3	3	9	3	4	12	2	3	6	2	3	6	3	4	12	0	0	0	2	3	6	1	3	3	1	3	3
3. Equipment																																																	
3.1 Installation of Mech. equipment	1	1	1	2	3	6	3	3	9	0	0	0	2	2	4	2	3	6	1	3	3	2	3	6	2	2	4	1	3	3	1	3	3	1	3	3	0	0	0	2	3	6	0	0	0	2	3	6	2	2	4	1	3	3
4. Architectural																																																	
4.1 Internal insulation	2	2	4	2	3	6	2	3	6	0	0	0	2	3	6	2	3	6	2	3	6	2	2	4	2	3	6	2	3	6	1	3	3	3	4	12	0	0	0	2	3	6	0	0	0	2	3	6	1	3	3	1	3	3
4.2 Installing Door and Window Profiles	1	1	1	2	3	6	2	3	6	0	0	0	2	3	6	2	3	6	2	3	6	2	2	4	2	2	4	2	3	6	1	3	3	1	3	3	0	0	0	2	3	6	0	0	0	2	3	6	1	3	3	1	3	3
5. Piping																																																	
5.1 Piping Erection	1	1	1	2	3	6	2	3	6	0	0	0	2	4	8	2	3	6	2	3	6	2	3	6	1	3	3	1	3	3	1	3	3	1	3	3	0	0	0	2	2	4	0	0	0	2	3	6	1	3	3	1	3	3
5.2 Fit up del piping	2	2	4	2	3	6	2	3	6	0	0	0	2	4	8	2	3	6	2	3	6	2	3	6	2	4	8	3	3	9	1	3	3	3	2	6	0	0	0	3	3	9	0	0	0	2	3	6	2	2	4	1	3	3
5.3 Piping welding	2	2	4	2	3	6	2	3	6	0	0	0	2	4	8	2	3	6	2	3	6	2	3	6	2	4	8	3	3	9	2	4	8	3	3	9	0	0	0	3	3	9	0	0	0	2	3	6	2	3	6	1	3	3
6. HVAC																																																	
6.1 Installation of HVAC ducts	1	1	1	2	3	6	2	3	6	0	0	0	2	4	8	2	3	6	2	3	6	2	3	6	1	3	3	2	3	6	1	3	3	2	2	4	0	0	0	2	2	4	0	0	0	2	3	6	2	2	4	1	3	3
6.2 Equipment installation	1	1	1	2	3	6	2	3	6	0	0	0	2	4	8	2	3	6	2	3	6	2	3	6	1	3	3	1	3	3	1	3	3	1	3	3	0	0	0	2	2	4	0	0	0	2	3	6	1	3	3	1	3	3
6.3 Tubing installation	1	1	1	1	3	3	2	3	6	0	0	0	2	4	8	2	3	6	2	3	6	2	3	6	1	3	3	2	3	6	1	3	3	2	2	4	0	0	0	2	2	4	0	0	0	2	3	6	2	2	4	1	3	3
6.4 Cable Laying	1	1	1	2	3	6	3	3	9	0	0	0	2	4	8	3	3	9	2	3	6	2	2	4	1	3	3	2	3	6	1	3	3	1	3	3	0	0	0	2	2	4	0	0	0	2	3	6	1	3	3	1	3	3
7. Electrical/Instrumental Works																																																	
7.1 Installation of electrical supports	1	1	1	2	3	6	2	3	6	0	0	0	2	4	8	2	3	6	2	3	6	2	3	6	1	3	3	2	3	6	1	3	3	2	2	4	0	0	0	2	2	4	0	0	0	2	3	6	2	2	4	1	3	3
7.2 Installation of cable trays	1	1	1	2	3	6	2	3	6	0	0	0	2	4	8	2	3	6	2	3	6	2	3	6	1	3	3	1	3	3	1	3	3	1	3	3	0	0	0	2	2	4	0	0	0	2	3	6	1	3	3	1	3	3
7.3 Installation of lights and panels	1	1	1	2	3	6	2	3	6	0	0	0	2	4	8	2	3	6	2	3	6	2	3	6	1	3	3	2	3	6	1	3	3	2	2	4	0	0	0	2	2	4	0	0	0	2	3	6	2	2	4	1	3	3
7.4 Cable laying	1	1	1	1	3	3	3	3	9	0	0	0	2	4	8	3	3	9	2	3	6	2	2	4	1	3	3	2	3	6	1	3	3	1	3	3	0	0	0	2	2	4	0	0	0	2	3	6	1	3	3	1	3	3
8. NDT																																																	
8.1 Non-distructive Controls	2	2	4	1	3	3	2	3	6	0	0	0	2	4	8	1	3	3	1	4	4	2	3	6	2	2	4	2	2	4	1	3	3	2	3	6	0	0	0	1	3	3	0	0	0	3	4	12	1	3	3	1	3	3
9. Commissioning																																																	
9.1 Piping testing	1	1	1	1	3	3	2	3	6	0	0	0	2	3	6	2	3	6	2	4	8	2	4	8	1	3	3	1	3	3	1	3	3	1	3	3	0	0	0	2	2	4	0	0	0	2	3	6	1	3	3	1	3	3
9.2 Testing	1	1	1	1	3	3	2	3	6	0	0	0	2	3	6	2	3	6	2	3	6	2	4	8	3	4	12	3	4	12	3	4	12	1	3	3	0	0	0	2	2	4	0	0	0	2	3	6	1	3	3	1	3	3
10. Final Activities																																																	
10.1 Weighing	1	1	1	1	3	3	2	2	4	0	0	0	0	0	0	1	3	3	1	4	4	1	3	3	1	3	3	1	3	3	1	3	3	1	3	3	0	0	0	2	2	4	0	0	0	2	3	6	0	0	0	1	3	3
10.2 Load Out	2	2	4	1	3	3	3	3	9	3	3	9	2	2	4	2	3	6	2	3	6	2	3	6	1	3	3	1	3	3	1	3	3	0	0	0	0	1	4	4	2	2	4	0	0	0	2	3	6	1	3	3	1	3	3
10.3 Sea Fastening	2	2	4	1	3	3	3	3	9	3	4	12	2	4	8	2	3	6	2	3	6	2	3	6	3	4	12	2	3	6	2	3	6	3	2	6	1	4	4	3	4	12	0	0	0	2	3	6	2	3	6	1	3	3

3.3.2 Control measures defined in the following section to reduce risks

CONTROL MEASURES	3.4	3.4.1	3.4.2	3.4.3	3.4.4	3.4.5	3.4.6	3.4.7	3.4.8	3.4.9	3.4.10	3.4.11	3.4.12	3.4.13	3.4.14	3.4.15	3.4.16	3.5	3.5.1	3.5.2	3.5.3	3.6	3.6.1	3.6.2	3.6.3	3.6.4	3.6.5	3.6.6	3.7	3.7.1	3.7.2	3.7.3	3.7.4	3.8	3.8.1	3.8.2	3.8.3	3.8.4	3.9	3.9.1	3.9.2	3.9.3	3.9.4	3.9.5	3.10	3.11	3.12	3.13	3.14	3.15	3.16	3.16.1	3.17	3.18	3.19	3.20
	HSSE Control measures at work sites	Personnel access to site	Work Sites	Yard traffic and escapes routes	Safety Signs	Permit to work	Work at height	Use of Work Equipment	Loan of Machinary/Tools and Vehicles	Hotworks	Use of technical gases	Confined space Works	Testing Operation	Lifting Operation	Line of fire	Magnetic Particle Examinations	Electrical and Instrumental Works	Use of the Yard's Electrical plants and equipment	Use of Electrical Equipment in the Workshops and Yards	Lightning Protection System	Containers and mobile box	Fire Hazard	Workshops (fire hazard)	Yard (fire hazard)	Works within module under constructions	Propane cylinder storage	Flamable Liquid Qeposit	Electrical equipment constituting an ignition source	Explosion Hazard	Workshops (ATEX Hazard)	Yard (ATEX Hazard)	Propane cylinder storage (ATEX Hazard)	Works within module under constructions (ATEX Hazard)	Use of Chemicals e	Painteing	Use of special products	Insulation	Sandblasing	Agenti fisici	Ionising Radiation	Electromagnetic Fields	Artificial Optical Radiation	Noise Hazard	Vibration hazard	Biological Agents	Risks related to Age, Gender, and Nationality	Simultaneous Operations	Manual handling of loads	Load out Operation	Housekeeping	Waste management	Collection and Temporary Storage of Waste	Movement of vehicles and material	Other General Information	Management of Change (MoC)	Unplanned events
WORK PHASE																																																								
1. Construction																																																								
1.1 Temporary support		X	X	X	X	X	X	X	X	X	X			X	X	X			X		X		X	X		X		X		X	X	X								X	X	X	X		X		X	X	X	X	X
1.2 Topside structure construction		X	X	X	X	X	X	X	X	X	X			X	X	X	X		X	X	X		X	X	X	X	X	X		X	X	X	X		X	X	X	X		X	X	X	X	X		X	X	X	X	X		X	X	X	X	X
2. Coating/Sandblasting																																																								
2.1 Topsides coating		X	X	X	X	X	X	X	X	X	X	X		X	X				X	X	X		X	X	X	X	X	X		X	X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
3. Equipment																																																								
3.1 Installation of Mech. Equipment installation		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
4. Architectural																																																								
4.1 Internal insulation		X	X	X	X	X	X	X	X	X	X			X	X				X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
4.2 Installing Door and Window furniture & equipment		X	X	X	X	X	X	X	X	X	X			X	X	X			X	X	X			X	X		X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
5. Piping																																																								
5.1 Piping Erection		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
5.2 Fit up del piping		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X	X	X	X	X	X		X		X	X	X	X	X
5.3 Piping welding		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X			X	X	X	X	X	X	X	X		X		X	X	X	X	X
6. HVAC																																																							
6.1 Installation of HVAC ducts		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X	X	X	X	X	X		X		X	X	X	X	X
6.2 Equipment installation		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
6.3 Tubing installation		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
6.4 Cable Laying		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
7. Electrical/Instrumental Works																																																							
7.1 Installation of electrical supports		X	X	X	X	X	X	X	X	X	X			X	X	X	X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X	X	X	X	X	X		X		X	X	X	X	X
7.2 Installation of cable trays		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X	X	X	X	X	X		X		X	X	X	X	X
7.3 Installation of lights and panels		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
7.4 Cable laying		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
8. NDT																																																							
8.1 Non-distructive Controls		X	X	X	X	X	X	X	X	X	X		X	X	X		X		X	X	X			X	X	X	X	X			X	X	X		X	X	X	X		X		X	X		X	X	X	X		X		X	X	X	X	X
9. Commissioning																																																							
9.1 Piping testing		X	X	X	X	X	X	X	X	X	X		X	X	X		X		X	X	X				X	X	X	X			X	X	X		X	X	X	X				X	X		X	X	X	X		X		X	X	X	X	X
9.2 Testing		X	X	X	X	X	X	X	X	X	X		X	X	X		X		X	X	X				X	X	X	X			X	X	X		X	X	X	X			X	X	X		X	X	X	X		X		X	X	X	X	X
10. Final Activities																																																							
10.1 Weighing		X	X	X	X	X	X	X	X	X					X				X	X				X		X	X	X			X	X	X									X		X		X	X	X	X		X			X	X	X	X
10.2 Load Out		X	X	X	X	X	X	X	X	X	X			X	X		X		X	X				X		X	X	X			X	X	X									X	X	X		X	X	X	X	X	X			X	X	X	X
10.3 Sea Fastening		X	X	X	X	X	X	X	X	X	X			X	X	X	X		X	X				X		X	X	X			X	X	X		X							X	X	X		X	X	X	X		X		X	X	X	X	X

3.4 HSSE Control Measures at Work Sites

3.4.1 Personnel Access to Site

The access of personnel to the site is regulated as described below.

Authorized personnel only are allowed to the working sites. No entry signs shall be adequately displayed.

Provisions are also outlined in corporate document PRO-HSE-04

CTR Employees

Employee access to working sites is by means of a personal magnetic badge enabled for the opening of the following entry points:

- TURNSTILES at the receptions (all sites).
- TURNSTILES at the sandblasting and painting (only at Yard Piomboni).
- TURNSTILES at the rear of the warehouses (only at yard Piomboni).
- TURNSTILES at Lotto Sud area (only at yard Piomboni).
- DIRECT ACCESS through receptions.

At Head Quarter Site in Ravenna (VTS), the internal parking lot is accessible to all CTR personnel.

At Yard Piomboni (YPB) the internal parking lot is reserved to management and CPY Rep. only.

CTR Employees not Enabled to access the sites.

For CTR employees whose badge is not enabled at the entrance to sites, access can only take place through reception.

Visitors and Clients

The access to the site is thought turnstiles by means of a temporary badge released at the reception when first arrived, upon registration of an ID.

Subcontractor personnel

Access to subcontractors and vendor is regulated by corporate procedure (ref. nr. IDL-HSE-27).

To have access, Subcontractors and vendor personnel shall submit a personal identification card (in accordance with current legislation and / or internal procedures) bearing:

- General information (name, surname, date of birth, photo).
- Employer name.
- In the case of self-employed persons, the reference of the Subcontractor.
- Date of recruitment and, in the case of subcontracting, the relevant authorisation.

This card shall be made available for verification by CTR personnel and/or control authorities.

For the project activities, workers shall be employed directly by the subcontractor or be a regularly authorized consortium member.

The Responsible supervisors of Contractors and Subcontractors shall Visit the worksite and to assess the risks related to the subcontracted works. Subcontractor shall inform and train personnel about the assessed risks before they access the worksite. Personnel will also attend the worksite induction training before they access the worksite.

Outside normal working hours (night hours, weekends, etc.) access to the workshop and construction yard is allowed upon written request to the Yard Manager sent at least 24 hours before the start of the activity.

The construction yard is manned by a security service.

3.4.2 Work Sites

Stability and Soundness of Buildings

The main structure of the buildings is reinforced by concrete or steel with adequate strength for the support of bridge cranes. The residual risk is mainly related to falling from above of parts of machinery or structures.

Control Measures

There are certificates of occupancy for the buildings issued by local authorities.

The workshops are regularly inspected by internal technical department to verify the presence of defects of concrete, beams, and pillars.

Heights, Volumes, and Surfaces

Yard Piomboni (YPB)

Buildings

The buildings have an area of about 10,000 m^2 (prefabricated workshops, warehouses, indoor areas in use by contractors) and a maximum height of about 26 meters. Inside there are about 70 workers, plus approximately another 350 in the outdoor areas (the number varies according to the phases of work), mostly employees of contractors. These figures guaranteed minimum values of air volumes e and available surface to each worker.

Yard erection area

Inside the platforms/ modules under construction, the shape of the workplaces could not always allow workers the best ergonomics/HSE conditions.

Control Measures

Since it is not possible to change the geometry of the structures, minimization of the risk is ensured through specific Risk Assessment / JSA Prepared specifically for each single task, to minimize the workers' risk exposure.

Floors / surfaces

Buildings

The floors are even, made of concrete and, where necessary, covered with steel plates to make them more resistant and even.

Control Measures

Housekeeping takes place regularly; the floors are swept, and the waste removed and collected in special collection areas outside. Housekeeping is carried out under the control of Supervisors.

The worksite shall be kept neat, clean and clear of obstacles to allow a safe movement of people and vehicles. Access roads, escape routes, fire hydrants, fire extinguishers, safety eyewash stations should always be free of material or encumbrances of any nature. It is forbidden to remove the fire equipment's from the assigned position and it is also forbidden to remove signs and various notices, particularly temporary safety without the approval of Area Managers and/or HSE supervisor.

Yard erection area

Outdoor assembly and storage area are partly gravel and partly paved.

The flooring platforms/ modules under construction shall always ensure a safe movement of people even when carrying material or tools.

Control Measures

Access to platforms/ modules under construction is through scaffolds; these are assembled used and dismantled in accordance a specific Scaffolding Plan (Pi.MUS) as requested by law.

Work environment

There is a risk of exposure to high temperatures in summer and low temperatures in winter for the activities carried out outdoor.

Control Measures

- Each contractor shall provide suitable PPE.
- During winter season, take breaks inside heating shelters and take hot drinks.

HEAT STRESS control measures are defined in the corporate procedure IDL-HSE-24

Natural and Artificial Lighting

Buildings

Into workshops a good lighting is ensured. The workstations are adequately illuminated both with natural light from window areas and artificial lighting.

Control Measures

- Along the escape routes are distributed emergency lights, supplied buffer batteries.
- Periodic cleaning of windows and lights, replacing those that do not work or have flicker.
- Using lamps and electrical equipment correspond to the details in following sections

Yard erection area

Working areas and walkways are adequately lit by suitable lamps connected to the UPS to ensure lighting also in case of emergency.

Control Measures

All lighting systems shall be reinstated immediately if any anomalies are reported.

If it is necessary to illuminate narrow spaces with conducting surfaces shall be used lamps correspond to the details in in following sections.

Basic Welfare Facilities

Toilets and showers are available at worksite.

Control Measures

CTR shall ensure facilities sanitized and in a good state of maintenance. Such facilities include:

- drinking water,
- toilet facilities,
- dedicated eating/rest areas,
- Smoking areas
- workplace cooling/heating facilities when appropriate,
- shelter from weather extremes,

CTR provides dressing facilities to his own personnel. Subcontractors are required to provide additional facilities for their workers.

3.4.3 Yard Traffic and Escapes Routes

Site Traffic

Movement and transfer of both loads and pedestrians at the sites create several hazards and the objective is to (where possible) plan the layout and construction sequences such that Pedestrian and mobile equipment are kept separate. Designated laydown facilities for truck and forklift only also helps work efficiency and quality.

Control measures

- The pedestrian access to platforms / modules / plants under construction is by stairs or walkways, usually parts of assembled scaffolding, used and dismantled in conformtity to the mandatory plan (Pi.MUS).
- Inside the buildings, these walkways are made with temporary structures, such as scaffolding, gradually replaced by the final floor.
    - The stairs and walkways are arranged in number and in position for an easy access and designed in consideration of the max number of workers foreseen in the area.

- The access patterns are already defined during the constructability phase for each phase of construction.
- Use ramps sufficiently wide and with handrails.
- Inside the platforms / modules under construction, the walkways are also meant to serve as escape routes therefore under the control of the area supervisor.
- When, for technical reasons is necessary to remove walking floors (tables of scaffolding or grilled), the supervisor in charge shall barrier off the area affected area and eventually access area.
- Display warning signs.
- Coordination meetings chaired by the Construction Manager to plan the activities.
- Good housekeeping of workplace
- Continuous surveillance, by supervisors, to avoid interference between the various processes and to ensure at all times the usability of escape routes.
- Inspection performed by PHSEM and employees of HSE officers.
- In working areas walkways shall be keep clear and safe as they serve the escape route, and they shall allowed an easy and safe transit even while they are handling tools/equipment.
- Dropped objects program in place.

- A specific Project Area Traffic/Logistic Plan is issued, and it will be reviewed on a weekly basis during Construction Coordination HSE Meeting, in order to manage any possible interfaces.

Control measures are also outlined in corporate procedure PRO-HSE-16 Traffic Management Plan Piomboni Site and IDL-HSE-90 Traffic Management Plan Headquarter.

Workplaces and walkways

In both indoor and outdoor worksites, the risk of dropped object is significant due to the everyday lifting and handling of loads by cranes, forklifts, wheeled trucks, and the risks of projection of objects and fluids caused by the works in progress.

Inside the platforms / modules under construction there is a significant risk of falling of objects and materials due to opening, for instance, floring contruction, access gates, stairways, lift, etc. ,and the flying splinters, dust, sparks or fluids, due to the activities in progress.

Control Measures

- Segregation of pedestrian and vehicles shall always arrange where possible
- Workplaces and walkways are protected against falling material and projection of objects stemmed from ongoing activities.
- Where physical protection is not achievable, the safety of workers is ensured by barricaded areas and allowing the maneuvers of cranes, forklift trucks, the trailer and other machinery only if the area has been cleared.
- All operators shall be trained and skilled in the use of assigned equipment.
- Continues supervision of lifting activities and works with associate risk of projection of objects.
- All workers shall wear PPE for head protection.

- Height working places, from which it is possible falling objects, shall be equipped with toe-boards (for more details refer to following section)
- If there are ongoing processes that involve the risk of splinters, dust, sparks or pressurized fluids, set up barrier/shields to segregate the hazards.

3.4.4 Safety Signs

The working area shall be duly signaled and identified by placing safety signs and signals as provided for by relevant standards.

Control mesures

- In each working place adequate safety signs shall be displayed to inform about:
  - Warning signs (triangular yellow signs) such as electricity, flammable materials etc.
  - Mandatory signs (circular, solid blue background) such as use of PPE
  - Prohibition signs (circular, white background with a red border and a red diagonal bar) such as no smoking, no flames.
  - Safe condition signs (rectangular, green) such as escape route / exit.
  - Firefighting signs (rectangular, red) such as fire extinguishers.
- Safety signs in compliance with in-force regulation.
- Daily inspection by supervisors and periodical check by the HSE supervisors to ensure the correct position and signage at worksite.

3.4.5 Permits to Work (PtW)

As far as some high-risk / critical activities are concerned, the issue of a specific PtW will be necessary to an addition control the work.

The activities for which it is necessary to work under PtW in CTR's premises, are:

- Works to be carried out in confined spaces.
- System Testing: Pressure testing
- System Testing: Precomm - Commissioning
- NDT: Radiography
- Lifting activities (non-routine complex lifting)
- Works to be carried out on energized plants or machinery.
- Simultaneous operations
- Works to be carried out either during hours or within sites having no supervision.
- Other high-risk activities identified in the risk assessment.

For more details refer to corporate procedure PRO-HSE-23.

A specific Job Safety Analysis (JSA) shall always be issued by the Person in Charge of the work, verified by PHSEM and approved by the CM.

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During commissioning phase, any activity in commissioning areas shall be strictly controlled by PtW. The process is explained in Attachment V.

3.4.6 Works at Heights

Works at heights: working activity exposing the worker to falling hazard from a height exceeding 1,8 m as against a stable level.

Mandatory safety provision (as per current legislation) for works at height.

1. where temporary works at heights cannot be carried out safely and in suitable ergonomic conditions, to adopt the most adequate equipment aimed at ensuring and preserving safe working conditions, in compliance with the following criteria:
   a) Priority to collective protective measures as against personal protective ones.
   b) Equipment dimensions adequate for the nature of works to be carried out, for foreseeable stresses and a hazard-free circulation.
2. To adopt the most suitable system to reach heights also depending on the activity duration. The access system adopted shall enable evacuation in the case of sudden danger. The passage from an access system made of platforms, scaffolds, walkways and viceversa shall not entail risks of fall.
3. To arrange for a rung ladder to be used as workstation at heights only it the use of any other safer working equipment is not justified due to the tolerable risk and the short duration of activities or the sites existing features that cannot be modified. Tree points of contact shall be granted.
4. To identifies measures aimed at minimizing risks for workers by arranging, where necessary, protections system and equipment against fall as to prevent, in the case of fall, any possible lesions to workers.
5. Should a specific activity require the temporary removal of collective protection device against falls, to adopt equivalent safety measures. Once he has completed said work, collective protection devices shall be restored.
6. To carries out temporary works at heights only if weather conditions do not endanger workers health and safety.

Works to be carried out at a height exceeding 1,8m shall be assessed and as result a method of access to height shall be adopted:

- Scaffolds
- Ladders
- MEWPs
- Safety harness

Control measures

- Area where works are performed shall be clear off and cord off.
- In is not possible to cord off the area physical protection shall be set up to protect people working underneath. Interfering activities shall be assessed coordinate by CM before the starting of the activity.

  If any unplanned event should cause any interference should occur at site, does not matter the cause, subcontractor shall stop the activities and Supervisor shall be informed.

  Refer to work instruction stated in corporate procedure rif. Nr. PRO-HSE-18.
- Keep two spare harness available on the highest scaffolding.

3.4.6.1 Scaffolding

Scaffold is an essential working tool to carry out, in safety, working at height.

Scaffolding can also be used to make transit routes or access to elevated work areas, providing work safety standards to workers. They shall ensure the same safety standards as any accesses / work area.

Normally, the scaffold is an installed before the erection of the platforms / modules / plants; it is temporary and is subject over time in extremely heavy weather conditions which can also lead to compromising its integrity and safety. It shall also take into consideration that the scaffold may be subject to accidental damage (e.g. by smashed during handling of the materials).

For this reasons scaffolding shall assembled in conformance to standards and/or calculation, periodically verified, maintained and used so that they may always guarantee its intrinsic qualities of safety.

Control measures

- The CM, during the constructability phase, the planning of activities and coordination meetings, evaluates the need of scaffolding to ensure safe working at heights, and any other details necessary to make the work safer.
- Keep two spare harness available on the highest scaffolding.

3.4.6.2 MEWPs

The Mobile Elevating Work Platforms may be used for different types of work of relatively limited duration. However, MEWPs cannot, generally, replace the use of scaffolding.

Control Measures

The manual provided by manufacturer shall be available at site. It contains safety instruction to be followed. General control measures (not exhaustive list) are:

- MEWP serviced as per manual and yearly third party inspection available;
- Operators to be trained as per current law;
- Do not disembark form platform (unless the disembark is authorized by manufacturer and the activity has been risked assessed);
- Do NOT lift equipment heavier than that declared by the manufacturer;
- Do NOT lift a number of people higher than that declared by the manufacturer.

3.4.6.3 Safety harness

When a safe access is not possible and there is a significant risk of falling from scaffold, the use of the safety harness is compulsory.

- The use of the safety harness is not an alternative measure to scaffolds and railings whenever it is possible to realize them.

Control Measures

- Safety harness shall be equipped with suspenders, thigh protectors and safety rope, and shall be securely fastened to a fix and safe point. Should stable components be missing on fixed structures, the safety harness may be secured, after verification by qualified personnel, on stable and safety components of temporary structures. The use of longer safety ropes, such as the use of retractile fall-arrester devices, shall be previously submitted to the CM's attention and evaluated with respect to the specific operation to be carried out and relevant execution conditions.
- PPE and equipment shall checked and inspected as law in force and contractual requirement .
- Only trained personnel can use safety harness (3rd category PPE).

3.4.7 Use of Work Equipment

The yard activities require the use of tools and equipment such as:

- Hand tools
- Powered tools (designed with "dead man switches")

If necessary to use vehicles and equipment owned by CTR refer to following section.

Control measures

- Each Subcontractor before introducing any equipment on site, is required to submit to CTR the List of Machines, equipment and scaffolds, and the relevant HSE documentation for approval;
- The Subcontractors' personnel appointed to use working machines and equipment shall be informed and trained about the risks in according to in-force law.
- The machines and equipment shall be subject to periodic maintenance as per manufacturer instructions.

The equipment of the subcontractors will be inspected by CTR both before entering the site and during the use at CTR site.

3.4.7.1 Safety and Environmental Critical Equipment (SCE)

CTR identified, All Safety and Environmental Critical Equipment that will be utilized and depended on during the execution of the Work for the duration of the Contract (including for any short duration or temporary equipment, utilities or facilities):

- Cranes
- Forklift
- MEWPs
- SPMTs
- Lifting Equipment
- Workshop non portable Machineries
- Propane cylinder storage structure

Such equipment will be those that prevent (or mitigate the impacts of) a Major Accident Hazard (MAH) or Event.

All CTR SCE are managed by Maintenance Dept and listed into an internal Maintenance Data Base.

Each contractor before introducing any SCE on site, is required to submit to CTR the relevant documentation as documents of approval, certification, periodic checks etc., and approved by CTR HSE Dept.

3.4.8 Loan of Machinery Tools and Vehicles

CTR may lend the machinery and equipment to contractors (and other way around) such as power tools and machinery for handling and lifting means for handling fixed lifting.

These equipment's have mechanical risk of crushing, dragging, cutting, falling from heights and physical risks related to the power supply.

Control Measures

- The equipment / shall comply with the CE / UE safety directive and maintenance manuals are available and kept by the maintenance department. A copy shall be available at site.
- Workers using machines and equipment shall be informed and trained on the risks, and procedures and method of work shall be transmitted from CTR before the authorizing to use them given by CM or CTR Manager responsible to prefabrication in the workshops.
- All machines are subjected to planned preventive maintenance.

3.4.9 Oxycutting, Welding and Grinding Operations (hot works)

Workers in charge of ox-cutting, welding and grinding operations may be subject to the following hazards:

- Explosion of compressed gas bottles (e.g., Propane).
- Electrocution.
- Damages to the eyes caused by ultraviolet rays due to electric welding.
- Damages to the eyes and body due to the projection of incandescent metal splinters during welding and during grinding operations.
- Damages due to heat to hands and body.
- Damages to the respiratory tract due to inhalation of miscellaneous oxides depending on the type of metal to be welded or cut (iron, zinc, carbon, nitrogen, lead oxides, etc.).
- Breakaway of the grinding disk.
- Noise.

Control measures

- All hot work activities shall be carried out only after safety assessment and the setup of all controls to prevent and fight a fire are in place.
- CTR HSE Dept will be deployed to the various hot work levels as dictated by the scope of work and task risk assessments. All HSE personnel have been trained in fire awareness, firefighting, job site preparation, and roles and responsibilities of fire watch personnel.
- ensures that an appropriate fire extinguishing agent (Dry Powder, CO_2, Water) is available and in working order. The HSE Officer maintains communication between all the Fire Watch personnel during operation.

- Notify other personnel working in or passing through the work area of the hazards & work in progress.
- It is possible that smouldering may occur after completion of the task. Appointed watchers shall remain at location to ensure no smouldering occurs after completion of any hot work / welding.
- If a fire extinguisher is used, the empty extinguisher will be returned to the HSSE Dept. and a new one obtained before restarting the work.

Control measures are also outlined in the corporate procedure rif. Nr IDL-HSE-20 and IDL-HSE-23.

Hot Works are forbidden during commissioning Integrated Test or in proximity (< 30 m) to area where there is H_2 in the system. In case of such event a Job Safety Analysis shall be carried out by the performing subcontractor in liaise with CTR and the hot work shall be coordinated and authorized by PTW.

A specific vent dispersion study has been requested to assess the impact on the adjacent projects and define specific control measures (e.g. H2 test only during night or weekends).

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NOTE: The yard is equipped with a fire line. Fire hoses are placed as shown in the attached fire lay-out and provided with housing with all necessary equipment (hoses L = 20 m and nozzle). During Integrated test additional fire extinguishers will be deployed on the platform, and n.2 additional fire trucks will remain in standby at the boundary of the exclusion zone (ref. Appendix VI).

3.4.10 Use of Technical Gases

Liquid or compressed gases (both flammable and inert ones), submerged arc welding, paints, solvents, oils, fuels, insulating materials and chemicals may be used during working phases.

The main risks associated with the handling of technical gases are constituted by the particular physic-chemical characteristics of the substances.

Special attention should be paid to the danger of fire and explosion of a container or a local business, or the consequences on human body from contact with the spill (burn, narcosis, asphyxia, contamination, etc.).

The explosion can be caused by any heat source (natural or artificial) that face to increase the volume, and then the gas pressure inside the container in which it is contained; also can occur by impact or fall of the bottle itself.

It is also to consider the risk of alteration of the atmosphere within the working environment caused by releases and build-up of gases that can cause toxic atmospheres, explosive, anoxic (O_2 <18%) or iperoxic (O_2> 23%).

Control measure

- Leak tests shall be conducted on all gas cylinder fittings prior to daily use by the welder or fabricator using the cylinder.
- Gas Cylinders will be stored separately according to gas type and kept shaded from direct sun light whilst in store.
- Appropriate distance shall be maintained between flammable and combustible gases when used or stored at site.
- Fire and explosion precautionary measures for operation involving flammable gases/mixtures will be rigorously enforced.

- Suitable and enough portable fire extinguishers will be placed in strategic locations throughout the work area.
- Fire hazard warning signs shall be displayed as required.

Control measures are also outlined in the corporate procedures rif. Nr IDL-HSE-18.

H_2 will be present at site during the commissioning phase. Addition control measure related to the presence of H_2 will be established in the dedicate Fire & Explosion Risk assessment and the relevant provisions shall be integrated to the ones outlined in this document.

3.4.11 Works in Confined Spaces

Works in confined spaces shall be controlled by PtWs issued by CTR and supported by a specific Risk Analysis (JSA) and control measure.

Confined spaces are defined as closed or partially closed areas that:

- Have limited or restricted entries and exits.
- Have unfavorable natural ventilation.
- Are not designed to be occupied continuously.

Control measure

Confined Space Entry control measures are stated in corporate procedure ref. nr. PRO-HSE-20.

All the above is supplemented by the provisions of current legislation DPR 177/11.

3.4.12 Commissioning Operations

The management of the risks related to Commissioning and start-up operations are described in the Contractor Procedure No PRO-HSE-08. The following notes clarify how to comply with the requirement described in.

Control measures

- Personnel appointed Area Manager shall have proved experience in the role. The CV shall prove minimum of 6 year experience in the Oil and Gas Industry.
- Commissioning personnel and the staff directly involved in activities on potentially energized systems must have training PES / PAV according to CEI 11-27 (or equivalent international std).
- All personnel working at site shall be informed about the commissioning activities and the related risks through TBTs and Safety Stand down.
- All personnel authorized to enter the areas handed over to Commissioning (e.g. technical rooms) shall prior follow a project specific commissioning induction.
- Prior to start commissioning activities, SAEP shall isolate and lock-out the boundaries of each system/subsystem package as defined by commissioning procedures.
- The padlock keys together with the related ICCs shall be handed to the permit issuer (the HSE Officer) and kept locked in the HSE project Office.
- Once a system/subsystem package is notified as "ready to be energized"- by issuing the Live-Up Notification - it shall be considered always live when the technical room are powered.

03

- For the first energization of a system/subsystem package, the commissioning team shall request a Permit to Work to the Area Manager. The systems/subsystem package will be unlocked and the ICC cancelled. From this moment the padlock keys of the of the energized system/subsystem package will be manages by the SAEP.
- Every non-commissioning activity on the energized systems/subsystem package shall be controlled by a PTW associate to an Isolation Certificate (ICC) issued by the SAEP, for electrical isolation, or by the Lead Mechanical Engineer, for mechanical isolations.
- When systems/subsystem package are powered, the Technical Rooms are subjected to restriction of access. All accesses are marked with blue & white commissioning warning sign.
- Only personnel authorized by the Area Manager and Commissioning Manger are allowed to enter, with a personal pass (helmet sticker) issued by the HSE Department to each authorized person after completing commissioning induction.

3.4.13 Testing and Leak Testing

Amongst other hazards, the risks of explosion, fire, disintegration, and the accumulation of toxic gases or vapors may be present during the testing or Leak Testing of any plant components, machinery, tanks, columns, heat exchangers, reactors, pipes, and mechanical, electrical, and magnetic equipment, etc.

Control measures

- Minimize the number of people in the area either by restricting access or by performing testing activities during times when the general workforce is not present.
- Permit to Work system implementation, which includes Risk Assessment and Controls and Job Safety Analysis, e Test Plan/Test Pack.
- testing equipment is rated for expected service.

More exhaustive list of control measures is also outlined in the corporate procedures rif. Nr PRO-HSE-14.

Exclusion zone:

The Subcontractor in charge of the work, in liaise with Construction Manager, and the support of the Engineering Dept. and the Project HSE Manager, shall define the size and the type of the exclusion zone (i.e. safety distances and barricade protection system, if needed) considering the following principles:

- Internal energy depends on volume and pressure of the gas / liquid stored;
- Bolts, nuts, welded connection, flanges are the typical failure points of the system;
- Significant temperature variations may affect the stability of the under-pressure system (pressure is directly related to temperature);
- Mechanical protection barrier shall be adequate to stop metal pieces and fragment thrown in case of failure;
- Configuration of the system strongly affects the size and type of the safety exclusion zone (e.g. an item thrown from a pipe angled at 45° above ground level has the maximum range);

Safety distances (exclusion zone) shall be determined by preliminary analysis of potential failure scenarios that may occur during a test.

During commissioning Integrated Test with H_2 the safety distance is defined by the specific Fire Prevention Report Ref. 1.1.C-REL-Rosetti-C3331-Crosswind-vp, shown in Attachment VI.

Control measures are also outlined in the corporate procedures rif. Nr. PRO-HSE-14.

3.4.14 Lifting Operations

The main risks during the lifting operations in the yard are the following:

- Investment of ground personnel.
- Interference with work areas.
- Rollover of the vehicle.
- Dropping of the lifted load for the incorrect harness and / or to failure of the lifting equipment due to the weight of the load heavier than the safe working limit (SWL) or due to a defect of the equipment.
- Collapse of the support surface.

Control measures

- Lifting Equipment shall be inspected by a Competent Person at least once per year, in accordance with current legislation. Ropes and chains (above the hook) shall be inspected every three months unless otherwise indicated by the manufacturer and supplier. For more details refer to corporate procedure ref. nr. IDL-MAN-06.
- For cable drums use only cable handling equipment designed for this scope.
- The crane operator shall be in possession of Specific Trade Training as per current regulation (Accordo Stato-Regioni 22/02/12). Initial and refresher training and periodic assessment to assure competence are required, 5 years intervals.
- Subcontractor involved in loads lifting and mechanical handling shall provide and implement specific procedures and prepare a lifting plan in the case of particularly bulky or heavy operations; all lifting operations shall be indicated by also highlighting on the relevant layout crane positions at yard. Said lifting plans will be delivered to personnel in charge and Project supervisors also to highlight any possible overlapping activities and correctly arrange and manage yard areas.
- Whenever lifting / pulling / assembly / disassembly activities are to be executed in hazardous / critical situations and/or heavy equipment / metal structures are involved, the Subcontractor in charge shall prepare a specific Lifting Plan to be submitted to personnel in charge and Project supervisors before works start-up.
- The personnel involved in lifting operations shall be duly trained with specific courses, but also through an on-the-job coaching/training period. During the project, members of the lifting teams will be required to attend refresh courses on the correct use of lifting devices and on slinging techniques.
- Lifting Plan: in the case of particularly complex lifting operations due to weight, load dimensions or in the case of lifting by using more the one crane, a specific lifting plan shall be arranged. Contents of the lifting plans is detailed in section 2.10.5.

Control measures are also outlined in the corporate procedures PRO-HSE-17 and IDL-HSE-15.

3.4.15 Line of Fire

In construction, the line of fire is the path an object will travel. In many of the tasks that you perform frequently there is the possibility of putting yourself in the line of fire. A few examples include cutting towards yourself, pulling tools or equipment towards yourself or walking under employees working above.

Instructions and Control measures

- Never walk under suspended loads adopting barricades, blocking tapes.
- Cut away from your body. When you shall cut towards yourself stand so that if the knife slips it would not hit your body.
- Never pull equipment or tools toward you face or body. Position yourself so if the tool or equipment slips it would not hit you.
- Perform a safety task assignment before beginning work to look for all the hazards and also perform mental safety task assignments throughout the day to be aware of changing conditions.
- Be aware of weather conditions that can put you in the line of fire. Winds may put you in the line of fire if materials are not secured properly. Always secure materials that could become airborne.
- Never work directly under other employees. If you shall work at an elevated heights barricade the area below you or use means to secure your tools.
- If you are hoisting materials, barricade the area around the hoisting zone and adopt a tag line or poles or other devices that allow “hand free”.
- If you shall use force when pushing or pulling always look at where you would go if you slipped or equipment gave way.
- When working around equipment that is remote controlled or could potentially start up always lock and tag it out.
- When working around mobile equipment make sure the operator knows you are there. Never put yourself in a position where you are between a piece of mobile equipment and another object. Never walk behind mobile equipment. When moving mobile equipment in tight areas always use a spotter.
- Never work around equipment with missing guards.
- When using a straight edge and utility knife to cut metal or PVC use a safety straight edge. If one is not available, secure the material and straight edge and always keep you hand above the knife.
- Never attempt to operate equipment that is locked or tagged out or remove the lock or tag.
- When working around pressure equipment always use whip checks on connections.

3.4.16 Magnetic Particle and Dye Penetrant Examinations

Magnetic particle and dye penetrant examinations are non-destructive examinations aimed to detect surface or subsurface defects (cracks, inclusions, segregations, etc.) present in some materials such as steel and welds.

Magnetic particle and dye penetrant are commonly applied by spray, so the risks stemming from the execution of the examinations are the following:

- Electrocution (only for magnetic particles examination by use of the electromagnetic yoke).
- Inhalation of ferromagnetic dusts or dye liquid and consequent irritation of the respiratory tract.
- Skin irritation due to contact with ferromagnetic dusts or dye liquid.
- Spits to the eyes or any other parts of the body of ferromagnetic dusts suspensions.

- Fire due to the flammability of magnetic liquids and dyes.

Control measures

- Wear suitable PPE (Gloves, Protective clothes – overalls, Dust masks, Goggles, Helmet);
- Use safe tools in good maintenance conditions.
- Perform the examinations with no hot works in proximity.

3.4.17 Electrical and Instrumental Works

Activities dealing with electrical and instrumental works mainly refer to normal electrical and instrumental connections, verification of cables and instruments. In detail the following activities may be carried out:

ELECTRICAL WORKS:

- Laying of cables pipes and relevant unions and accessories (conduit)
- Laying of cables walkways including prefabrication and assembly of brackets to support walkways
- Laying of cables inside conduits either on walkways or secured on structures and walls
- Laying of boxes, pull boxes, switchboards and relevant electrical connections
- Laying and assembly of panels, instruments and equipment
- Cables connection to panels and miscellaneous equipment
- Execution of earthing operations of structures, machines, engines, equipment and miscellaneous electrical materials, ground plates, fittings

INSTRUMENTAL

- Laying of electrical or pneumatic cables for the connection of site equipment and local and/or centralized inspection points
- Arrangement on site of local measurers, transmitters, analysers
- Primary connections of local instruments, transmitters and analysers to relevant process outlets
- Construction and laying of main walkways and arrangement of electrical and pneumatic connections
- Arrangement of local and centralized control cables with or without equipment installed inside
- Instruments assembly and connection on switchboards of auxiliary equipment
- Arrangement of auxiliary cupboards and equipment (inverters, continuity groups, transformers, analogical relays, alarm devices, etc.)
- Execution of networks for electrical and pneumatic connections
- Execution of pneumatic connections of transmitters, adjusters, solenoid valves, etc.
- Execution of electric connections for adjustment and control of power valves
- Prefabrication and assembly of brackets aimed at supporting instruments, walkways, boxes, cupboards, etc

Related mechanical works

- Pick up from CTR warehouses of materials, transport and unload.

- Materials storage.
- Threading and bending of tubing and conduits.
- Oxyacetylene welding.
- Arc welding with electrodes.
- Cutting of walkways, spools, pipes, conduits.
- Painting touch-ups.
- Cladding touch-ups.

Risks connected with above indicated operations may be prevented by following.

Control measures

- All the activities shall be carried out on parts without voltage; therefore, before carrying out electrical or instrumental works on lines / equipment / switchboards, etc. it is necessary to make sure that all electric appurtenances have been locked-out / tagged-out (written declaration).
- It is forbidden to walk or stand on existing electrical and instrumental walkways, even if wearing a safety harness secured to safe spots.
- Before placing them, arrange walkways, spools, conduits, etc. in an orderly way so that they do not create any obstacle to circulation; the same rule shall apply to cables so as to avoid tripping hazard for personnel.
- In threading, bending and cutting operations of conduits, always keep the items well fastened.
- In works entailing the use of a (manual or mechanical) threader, of the (manual or mechanical) pipe cutter, of the drilling machine and of other tools that might entail the projection of splinters or sparks, previously verify the protection shields integrity.
- In cables lying but also in cables storing, make sure that cables are not subject to crashing and bending that might endanger their integrity. Avoid rolling coils on the ground, either with or without cables; never position them vertically on slope grounds.
- In cables stripping operations, use only specific Cable Knife designed for cable insulation stripper.
- In cables and walkways laying, keep power cables separate from low voltage ones.
- In cables sheathing operations avoid touching hot material
- In cables connection operations always verify the integrity of the sheath in connection points to switchboards, boxes, cupboards, etc.
- In instruments wiring operations adopt, when necessary, insulating footboards having such a dimension to allow correct works execution, avoiding falls, slipping and tilting.
- All cables insulation measurements shall be carried out by previously making sure that the plant has been locked-out / tagged-out and that no equipment are connected.
- Avoid removing existing protections during the execution of all works.
- In case of installation of a generator, this shall be certified CE and provided of emergency arrestor. Maintenance shall be carried out regularly, according to what reported in the Maintenance and Instruction Manual.
- Yard switchboards shall be ASC standard, according to CEI EN 60439-4 (CEI 17-13/4), and have a protection grade equal to IP44 or higher.

- Electrical cables shall be of H07RN-F standard in compliance with CEI 20-19 and CEI 20-35. Plugs and sockets shall have a protection grade equal to IP67.
- Residual Current Devices (RCD) of ASC electric panels shall be tested according to CEI regulations 64-8 AND 17-13 every 6 months using a calibrated instrument (threshold 30mA).
- The electrical live works can be performed only by authorized persons properly trained according to CEI 11-27 PES (expert personnel) and PAV (advised personnel) standard.

Control measures are also outlined in the corporate procedures rif. Nr IPRO-HSE-08.

3.5 Use of the Yard's Electrical Plants and Equipment

Inside the warehouses, the yards and on modules under construction, the personnel making use of the electrical systems may be exposed to the risk of direct and/or indirect contact.

In relation to the risks related to commissioning works in presence of media voltage see revision notes at section 2.9.2.

3.5.1 Electrical Equipment in the Workshops and Yards

Control measures

- The Maintenance Manager is responsible for maintaining the yard's electrical system.
- The compliance of the contractor's equipment will be verified by the competent personnel, assisted by the Site HSE Supervisor or the PHSEM, at the time in which it is introduced to the yard and during subsequent use.
- The equipment shall be used in compliance with the provisions of section 2.4.7, entitled "Use of the Work Equipment".
- When using electrical equipment in locations with potentially explosive atmospheres, always refer to the indications contained in following section 2.9, entitled "Areas at Risk of Explosion".
- ONLY CTR TECHNICIANS are permitted to connect or disconnect medium voltage equipment to/from the yard's fixed columns. The foreman of the Subcontractor shall therefore call on CTR electricians to connect or disconnect equipment such as electrical distribution panels or compressors to/from the yard's fixed columns.

Control measures are also outlined in the corporate procedures rif. Nr PRO-HSE-30.

3.5.2 Lightning Protection System

According to the current laws, outdoor metal structures of considerable size, such as cranes, metal scaffolding, metal structures in buildings and temporary structures, shall be protected against lightning strikes.

To determine whether a structure is of considerable size, it is necessary to perform the calculations indicated by the CEI standards.

All the lightning protection systems shall be connected to the ground system in such a way so that a single system is formed.

The systems shall be inspected regularly and, regardless, at least once every two years to ensure their proper functionality.

3.5.3 Containers and Mobile Boxes

In case the boxes and containers used in the yard are equipped with electrical plants, these shall be certified and equipped with Residual Current Devices (RCD).

Any such containers, as well as any prefabricated sheds for various uses (storehouses, locker rooms, offices, restrooms, etc.), shall be grounded.

3.5.4 Other General control measures

Any electrical equipment defects or faults shall be immediately reported to the competent Manager.

Any hand tools to be used at workshop or yard area shall be connected to switchboards designed to having a Residual Current Devices (RCD) with intervention threshold fixed at 30 mA, which are an additional protection against direct contacts.

Prior to each work activity, and at least once a day, each worker must:

- Make sure that all the tools, equipment or power tools are equipped with the manufacture's data plate indicating the manufacturer's specifications regarding the type of current, voltage, phase, etc., and shall take these specifications into account while working on the unit.
- Never modify the electrical systems without prior authorization.
- Never touch two poles at the same time or one pole and the ground wire.
- Always work in a dry area, keeping his/her hands and feet dry.
- Use, if necessary, platforms and insulated gloves.
- Observe the warning signs in the danger areas. Make use of portable safety transformers or other safety devices, in accordance with the CEI standards, wherever required.
- Disconnect the electrical power before servicing any electrical devices.

3.6 Fire Hazard

CTR premises are subject to inspection by local fire authorities. Activities with a significant risk of fire shall authorized by local fire brigade, for which they issue a Fire Certificate following the approval of a Fire Report endorsed by a qualified Engineer.

Subcontractor shall also assess the entity of the fire risk related to their own works and take appropriate prevention and protection measures.

These measures shall be described in detail in their POS and should consider both the protection of the intervention area as well as the safety of the operators. Each Subcontractor shall also appoint their own ERT selected from amongst the individuals working at the yard, who must have received adequate instruction and training.

- Technical Measures:

- Installation of onsite electrical and lightning protection systems in accordance with the standards of good practice.
- Grounding of the systems, structures, and metal parts to avoid the formation of electrostatic charges.
- Ventilation of any rooms containing flammable vapors, gases, or dusts.
- Use of safety devices on the equipment.

- Organizational/managerial measures:
  - Housekeeping and storage
  - Compliance with HSE measures.
  - Instruction and training of the workers.

The risk of fire within the yard's work areas has been evaluated to be low to medium. The details of the evaluation for each area are provided in the following subsections.

H_2 will be present at site during the commissioning phase. Addition control measure related to the presence of H_2 will be assessed and reported in the dedicate Fire & Explosion Risk assessment. The relevant safety provisions shall be integrated to the ones outlined in this document and approved by Fire Authority.

Control measures

- Appropriate fire protection systems in the immediate vicinity of the work areas, including fire extinguishers, hoses and/or fire hydrants (aboveground or belowground).
- Along the quay of a fire hydrants and emergency facilities, equipment such as: breathing apparatus, rings, ropes, hooks, etc.
- Marked and easily accessible manual shut-off valves in visible positions on the gas supply pipes.
- Periodic maintenance and inspection of the electrical system in accordance with It compliant with the current in-force fire legislation.
- Explosion risk assessed in accordance with current in-force fire legislation and the relevant CEI 31-30 standard.
- Maintenance of the firefighting equipment.
- Prohibition on making changes to safety devices and gas equipment in general (maintenance entrusted to qualified personnel).
- Double check the proper closure of the valves at the end of the work activities.
- Use of safety valves to prevent flashback.
- Function test of the equipment and systems, including maintenance carried out by third party.
- Good Housekeeping.
- Prohibition on the use and/or storage of unnecessary flammable and combustible materials (even in small quantities).
- Prohibition on smoking and on the use of portable heat producing devices.
- Presence of adequate signage, comprised of written notices indicating the conduct to be avoided and useful indications to be observed in the event of an alarm, fire or explosion.
- Planning the activities that involve the use of propane gas.
- Periodical emergency drills.

- Trained ERT present at site.
- Use of equipment in compliance with the provisions of section "Use of the Work Equipment".

3.6.1 Workshops (fire hazard)

The combustible materials present include certain packaging elements for transporting the materials (wooden platforms, ropes, oily rags, etc.) and the combustible parts of the electrical cables, all of which are present in limited quantities.

The flammable and comburent gases present include propane and oxygen, which are distributed via an appropriate fixed distribution network.

Fire Risk Assessment

The presence of small quantities of combustible and flammable materials can result in a fire. The possible sources of ignition include:

- Short circuit.
- Open flames.
- cigarette butts.
- Mechanical or electrical sparks.
- Heat sources and hot spots.
- Lightning.

the activity performed in shed requires small quantities of flammable substances thus the probability of fires (and escalation of it) is low. The activity has been classified, with reference to the corporate document rif. Nr. DVR-HSE-11, as workplace at MEDIUM risk of fire.

Control measures

- Keep lowest Fire load possible.
- Hot work operations segregate from any combustible materials.
- Technical gas distribution plant installed in compliance with the UNI standards and the standards of good practice.
- Technical gas supply pipes painted in accordance with the relative UNI standards.
- Sufficient natural ventilation for the evacuation of any gas, smoke and heat emitted by a potential fire.
- Escape routes and emergency exits compliant with the current in-force fire legislation.
- Presence of emergency shut down button to disconnect all the electrical systems, located in a clearly marked position.
- Presence of emergency lighting.
- Structure self-protected against the risks of lightning thanks to its size and exposure characteristics.
- Prohibition to store combustible materials in the proximity of hot works.

3.6.2 Assembly Yard (fire hazard)

The top side module is assembled in the yard, with the following operations being performed:

- Assembly of prefabrication elements.
- Fit up and welding (and gouging eventually).
- Installation of equipment, electrical panels and machinery.
- The equipment, instrumentation, control devices, main furnishing elements and electrical systems are installed.
- Piping installation and pressure testing.
- Live up of installed equipment

The hazardous substances present in the yard and on the module under construction mainly include:

- The propane gas used for flame cutting and preheating operations, present in the form of cylinders, moved about on suitable trolleys, and stored on suitable racks.
- The oxygen used as a comburent for ox-cutting operations. It is provided with cylinders, moved about on suitable trolleys, and stored in racks.
- The painting products used during the touch up operations.
- Various combustible materials (the wood on the scaffolding, polyurethane insulation inside the insulation panels, plastic, combustible parts of electrical cables, etc.).

The CM is responsible for:

- Coordinating the operations carried out by subcontractors and ensuring the compliance of safety control measure.

The Yard Manager is responsible for maintenance of Yard Emergency facilities and site utilities.

Fire Risk Assessment

The combustible materials, flammable gases and paints are fire hazards.

The possible sources of ignition include:

- Short circuits.
- Open flames.
- Lit cigarette butts.
- Mechanical or electrical sparks.
- Heat sources and hot spots.
- Lightning.

In reference to that which is stated above, the activity involves small quantities of substances capable of causing fires or explosions, low probability of fires being ignited and taking hold, and little possibility for fires to spread. The activity has been classified, with reference to the corporate document rif. Nr. DVR-HSE-11, this activity is classified MEDIUM fire risk workplace.

Control measures

- Storage of flammables outside and at a safe distance.
- Hot works at a safe distance from the few combustible materials present.
- Presence of emergency button for disconnecting all the electrical systems.

- Temporary electrical plants in accordance with applicable fire standards.
- Periodic maintenance and inspection of the electrical tool/equipment.
- Explosion risk assessment.
- Double check for the proper closure of the propane shut-off valves and to place the nozzles and hoses on the trolley at the end of the work activities.
- Requirement to place the cylinders outside in the appropriate storage structures at the end of the work activities.
- Cylinders always kept on the ground and on gas cylinders trolleys, clearly marked and in a vertical position, protected against any potential jolts or damage.
- Manual shut-off valves and fire-stops installed upstream of the hose every 20 m and on the handle of the torch.
- Attachments with airtight couplings present between the propane connection hoses.
- Equipment manufactured according to the standards of good practice and the UNI-CIG standards, and use of approved torches compliant with the ISO standards.
- Periodic verification of the complete and proper functionality of the equipment and systems, carried out exclusively by qualified and authorized personnel and in full compliance with the safety procedures (maintenance entrusted to a specialized Subcontractor).
- Adoption of flexible hoses suitable for each use (suitable thermal capacity, suitable operating pressure, suitable connectors to prevent tearing).
- Verification of the hoses' proper connections using a suitable wrench, in accordance with the methods indicated by the manufacturer (torque, checking for leaks, etc.).
- Regular inspection of flexible connection hoses, including replacement whenever necessary (based on the manufacturer's instructions).
- Firefighting equipment ready for use.
- Periodic maintenance of the fire protection systems and equipment.
- Performance of periodic emergency Drills.
- Good housekeeping.
- Keep the minimum fire load possible.
- Prohibition of smoking and on the use of portable heat producing devices.
- Presence of adequate signage in accordance with Italian Legislative Decree no. 81/2008.
- Trained ERT present at site.

3.6.3 Propane Cylinder Storage Structures

In the yard, there are 4 enclosed storage concrete structures for housing the propane cylinders (identified as SCE) used for flame cutting and preheating operations, each of which is comprised of two adjacent rooms to keep the full cylinders separate from the empty ones.

Fire Risk Assessment

The presence of small quantities of highly flammable is a fire hazard. The possible sources of ignition include:

- Short circuits.
- Open flames.
- Lit cigarette butts.
- Mechanical or electrical sparks.
- Heat sources and hot spots.
- Lightning.

Cylinder storing involves limited quantities of substances capable of causing fires and a law risk of fires (and escalation of it). The activity has been classified, with reference to the corporate document rif. Nr. DVR-HSE-11, this activity is classified MEDIUM fire risk activity.

Prevention and Protection Measures

- External storage structure with reinforced concrete and a light roof made of corrugated fiber cement panels.
- Storage structure installed in compliance with the necessary internal and external safety distances.
- No power lines are present in the vicinity of the storage structure.
- Storage structure free of electrical lighting.
- Presence of appropriate fire protection systems in the immediate vicinity, including fire extinguishers and fire hydrants.
- Cylinders provided by a specialized vendor that guarantees the product's suitability and compliance with the current regulations.
- Proper handling and storage of the cylinders, which are always maintained in a vertical position, handled with the utmost caution, and protected against exposure to direct sunlight.
- Cylinders equipped with appropriate "jolt protection caps" to protect the valve units against possible damage.
- Explosion risk assessed in accordance with current legislation.
- Cylinder storage structures located at a safe distance (at least 3m) from any other hazardous substances or sources of danger.
- Requirement that the storage structure be kept constantly clean.
- Prohibition on smoking, the use of open flames, portable heat-producing devices, etc. in the vicinity of potential emission sources (all maintenance work carried out in accordance with the safety procedures).
- Prohibition on entering the area with devices capable of generating electrostatic discharges (mobile phones, etc.).
- Periodic functional testing of the equipment and systems, in (maintenance entrusted to a specialized external Subcontractor).
- Presence of adequate signage in accordance with current legislation.
- Trained ERT at site

3.6.4 Works within Module under Constructions

The top side module and other structures are assembled in the yard. Specifics works are:

- Completion of the carpentry assembly.
- Set up the structures and decks.
- Installation of equipment, electrical panels, machinery, etc. ..
- Installation of equipment, instruments and control equipment, the main furnishings, the electrical systems.
- Installation of piping and testing activities.
- Completion of the piping lines with electrical tracing and insulation.
- Electrical and mechanical completion.
- Sandblasting and painting in specific areas.

CM is in charge to Coordinate the work carried out by Subcontractors and to ensure compliance with safety provisions.

Yard Manager is in charge to ensure the efficiency of the firefighting equipment (hoses, lances, fire extinguishers, etc.) required.

The hazardous substances present inside the marine and offshore structures mainly include:

- The propane gas used for flame cutting operations (distributed through flexible hoses via the industrial gas distribution network);
- The painting products used during the painting operations (localized touch ups and spray painting).
- Various combustible materials (wood from scaffolding, polyurethane inside the insulation panels, plastic, combustible parts of electric cables, etc.).

Gas leaking is frequently caused by damages to the torches' connection hoses and by nozzles accidentally left open and not lit.

Regarding paint products, destined to change continuously according to the demands of customers and the continuous evolution of the market, it should be noted that:

- They are generally flammable (mostly composed with solvents).
- The painting operations are carried out by contractors.

Fire Risk Assessment

Combustible materials, flammable gases and paints inside buildings can cause a fire. The possible sources of ignition are:

- Shock.
- Open flames.
- Cigarette butts still glowing.
- Mechanical or electrical sparks.
- Heat sources and hot spots.

- Atmospheric lighting.

For what is described above, it can be said that in the activity under consideration, there are small quantities of substances that can favor the development of fires, few chances of ignition and development of outbreaks, few possibilities of propagation and therefore, with reference to the DVR-HSE-11 corporate document, this activity is classified LOW fire risk place.

Preventive and Protective Measures

- Execution of works with open flames, sparks, etc. at a safe distance from the few combustible materials present.
- Presence outside, in a marked position, of n. 1 emergency bottom of all electrical systems.
- Enforcement at the end of the work to verify the correct closure of the paint drums.
- Portable extraction systems for oxyfuel and painting operations in the indoor environments of industrial buildings such as to ensure that the concentrations of propane and paint vapours are always below the explosive limits.
- The contractors will bring daily to the construction site only the amount of paint necessary for daily work.
- The painting operations (generally carried out by brush, but sometimes also by spraying) are not carried out in conjunction with other processes; All other operations will be suspended to ensure, also for health and hygiene reasons, the execution of the same in maximum safety.
- Environments monitored with gas testers after the use of flammable substances or following internal remediation of environments that have previously contained flammable substances.
- The personnel in charge of carrying out the painting is and will be trained and brought to perfect knowledge of the dangers and risks associated with the work (as well as, of course, of the methods for the correct execution of the same);
- In case of leaks or accidental spillage of the paint drum, operations will be implemented immediately to eliminate the associated risks (containment of the leak, immediate cleaning of the environment, removal of possible sources of ignition, immediate interruption of processing, suction of paint vapors, etc.);
- Carrying out painting and hot painting activities completely subject to a JSA by the reference supervisor and information on the performance of the activity, given by the same to the members of his team on the occasion of a TBT.
- The cutting systems are checked weekly through a special check list.
- The cutting and preheating systems have valves against the backfire positioned both downstream of the pressure gauge and upstream of the lance or flaregun.

3.6.5 Flammable Liquid Deposits

During the Project there will be deposits of flammable liquids for paints, thinners, or other flammable products. These depots may be fixed (masonry boxes) or mobile (containers, diesel tanks for refueling vehicles); all depots will comply with current regulations and applicable internal procedures.

Fire Risk Assessment

Liquids, present in various quantities based on the progress of the activities, can give rise to a fire or explosion. Possible ignition sources are:

- Open flames.
- Still glowing cigarette butts.
- Mechanical or electrical sparks.
- Heat sources and hot spots.
- Lightning.

Deposits at yard involve e small limited of substances of flammable liquids (as stare in the fire prevention certificate issued by the local fire authority), low probability of fir (and escalation of it) and therefore, with reference to the corporate document ref. nr. DVR-HSE-11, this activity is classified MEDIUM fire risk location.

Preventive and Protective Measures

- External storage with reinforced concrete walls and sheet metal and light roofing with corrugated fiber cement panels; (only for fixed deposits).
- Verification of the status of individual containers of liquids before storage.
- Periodic verification of the quantities presents in order not to exceed the designated capacity of the containment basin, in case of any spills.
- Deposit installed in compliance with internal and external safety protection distances.
- Absence of power lines in the depot installation area.
- Warehouse without electric lighting system or with system in compliance with ATEX.
- Presence in the immediate vicinity of suitable fire-fighting systems consisting of fire extinguishers and/or hydrants.
- Explosion risk assessed in accordance with current legislation.
- Enforcement of constant maintenance of warehouse cleanliness.
- Imposition of the ban on smoking, the use of open flames, portable heat-producing appliances, etc. near the potential emission sources (any extraordinary maintenance work to be carried out in compliance with the safety procedures).
- Imposition of a ban on accessing the premises with devices capable of generating electrostatic discharges (mobile phones, etc.).
- Imposition of the prohibition to carry out work or modifications on the safety devices (maintenance entrusted to qualified personnel).
- Periodic verification of the complete and correct functioning of the equipment and systems and maintenance of said conditions carried out by competent personnel in the field of protection against explosions (maintenance entrusted to a specialized external firm).
- Presence of adequate signage compliant with current legislation.
- Training ERT.

3.6.6 Electrical Equipment with Potential Source of Ignition.

The use of electrical equipment constituting an ignition source shall be evaluated considering the applicable fire risk assessment documents (DVR-HSE-10, DVR-HSE-11 and DVR-HSE -31) and the ATEX classification of

the areas (DVR-HSE-08, DVR-HSE-30 and paragraph 2.9 of this Plan). The related protective measures are specified in the aforementioned documents and paragraphs of this document.

3.6.7 Temporary equipments

During some phase of commissioning the BLPH will be powered by means of a temporary arrangement of diesel generators:

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- N.4 1250 kW diesel generators
- N.2 20.000L diesel tanks

Control measures

- Generator area will be segregated by rigid barriers and positioned outside the boundary defined in Appendix VI
- All the equipment's will be earthed by taproots
- All the system can be shutdown with a single emergency button
- Generators will be always manned
- Additional fire extinguishers will be present in the area

3.7 Explosion Hazard

Every subcontractor is responsible for the activities carried out. To the purpose of safeguarding workers health and safety, and according to the principles of hierarchy of prevention, Subcontractor shall comply with following provisions:

- Whenever explosive atmospheres that might endanger safety and health of workers and public may develop, working environments shall be arranged so that works may be carried out under safety conditions.
- Whenever explosive atmospheres that might endanger safety and health of workers and public may develop, working environments shall be arranged so that an adequate control is kept during workers presence, in compliance with the risks assessment, through the utilisation of adequate technical means;
- In those areas where explosive atmospheres may develop, the minimum provisions stated in the current law, shall be implemented.
- If necessary, access to areas where explosive atmospheres that might endanger safety and health of workers and public may develop, shall be signalled.

DEFINITION OF EXPLOSION HAZARD AREAS AND SUBCONTRATOR DUTIES:

According to the area classification, to the provisions reported in the CTR Atex Report (transmitted to Subcontractor during contracting phase) and to the types of interventions to be carried out, every executing Subcontractor shall evaluate the explosion hazard and arrange the suitable prevention and protection measures. Said measures shall be detailed in the POS and shall keep into account the protection of both the area involved and operators.

H_2 will be present at site during the commissioning phase. Addition control measures related to the presence of H_2 will be assessed and reported in the dedicate Fire & Explosion Risk assessment. The relevant safety provisions shall be integrated to the ones outlined in this document.

Organizational Measures

- Trade training of workers: to provide sufficient and adequate training on explosion protection for workers employed in places where explosive atmospheres may form.
- Written instructions and authorization to work. Where state by the Atex Report.
    a) Work in risk areas shall be carried out in accordance with the appropved instructions.
    b) A system of work authorizations shall be applied for dangerous activities and for activities that can become dangerous when they interfere with other work operations.

Permit to Work shall be issued before work begins by a person authorized to do so.

Explosion Protection Measures

- Leaks and emissions, whether intentional or not, of combustible gases, vapours, mists or dusts which could give rise to explosion risks shall be appropriately diverted or removed to a safe place or, if this is not feasible, contained in a safe manner, or made adequately secure by other appropriate methods.
- If the explosive atmosphere contains several types of flammable or combustible gases, vapours, mists or dusts, the protective measures shall be arranged for the maximum possible danger.
- To prevent ignition risks, account shall also be taken of electrostatic discharges originating from workers or the work environment which act as charge-carrying elements or charge generators. Workers shall be equipped with suitable work clothes manufactured with materials that do not produce electrostatic discharges which could cause the ignition of explosive atmospheres.
- Plants, equipment, protective systems and all their connecting devices are only put into operation if it is clear from the explosion protection document that they can be used without risk in an explosive atmosphere. This also applies to work equipment and related connection devices that are not devices or protective systems in the sense of current legislation if they can only represent an ignition hazard due to being incorporated into a system. The necessary measures shall be taken to avoid the risk of confusion between the connecting devices.
- All necessary measures shall be taken to ensure that the work equipment with its connection devices available to workers, as well as the structure of the workplace have been designed, constructed, assembled, installed, maintained in efficiency, and used in such a way as to minimize the risks of explosion and, should this occur, its propagation within the workplace and equipment can be controlled or minimized. For these workplaces, the necessary measures are taken to minimize the health effects of an explosion on workers.
- If necessary, workers shall be warned visually and audibly and removed before the conditions for an explosion are met.
- Where stated by the Atex report, evacuation systems shall be provided and maintained in service to ensure that in the event of danger, workers can quickly and safely leave the dangerous places.
- Before using workplaces for the first time which include areas in which explosive atmospheres can form, the safety of the entire system regarding explosions shall be checked. All conditions necessary to ensure explosion protection are maintained. The verification of the maintenance of these conditions is carried out by persons who, due to their experience and professional training, are competent in the field of protection against explosions.
- If it is necessary from the risk assessment:
    a) It shall be possible, when a power outage is likely to give rise to additional risks, to ensure the continued safe operation of equipment and protective systems, independently of the rest of the installation in the event of such an outage.

b) Automatically operating equipment and protective systems which deviate from the intended operating conditions shall be capable of being switched off manually, provided this does not compromise safety. This type of intervention shall only be carried out by competent personnel.

c) In the event of an emergency stop, the accumulated energy shall be dissipated as quickly and safely as possible or isolated so that it no longer constitutes a source of danger.

The POS of the subcontractors shall provide the indications for the implementation of the above.

3.7.1 Workshops (ATEX Hazard)

In the workshops, welding and cutting of metal structures are carried out using propane gas supplied by a gas distribution network fed by a tank at 1.5 bar. The pression is then reduced in the fixed welding and cutting stations at a pressure of 0.5 bar for use.

The most likely events causing a gas leak are damages to the hose connecting to the torch and the leakage of propane from the forgotten lance accidentally opened and not lit.

Minimum Organizational Control Measures for the Use of Propane

- Prohibition of smoking and on the use of portable heat producing devices, etc.
- Requirement to verify the proper closure of the propane shut-off valves and to place the nozzles and hoses on the trolley at the end of the work activities.
- Requirement to keep a safe distance of at least 0,35 m between potential sources of gas emissions (flanges, valves, etc.) and any means of ignition (open flames, electrical systems, etc.).
- Regular maintenance of the equipment and systems, carried out exclusively by qualified and authorized personnel and in full compliance with the HSE procedures (maintenance entrusted to a specialized Subcontractor).
- Performance of regular emergency drills.
- Trained ERT present at site.

Minimum Requirements for the Systems/Equipment and Protection Systems for the Use of Propane

- large volumes, permanent natural ventilation, and use of LEV such as to avoid gas stagnation.
- Manual shut-off valves and firestops installed upstream of the hose and on the handle of the torch.
- Adoption of flexible hoses suitable for each use (suitable thermal capacity, suitable operating pressure, suitable connectors to prevent tearing).
- Verification of the proper connection of the hoses with suitable devices.
- Periodic inspection of the hoses' wear status, including replacement whenever necessary.
- Equipment manufactured according to the standards of good practice and the UNI-CIG standards, and use of approved torches compliant with the relative ISO standards.
- Installation of adequate safety signage in accordance with current legislation.
- Hoses and gaskets shall be daily checked before use, gasket shall not be crisp, and hose shall not have any damaged.

3.7.2 Yard (ATEX Hazard)

Propane cylinders are used for preheating, welding and oxyfuel operations of the carpentry.

These processes are carried out by Subcontractors who perform them independently following only the directives, especially as regards the adoption and compliance with safety measures given by the CTR.

CTR shall:

- Coordinate the works carried out by subcontractor and ensure compliance with safety provision.
- Provide electricity and other utilities necessary for processing.

The hazardous substances present in the square are therefore:

- Propane gas used for oxyfuel operations.

The most dangerous situations that lead to gas leaks into the air are damages to the hose connecting to the torch and the leakage of propane from the forgotten lance accidentally opened and not lit.

Minimum Organizational Control Measures

- Verify the proper closure of the propane shut-off valves and to place the nozzles and hoses on the trolley at the end of the work activities.
- place the cylinders outside in the appropriate storage structures at the end of the work activities.
- Requirement to keep a safe distance of at least 0.85 m between the cylinders' valves and any potential sources of ignition (open flames, electrical systems, etc.) and at least 0.35 m between any fittings, valves, hoses, etc. and the same sources of ignition.
- Cylinders always kept on the ground and on gas cylinders trolleys, clearly marked and in a vertical position, protected against any potential jolts or damage.
- Prohibition on smoking and on the use of portable heat producing devices, etc.
- Regular maintenance of the equipment and systems, carried out exclusively by qualified and authorized personnel and in full compliance with the HSE procedures (maintenance entrusted to a specialized Subcontractor).
- Performance of regular emergency drills.
- Trained ERT present at site.

Minimum Requirements for the Systems/Equipment and Protection Systems

- Manual shut-off valves and firestops installed upstream of the hose every 20 m and on the handle of the torch.
- Adoption of flexible hoses suitable for each use (suitable thermal capacity, suitable operating pressure, suitable connectors to prevent tearing).
- Attachments with airtight couplings present between the propane connection hoses.
- Verification of the proper connection of the hoses with suitable devices.
- Periodic inspection of the hoses' wear status, including replacement whenever necessary.
- Equipment manufactured according to the standards of good practice and the UNI-CIG standards, and use of approved torches compliant with the ISO standards.
- Installation of adequate safety signage in accordance with current legislation.
- Installation of adequate safety signage in accordance with current legislation.
- Installation of adequate safety signage in accordance with current legislation.

3.7.3 Propane Cylinder Storage Structures (ATEX Hazard)

In the yard, there are four enclosed storage concrete structures for housing the propane cylinders used for flame cutting and preheating operations, each of which is comprised of two adjacent rooms to keep the full cylinders separate from the empty ones.

Minimum organizational control measures

- Prohibition of smoking, use of portable heat production appliances, etc.
- Prohibition to access the room with equipment capable of generating triggers.
- Maintaining safety distances of at least 0.85 m between potential sources of gas emission (valves, etc.) and ignition sources (open flames, electrical installations, etc.)
- Periodic verification of the complete and correct functioning of the equipment and systems carried out exclusively by dedicated and competent personnel in compliance with safety procedures (maintenance entrusted to a specialized Subcontractor).
- Training and adequate information for each worker regarding the risks present in the workplace and any methods of correct execution of the work.

Minimum Requirements for Installations/Equipment and Protection Systems

- Deposit made in accordance with current legislation.
- Installation of adequate safety signs in compliance with current legislation.

3.7.4 Works within Module Under Constructions

The topside module and other structures are assembled in the yard. Specifics works are:

- Completion of the carpentry assembly.
- Set up the structures and decks.
- Installation of equipment, electrical panels, machinery, etc. ..
- Installation of equipment, instruments and control equipment, the main furnishings, the electrical systems.
- Installation of piping and testing activities.
- Completion of the piping lines with electrical tracing and insulation.
- Electrical and mechanical completion.
- Sandblasting and painting in specific areas.

CM is in charge to Coordinate the work carried out by Subcontractors and to ensure compliance with safety provisions.

Yard Manager is in charge to ensure the efficiency of the firefighting equipment (hoses, lances, fire extinguishers, etc.) required.

The hazardous substances present inside the marine and offshore structures mainly include:

- The propane gas used for flame cutting operations (distributed through flexible hoses via the industrial gas distribution network);
- The painting products used during the painting operations (localized touch ups and spray painting).
- Various combustible materials (wood from scaffolding, polyurethane inside the insulation panels, plastic, combustible parts of electric cables, etc.).

Gas leaking is frequently caused by damages to the torches' connection hoses and by nozzles accidentally left open and not lit.

Regarding paint products, destined to change continuously according to the demands of customers and the continuous evolution of the market, it should be noted that:

- They are generally flammable (mostly composed with solvents).
- The painting operations are carried out by contractors.

Minimum Organizational Control Measures for the use of Propane

- Daily routine checks prior to use propane;
- At the end of the work should be check for the correct closure of propane valves off;
- Do not store large number of cylinders on deck or, alternatively, to keep a safe distance between them.
- Oxyfuel operations should be perform without any other, keeping a safe distance of at least 0,35 m between connectors, valves, hoses, etc. and any means of ignition (open flames, electrical systems, etc.).

Minimum Organizational Control Measures for the use of Paints and Solvents

- Prohibition on entering the premises to paint with devices capable of triggering fires or explosions (mobile phones, etc.);
- Prohibition on bringing portable heat-producing devices close to drums of paint;
- All drums should be left on dripping pans;
- Interdiction to introduce on the module device capable to produce warmth; they should be keep at a distance of 3 m from entrance of premises involved in paint activity;
- Use of pneumatic paint guns and fireproof, only with dead man devices;
- Set up and Exclusion-zone and resume access only after completion of work and paint is paint dry;
- Painting operations shall never be performed in conjunction with any other processes. They shall be carried out in full compliance with the necessary safety distances, and with barriers and signage present at least at 3 m distance from works;
- At the end of shift, drums of paint shall been properly closed and remove them from the premises;
- Only the right minimum quantity of paint and thinner should be use for daily work;
- Temporary unused paint and thinner drums shall be stored in adequate box;
- Mandatory respect of indications shown on hazards substances SDS;
- Heaters shall be installed outside the painting area at least 3 m of distance. Sparks shall not enter through the blowing of hot air Prevent accumulation of vapours and fogs close the diffusion near heater inlet devices (when they are switched off also)

General Minimum Organizational Control Measures

- Restricted access to only authorized person.
- Prohibition on smoking during or close to hazardous operations.
- Periodic verification of the complete and proper functionality of the equipment and systems, carried out exclusively by qualified and authorized personnel and in full compliance with the HSE procedures (maintenance entrusted to a specialized Subcontractor).
- Performance of regular drills.
- The personnel in charge of carrying out the painting is and will be trained and brought to perfect knowledge of the dangers and risks associated with the work (as well as, of course, of the methods for the correct execution of the same);
- Trained ERT present at site.

Minimum Requirements for the Systems/Equipment and Protection Systems for the use of Propane

- Manual shut-off valves and fire-stops installed upstream of the hose and on the handle of the torch.
- Adoption of flexible hoses suitable for each use (suitable thermal capacity, suitable operating pressure, suitable connectors to prevent tearing).
- Verification of the proper connection of the hoses with suitable devices.
- Periodic inspection of the hoses' wear status, including replacement whenever necessary.
- Equipment manufactured according to the standards of good practice and the UNI-CIG standards, and use of approved torches compliant with the ISO 5172, ISO 3252, EN 560 standards.
- Use of connection with airtight couplings between the propane connection hoses.
- If any electrical or mechanical equipment capable of triggering a fire or explosion is installed inside the danger zones, these shall comply with Italian Legislative Decree no. 126/98 (at least category 3G IIA T1 for Zone 2).

Minimum Requirements for the Systems/Equipment and Protection Systems for the use of Paints and Solvents

- Spray devices comply to EN 1953 standard
- Any lighting devices installed inside the paining area shall bear the CE marking, shall be explosion proof (category not less than 1G IIA T3 and not less than 2G IIA T3 outside near zone 1) and shock resistent.
- Electrical earthing system installed a
- Spill kit at site (absorbent materials, fillers, etc.).
- Pressurized systems compliant with EN 982 e EN983 standards.
- Within Atex classified areas use of suitable equipment in compliance with current legislation and standards (that is not less than 2G IIA T2 for Zone 1 e 1G IIA for Zone 0).
- Note: When an air extraction system with flow not less than 4.000 m3/h (CE mark, explosion proof at least 3G and with protection level at least IP44 installed outside premises) the place will be classified as Zone 2. By this way the equipment should be a 3G IIA T2 grade. This is a general assumption is subject to review for specifics context.

Minimum Requirements for the General Systems/Equipment and Protection Systems

- Mantainance of fire-fighting equipment and Safety devices.
- Good housekeeping.

3.7.5 H2 during the integrated test

H_2 will be present at site during the commissioning in the following phases:

- *Electrolyser testing.*

During these phases will be stored 100m^3 of H2 at 30bar in one of the 6 tanks.

Necessary control measures and requirement related to the presence of H_2 are reported in the dedicate Fire & Explosion Risk assessment submitted to fire brigades in due advance before starting of activities.

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The relevant safety provisions shall be integrated to the ones outlined in this document and required information and training will be addressed to commissioning personnel involved.

- *H2 released due to BESS (Battey storage system) thermal runaway.*

Presence of H2 following this event will be detected by the sensors of the BESS unit and vented off. Additional control measures to apply will be reported in *vent gas dispersion study* commissioned.

Control measures

Exclusion zone with rigid barriers and access control (details in Appendix VI)

N.2 Firetrucks in standby for all the duration of the H2 production,

Additional fire extinguishers on the deck in designated locations:

- n.4 6 kg powder + n.6 5 kg CO_2 on the Lower deck,
- n.4 6 kg powder + n.4 5 kg CO_2 on the Upper deck.

3.8 Use of Chemicals

As far as hazards related to the use of chemicals in yard operations and relevant HSE measures are concerned, also after consulting the Physician, workers in charge of operations shall be duly informed with dangers stemming from the use of said substances and adopt the necessary PPE. Materials Safety Data Sheets related to said products shall be kept at yard.

In the case of doubts as to the relevant hazardousness or as to mixing different substances (compatibility, proportions of the different substances, etc.) or how to use and precautions required for NEW chemical on site, personnel in charge shall require information either to the Yard Manager or to the Yard HSE Manager of the Firm involved.

DUST – FIBRES – As to operations foreseeing the use of dusty or fibrous materials, the production and/or diffusion of said substances shall be reduced as far as possible by adopting suitable techniques and equipment. Dust and fibres collected or deposited, if harmful, shall be timely gathered and removed with suitable means. Should the amount of dust or fibres present exceeds threshold values established, suitable working clothes and PPE shall be provided to personnel involved; when required personnel involved shall undergo medical check-ups.

JETS – SPATTERS – As to cold and hot works, to be carried out either manually or mechanically, with substances or products causing jets and spatters harmful to health, suitable devices shall be adopted aimed at preventing their propagation in the working environment, by confining the area involve. Operators shall wear suitable working clothes as well as the necessary PPE.

ALLERGENES – Among substances used during ordinary yard activities, some of them may provoke allergenic reaction (rhinitis, conjunctivitis, allergic dermatitis). Factors encouraging the allergenic action may be: sudden variations in temperature, dehydrating and lipolytic action of solvents and binders, presence of vasoactive substances. Medical surveillance shall be activated in the presence of suspect symptoms also keeping into account personal predisposition to these types of affections. In all cases it is necessary to avoid direct contact of the body with resin, dusty, liquid, aerosol materials and with chemicals in general, by wearing working clothes and suitable PPE (gloves, masks, goggles, etc.).

MINERAL OILS AND DERIVATIVES – As to activities requiring the use of mineral oils or derivatives (e.g. maintenance activities of equipment and plants), all the necessary measures shall be arranged aimed at preventing direct contact of products with the operator's skin. The formation of aerosol should be prevented during working phases by means of suitable equipment. Operators shall always wear protective clothes, use PPE and undergo regular medical check-ups.

*Revision notes: asbestos, Polychlorinated Biphenyls (PCBs) or any Carcinogenic, mutagenic, reprotoxic (CMR) substances will **not** be used in the project.*

3.8.1 Painting

The risks and HSE measures associated with the use of chemicals shall be assessed by the Subcontractor in liaise with the company Physician.

Update safety data sheets shall be available at site.

Painting Subcontractor shall ensure that the people involved in the operations have been informed of the dangers associated with the use of such substances, as well as the use of any necessary PPE.

Workers shall also ask their direct Supervisors in the case of any doubts regarding risks related to the chemicals in use (compatibility, quantity ratios, etc.).

Painting operations entail the following hazards:

- Dust inhalation during the preparation phases of components to be painted.
- Vapours inhalation and skin irritation during painting operations.
- In the case of paint spray application it is necessary to consider hazards related to the following factors:
    - Allergens
    - Mists
    - Gases, vapours
    - Jets and spatters.
- Hazards related to the explosion of gas, fire of flammable materials and materials spillage.
- Fire and explosion.
- Environmental incident due to spillage of materials.

Control Measures

- Utilization of the following PPE: protection gloves, goggles, mask with suitable filters, suitable overalls, safety shoes, helmet.
- In the case of scaffolds utilisation, what follows should be verified:
    - That wheels are correctly secured on both sides.
    - That the scaffold is fastened to fixed and stable structures at least every two levels.
- The efficiency of tools in use shall be verified.
- Painting operations and operations entailing the use of flames shall be avoided within the same working area.
- During painting operations, it is necessary to keep always a good aeration of the working area. As far as poorly aerated working environments, suitable suction and/or ventilation systems shall be arranged.
- In the case of paints spray application:
    - Before use: it is necessary to check the connection between gun and hose and verify that nozzle and pipes are clean.
    - During use: it is necessary to interrupt air influx during work breaks.
    - After use: it is necessary to turn off the compressor, turn off the taps, disconnect the tool from the compressor, carefully clean both tool and pipes.
    - It is necessary to signal any possible equipment malfunctioning.
- The workers are required to observe the hazard and safety indications on the products' packaging and on the relative material safety data sheets, as well as any information provided by the manufacturer.
- The workers shall be provided with the necessary information regarding any hazardous substances employed by consulting the relative Safety Data Sheets and container labels.

- Any areas where hazardous substances have been applied shall be cordoned off and/or demarcated, and the areas shall remain segregated until further instructions have been issued by the person in charge.
- Open flames shall not be used in the areas affected by the work activities and/or wherever flammable substances are stored (paint containers, solvent containers, etc.).
- Interference shall be avoided between operations involving the use of flammable substances and open flames.
- All containers shall bear the appropriate product labels (never transfer the products into different containers, etc.).
- The tools and/or loose materials used for these processes shall never be left unattended in the yard, but shall be cleaned up and placed in appropriate areas so that they do not pose an obstruction for the workers.
- The product containers (cans, buckets, drums, etc.) shall be closed when not in use.
- The product containers shall be emptied as much as possible prior to disposal.
- Paints shall be stored in suitable containers that are adequately ventilated and equipped with a containment tank. If stored outside, the paints shall be placed on containment grates and, regardless, shall be protected against rain and direct sunlight.
- A suitable number of fire extinguishers shall be present in the paint storage areas and during any painting operations.

3.8.2 Use of Special Products (Protective and Sealing Treatments, Primers, etc.)

Risks connected to the application of sealing and special protective products such as waterproofing and anticorrosive agents, consolidating agents with epoxy, phenol, polyurethane resins, etc. are the following:

- Possibility of irreversible effects to the eyes during resins mixing, dilution and application.
- Inhalation of solvents and/or diluents vapours and/or dusts harmful to the respiratory tract.
- Fire hazard (in the case of solvent resins).
- Hazard of skin irritation due to direct contact with resins and, in the most severe cases, of burns due to corrosive products, caused by heat developing when resins have two or more components (base + catalyst) that, once mixed up, react by producing heat during the first polymerization; the amount of heat developed depends on the amount of resin prepared: therefore the manufacturer's instructions should be carefully complied with.

Control Measures

- Comply with risk and safety phrases indicated in products labels, with materials safety data sheets and with information provided for by the manufacturer.
- Arrange for suitable suction and/or ventilation means at the workplace.
- Never use naked flames in working areas and/or in storage areas of resins, solvents, etc.

- Cordon-off and/or signal, with suitable means, areas where resins have been applied until their polymerization is completed, to avoid the risk of accidental burn by workers.
- Never leave tools and/or materials unattended; clean them and put them in the relevant containers so as not to be in the way and hinder workers.
- Close products containers (cans, bins, etc.) when they are not in use.
- Empty the containers before disposing of them.
- Wear suitable PPE such as: solvent-resistant gloves, goggles, solvents mask, safety shoes, protective overalls.

3.8.3 Insulation

Insulation and removal of insulation may cause the release of airborne fibres that can be inhaled, thus creating the following harms:

- Skin irritation with itchiness, eyes irritations
- Damages to the respiratory tract.

It should also be noted that according to current legislation, some mineral wools are classified as irritants, potentially carcinogenic or carcinogenic with the following hazard phrases: H315 "Causes skin irritation", H351 "Suspected of causing cancer" and H350 "May cause cancer".

Control Measures

- Insulation removal/insulation operations, especially hot ones, shall be carried out by avoiding overlapping with other activities.
- Workers in charge of these operations shall pay great attention and work in the absence of air currents.
- Whenever clear analyses on fibers dangerousness are not available and should insulation removal / insulation operations shall be executed simultaneously with other operational phases, it is suitable that works are carried out within a confined area, keeping into account all the provisions that regulations in force establish as to removal, handling and disposal of substances classified as R49.
- In any case pipes and equipment insulation / insulation removal shall take place, when possible, in the country
- Pipes and equipment insulation / insulation removal shall be carried out by restricting, as far as possible, fibers dispersion and by arranging suitable protections for scaffolds utilized.
- Before being removed, mineral wool shall be saturated where possible; afterwards it shall be carefully removed, possibly without tears and/or breaks and, in any case, in the biggest possible size.
- During insulation removal operations, crumbling the material shall be avoided.
- Rockwool removed shall be immediately placed into suitable polyethylene containers and stored in a confined area previously indicated by CTR.

- During the phase of handling and transport of sacks containing materials removed, crushes, tears and any leak of fibers shall be avoided.
- Rockwool extracted shall be then conveyed, for recycling treatment, to an external authorized dump or to temporary storage areas inside the yard.
- Personnel involved shall be equipped with suitable personal protective equipment for above indicated operations and will be responsible for the relevant correct use; workers in charge of these operations shall wear total masks with nominal protection factor (FFP) equal to "2" or "3", depending on the fibers dangerousness characteristics, gloves, protection goggles, a throwaway overall
- Working clothes shall be kept in a separate place from civil clothes; working clothes shall be worn / taken off only near the operational area involved to reduce to a minimum.

3.8.4 Sandblasting

Hazards connected to sandblasting operations are the following:

- Hazards related to the release of the sand jet
- Hazards due to the high concentration of siliceous material
- Damages to the hearing apparatus and hazardous situations due to noise
- Fall of materials
- Dust inhalation
- Damages to hand and eyes
- Electrocution

Control Measures

- The area involved shall be indicated with specific signs so as to define the working area; personnel not wearing suitable PPE shall be immediately removed.
- Personnel in charge shall make sure that nobody operates in front of the sandblaster jet.
- During sandblasting operations, personal protective equipment for the respiratory tract as well as protective clothes shall be worn by operators as dusts could contain residues of harmful and/or irritating products.
- In the case of works to be carried out in confined spaces, protection devices adopted by operators shall be removed only outside the closed confined space.
- During sandblasting operations, personal protection equipment for the respiratory tract shall be worn by the operator.
- As to the utilization of the sandblaster, due to the presence of specific risks due to noise, dust, electricity, the following prevention measures shall be adopted:
    - Verify integrity of visible electrical components;
    - Verify nozzle and piping cleanliness;

- Verify feeding pipes connections;
- Verify instruments efficiency;
- Barrier-off the working area with specific signals;
- Protect transit ways;
- Execute activities under stability conditions;
- Interrupt the air flow during work breaks;
- After use: turn off taps, switch off the machine, discharge the compressor, carry out revision and cleaning operations when the machine is off;
- Signal any possible malfunctioning;
- Install whip checks at every air feeder connection;
- Sandblast nozzle designed with "dead man switches", so that once you are no longer gripping the machine, it stops.

- Personnel shall wear gloves, safety shoes, safety helmet, protection device for the respiratory tract with mask, apron, ear protection devices, safety harnesses in the case of fall from height.
- As to sandblasting operations to be carried out at heights, it is necessary to arrange dust protection tarpaulin to limit material dispersion in underneath and adjacent areas.
- Clean the working area (both on the ground and/on working levels arranged) from sandblasting products at the end of each working step and/or work shift so as to avoid slipping and/or obstacles to workers; residues shall be gathered in suitable containers.
- Verify that ladders are in compliance with applicable standards.
- Verify the integrity and insulation of electric cables.
- Carry out earthing operations
- In the case of scaffolds utilisation, what follows should be verified:
  - That wheels are correctly secured on both sides
  - That the scaffold is fastened to fixed and stable structures at least every two levels

3.9 Physical hazard

3.9.1 Ionising Radiation

Non-destructive examination activities provide for the use of radiation sources, intended as sources that may be transported and operated in different locations; in this case radiation protection and safety provisions in general shall relate to the employment methods and with the intrinsic safety characteristics of the equipment rather than the location they are operated in.

The risk connected with radiographic films execution is the contamination due to ionising radiation. To carry out this type of non-destructive examination, radiogenic devices are utilised, containing sealed sources able to release X or γ rays at a specific acceleration energy of electrons.

Said activities are regulated by current legislation which endorse the *Directives 89/618/ Euratom, 90/641/Euratom, 92/3/Euratom and 96/29/Euratom as to ionising radiation* and subsequent amendments and supplements.

Control Measures

Subcontractor in charge of NDE execution on behalf of CTR, shall comply with current legislation according to which for all the operations involving the use of radiation sources, the necessary authorization shall be previously released by local authorities, depending on sources safety and utilisation methods.

Companies carrying out non-destructive examinations by means of radioactive sources, shall comply with current legislation.

Radiation control measures:

- The periodical inspection of radiogenic equipment maintenance, according the radiation protection register.
- The measurement of ionizing radiation at the exclusion zone limit as per radiation protection report.
- The dosimetry control on exposed personnel.
- The preparation of the radiation protection, indicating the calculation of safety distances of the exclusion zone.
- The definition of work instruction for the prevention and protection from specific hazards for workers and the public.

The need to prepare a site-specific radiation protection report is due both to the different work load (number of radiographic examinations to be carried out) and to the use of different equipment.

The CTR shall verify:

- That radiogenic equipment/source is authorized for use.
- That more equipment/source are not used simultaneously.
- The radiation protection report issued by Subcontractor for the site is available and endorsed by a qualified expert (as per law).
- That the notification of radiographic woks has been forwarded to authorities at least fifteen days before the utilization of radiogenic substances.
- Personnel in charge of non-destructive examinations have received a specific radiation protection training.
- That specific protection and prevention measures to be adopted at yard are submitted.
- The radioactive source is transported only using a vehicle with ADR authorization and thus provided of a series of special appliances.

- The driver of the vehicle mentioned in the previous point shall have an ADR license, which means having passed a specific training as required by the legislation in force.

The Subcontractor shall submit to the HSE Dept. with what follows:

- Copy of the radiation protection register page that highlights controls carried out in compliance with the law on equipment to be used at yard.
- Copy of the radiation protection report.
- Copy of conformity certificates of personal dosimeters.
- Copy of the communication carried out to surveillance agencies involved.
- Evidence of the authorization of the vehicle and the permit of transport

3.9.2 Electromagnetic Fields

Exposure electromagnetic field is present in the vicinity of power lines (15,000 volts) of transformer stations and at machinery with use of high electrical powers.

Control Measures

- The exposure values measured in a specific Risk Assessment were well below TLV.

3.9.3 Artificial Optical Radiation

Exposure to Artificial Optical Radiation is significant, for ultraviolet and infrared radiation, during welding operations.

Control Measures

- Use of appropriate PPE for welding activities;
- Use of screens and covers to protect personnel from radiation in the immediate vicinity.

3.9.4 Noise Hazard

Before works start-up, the Yard manager shall have all the machinery technical data sheets to be used by companies at yard as well as the plan of the relevant actual utilisation so that it is possible to assess the period of the highest exposure to noise in each specific working site.

It is however understood that machinery shall comply with what indicated in the manufacturer's technical operation manual, that operators shall work according to said provisions and that they shall adopt the relevant personal protective equipment.

The Subcontractor shall include in the safety plan (POS) the noise measurements or evaluation caused by the performed works.

Control Measures

In the workshops and module/platform under construction the level of noise is significant (85 dB(A)) therefore:

- Workers will be advised which noise level can cause hearing damage and will be required to always wear ear plugs. These are provided at various locations around the project.

3.9.5 Vibration hazard

Interferential risk (SIMOPs risks) not associated with this hazard.

Control Measures

1. To prepare and implement a programme of technical or organizational measures aimed at minimizing exposure and relevant hazards, by keeping into account the following:
   a) Other working methods requiring a reduced exposure to mechanical vibrations.
   b) Selection of working equipment to be operated with respect of ergonomic principles, which produce the lower possible level of vibrations.
   c) Supply of additional equipment aimed at reducing hazards of lesions caused by vibrations, such as seats that effectively attenuate vibrations transmitted to the whole body and handles or gloves attenuating vibrations transmitted to the hand-arm system.
   d) Suitable maintenance programmes for working equipment, workstations, and PPE.
   e) Design and organisation of places and workstations.
   f) Suitable indoctrination and training of workers as to the correct and safe use of working equipment and PPE, to minimize their exposure to mechanical vibration.
   g) Reduction of duration and intensity of exposure.
   h) Arrangement of working hours with adequate resting periods.
   i) Supply to exposed workers of clothes for cold and humidity protection.
2. If, despite measures adopted, the threshold exposure value has been exceeded, to take immediate action to restore exposure below said value, detect the causes and, consequently, adjust prevention and protection measures to avoid the repetition of the event.

If the work will involve the use of equipment that generates vibrations the following interventions will be in place:

- Procurement will supply equipment that limits the level of vibrations.
- The equipment shall be used and maintained carefully.
- Specific work such as grinding during welding is carried out to a total of 2 hours per day, then attending suitable 'rest periods'.
- If large periods are required, the job rotation will be implemented.
- Workers will be advised of the vibrations hazard through toolbox talks.

- Supervisors and HSE team will monitor all associated activities.
- Tools shall be inspected periodically, in order to check if an increase of generated vibrations occur.

Medical Surveillance

1. Workers exposed to vibrations exceeding action values shall undergo medical surveillance. Medical check-ups are periodically carried out, generally once a year or with a different interval established by the company physician on the basis of a specific reason indicated on the risks assessment document and notified to workers safety representatives. The surveillance body, with an ascertained provision, may decide different contents and intervals as against what established by the company physician.
2. Workers exposed to vibrations shall undergo medical surveillance whenever, in the opinion of the company physician, one or more of the following conditions take place: workers exposure to vibrations is such as to make it possible to find a connection between exposure and an identifiable disease or noxious effects for health; experimented techniques may be adopted to identify both the disease or harmful effects.

3.10 Biological Agents

Risk related to biological hazards is low and limited to standing water or organic material inside the work areas and birds' droppings.

Control Measures

- Work areas should be cleaned daily by the Supervisors of the contractors concerned.
- Periodical cleaning to remove birds dropping and removal of dead bird carcasses entangled in bird nets.
- Consumption of food is not allowed at site.

3.10.1 Legionella / Salmonella

Exposure of workers to Legionella bacteria is possible when use tap water since the long term stagnation inside pipes and boiler can, especially in summer, lead to the formation of bacterial colonies

Control Measures

- Plumbing systems are cleaned and maintained periodically.
- The work areas shall be cleaned daily by the Supervisors of the contractors concerned.
- Proper implementation of personal hygiene measures (hand washing).
- Proper implementation of public hygiene measures.
- Prohibition to consume food in production areas.
- Installation and constant maintenance of anti-bird systems (protective nets, needle bollards for pigeons) in Canopy B.

- Periodic cleaning and maintenance of changing rooms and toilets.

Any specific assessments for biological agents causing pandemics or of regional/national interest will be managed at corporate level. The issuance of these assessments will entail the updating of this Plan.

3.10.2 Pandemic Management

The response to pandemic event has been developed and procedures have been developed during the emergency phase of covid-19 pandemic.

In case of a resurgence of the pandemic corporate procedures will be reviewed according to national protocols and applied at worksites.

3.11 Risks Related to Age, Gender, and Nationality

This problem is present in relation to the presence of foreign workers, some of whom have difficulty in speaking and understanding the Italian or English language.

Company physician evaluates the risk relate to age during periodical medical check and any restriction will be reported in the medical fit to work certificate.

Preventive and Protective Measures

- Within the work areas, there shall always be staff capable of working as translators.
- Within the production areas, the employment of elderly or inexperienced personnel will be evaluated with the CM and PM.

03

- Any safety sign used on the project will be in double language (IT – EN).



Example of commissioning sign in double language

3.12 Simultaneous Operations at Site

The simultaneous presence of several workers belonging to different subcontractors, in the same working areas is one of the main sources of hazard.

Activities and operations sequence as foreseen do not provide for space contemporaneity and overlapping different activities.

Should, during the works execution phase, overlapping activities take place (as not foreseen and/or due to works programmes modifications, etc.), the subcontractors and/or whoever is in charge of verifying, shall immediately stop works and inform the PM and/or the CM.

A co-operation is necessary to create an effective co-ordination action, before works start-up and during works execution, between CTR and Subcontractor who will take part in activities mentioned. Co-ordination is the instrument to be adopted for minimizing risks.

The necessary coordination will be managed starting from coordination meetings.

Control measures

- Simultaneous works are managed by CM in collaboration with PHSEM which also takes care of all the documentary aspects together with the Procurement service.
- The identification of possible interferences during work activities is carried out by CM, assisted by PHSEM, starting with ensuring compliance with the provision outlined in this document and by means of periodic coordination meetings.

3.13 Manual Handling

Manual handling of loads include the operations of transporting or supporting a load by one or more workers, including the lifting, laying, pulling, carrying or moving of a load.

Control measures

- The work shall be organized to minimize the manual handling of loads, also using suitable mechanical equipment for transport and lifting.
- Any handling deemed essential shall be adequately rationalized so as not to require excessive physical effort from the personnel involved.
- For loads that cannot be handled mechanically, it is required to use appropriate means (e.g. auxiliary equipment such as wheelbarrows, trolleys, etc.), or to resort to organisational measures such as reducing the weight of the load, lifting cycles and distributing the load among several employees.
- In any case, the manual handling of loads exceeding 25 kg by a single operator shall be avoided.
- All workers shall be informed and trained on the weight of loads, on the notion of centre of gravity or heavier side, on the correct working methods and on the risks in the event of non-compliance.
- During manual lifting operations, workers shall keep their hands and feet away from the lifting points and their position, when using hand lifting equipment or levers/palanquins, shall be such as to prevent the tools from slipping from causing falls or damage.
- Appropriate gloves should be worn when material handling may lead to contact with sharp edges, abrasive surfaces, splinters, chemicals, etc.

Control measures are also outlined in corporate procedure ref. nr. IDL-HSE-19

3.14 Load Out Operation

Top side module will be load and transported to site by barge.

The work operations carried out on board the moored barge is mainly comprised of:

- The preparation of the grillage for receiving the industrial structures at the time of the load out.
- The sea fastening of the structure once the load out has been completed.
- The repair and cleaning of the pontoon tanks.

The CM is responsible for:

- Coordinating the operations carried out on board by the various companies involved and ensuring that the safety conditions are respected by the same.
- Employing the Fire Protection service as required by the Port Authority in the case of hot works to be carried out on the vessel.

The Yard Manager is responsible for:

- Providing the necessary firefighting equipment (hoses, nozzles, fire extinguishers, etc.).
- Providing electrical energy.

The hazardous substances present in the yard and on the structures mainly include:

- The propane gas used for flame cutting and preheating operations, present in the form of cylinders, moved about on suitable trolleys and stored on suitable racks.
- The oxygen used as a comburent for flame cutting operations, present in the form of cylinders, moved about on suitable trolleys and stored on suitable racks.
- Various combustible materials (the wood on the scaffolding, polyurethane insulation inside the insulation panels, plastic, combustible parts of electrical cables, etc.).

Fire Risk Assessment

The combustible materials, flammable gases and paints present on the quay and outside the industrial structures pose a potential risk of fire or explosion. The possible sources of ignition include:

- Short circuits
- Open flames.
- Lit cigarette butts.
- Mechanical or electrical sparks.
- Heat sources and hot spots.
- Lightning.

Construction works involves small quantities of substances capable of causing fires or explosions, low probability of fires being ignited and taking hold, and little possibility for fires to spread. With reference to the corporate document rif. Nr. DVR-HSE-11, these activities are classified MEDIUM fire risk.

A specific risk assessment will be performed for the integrated test by a qualified engineer

Control measures

- Materials deposited outside and at a safe distance.
- Performance of work operations involving open flames, sparks, etc., at a safe distance from the few combustible materials present.
- Presence of 1 general switch for disconnecting all the electrical systems, located outside in a clearly marked position.
- Requirement to verify the proper closure of the paint drums at the end of the work activities.
- The operations carried out on board ships or barge are also regulated by current regulation, which requires the preliminary issuance of specific authorizations "*dispensation for open flame works*" on behalf of the port authority for the performance of operations involving open flames.

- Subcontractors shall take on board the minimum amounts of paint required for their daily work activities into the yard.
- Work Equipment and machines in compliance to CE conformity, Italian Law and manufacturer maintenance program.

Load Out

The task of handling the structures for their transfer onto the barge by means of SPMT, systems of hydraulic jacks on guided slides, or by pulling them with winches (Skid system), is normally carried out by an external Contractor, which employs its own means and personnel to carry out the activities, in collaboration with the staff of CTR.

Control measures

The manoeuvring of the barge, which involves the filling and/or emptying of the ballast tanks, is carried out by a CTR operator using the onboard pumps' control levers.

All operators assigned to work on the quay and on the industrial structure, for the activities described below, shall:

- Have received adequate instruction and training regarding the risks associated with the activities required of them, the environment in which they will be working and the equipment they will be using.
- Make use of the PPE provided, above all that which is required for the specific tasks to be carried out. It shall be noted, however, that the working environment (whether on the quay or on the industrial structure) poses the nearly constant risk of workers falling into the water. For this reason, each operator is required to wear a lifejacket (of high visibility).

Cranes can also be used to load the structures on to the barges.

The CTR is required to provide a Load Out Manual that describes the various stages of the activity, taking into consideration both the risks and the technical and organizational measures necessary to reduce the risks.

The HIRA related to load out works will be reviewed with the involved performing authorities before the activities.

The workers assigned to the "loading" shall be adequately informed of the required measures to be implemented. This information shall be conveyed via a special toolbox or briefing.

The operation is controlled by a PtW.

3.15 Yard Housekeeping

Poor housekeeping in the workplace in a hazard, especially when:

- Material and equipment obstruct escape routes or access to emergency management facilities.
- Loads may fall from height (e.g., scrapping of materials on scaffolding planes, etc.).
- Substances dangerous to person or the environment (chemical substances).

Misure Preventive e Protettive

- The work site be kept tidy, clean and in any case free from obstructions to ensure an easy movement of vehicles, workers, and any rescue vehicles.
- Access routes, escape routes, hydrants, fire extinguishers shall always be free from materials or obstructions of any kind.
- It is forbidden to remove firefighting equipment from the sites where they are located.
- Walkways shall remain clear and free from obstacles which could constitute a hazard of trip and slips.
- The necessary presence of bulky foreign materials or floor openings along a transit route, shall be adequately marked, offering alternative routes for escape; In particular, floor openings shall be adequately protected and access to non-workers shall be denied.
- It is forbidden to leave waste or flammable materials. In case of presence of flammable material, an adequate number of fire suitable extinguishers shall be placed nearby.
- The storage of any kind of material shall take place in dedicate areas, avoiding the risk of falling or collapsing.
- All work equipment shall be stored in a suitable place.
- Tools and other items shall not be left where they may fall, drop or be an obstacle to other people.
- Walkways, stairs, and platforms shall remain free from obstacles and foreign materials.
- All areas accessible to vehicles or pedestrian crossing shall remain free from any type of material that could hinder vehicles and from traces of grease, oil, paint, or other substances that may be slippery.
- Electric cables, compressed air hoses and technical gases shall remain separated from the circulation area of vehicles and personnel, and they always be protected against accidental damage.
- The lighting shall be adequate to allow work in the absence of natural light; no objects shall shield the light source.
- Office boxes, workers' facilities, services, canteens, infirmary, workshop, and warehouses shall remain free of accumulations of waste and kept in good hygienic conditions.
- The periodic removal from the construction yard of waste, debris, scraps and products deriving from any demolition shall be organized, in accordance with the provisions of current legislation (refer to the following section).
- It is mandatory to store waste in the appropriate containers for separate collection, identified with colours and signs.

3.16 Waste Management

CTR adopts the waste management strategy from the in force Environmental Protection Law, with the hierarchy in Figure 1. CTR objective will maximize the recycling of wastes in line with best practices and facilities available in the country.

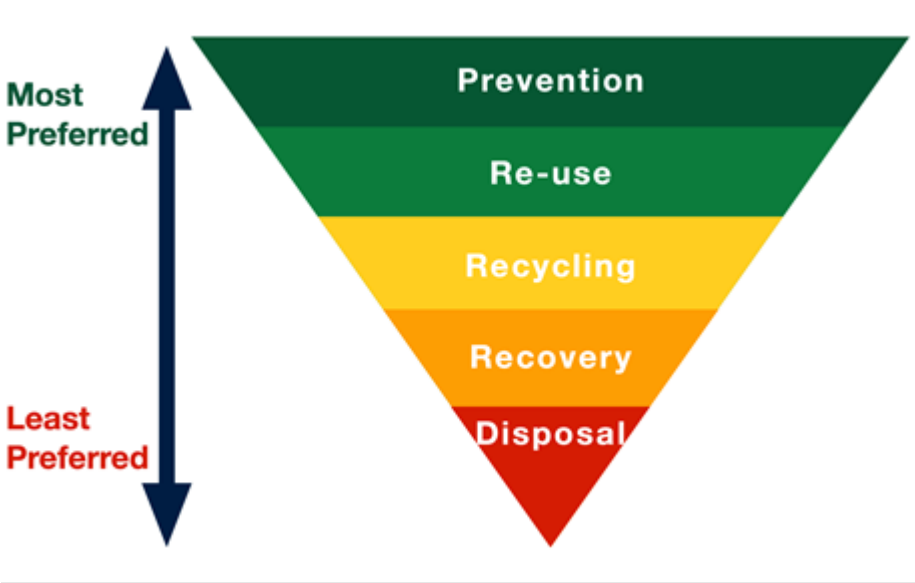


Figure 1: Waste Management Hierarchy

3.16.1 Classification of Waste

Waste is classified:

A) According to the source, in:

- Urban Waste or municipal waste: generated mainly by office and refreshment activities (canteen and vending areas) but not from superficies where construction take place
- Special Waste or industrial waste: generate at construction from superficies where construction take place

B) According to the characteristics, in:

- Hazardous Waste: Waste that is dangerous or potentially harmful to our health or the environment. These can be liquids, solids, gases, or sludge. Waste oil, diesel, grease, paint cans, used toner cartridges, acid and alkaline batteries, contaminated materials are examples of hazardous waste.
- Non-Hazardous Waste: Waste which is neither inert nor dangerous or potentially harmful to our health or the environment. This could include scrap metal, wooden pallets, plastic and cardboard packaging, etc.The identification of qualitative and quantitative criteria for the assimilation, as far as collection and disposal are concerned, of the special waste to the urban waste is done by the Municipality of reference.

The non-hazardous waste streams may also be classified as:

- Recyclable Waste: Waste that may be recycled such as paper, metals, and plastic waste. Such waste may have a commercial value and can be collected by approved agencies.
- Reusable Waste: Wastes that can be reused at site such as bottles, containers, wood, pallets, packaging materials, etc.

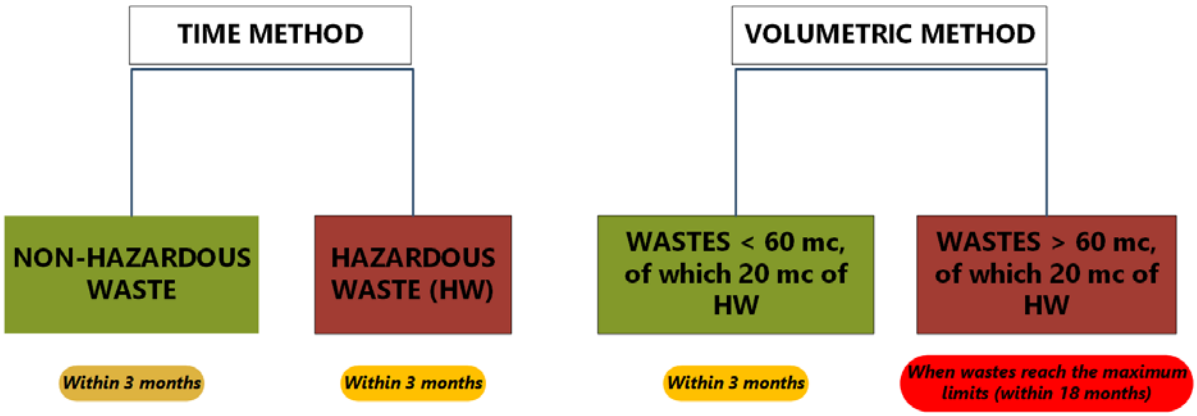
3.16.2 Collection and Temporary Storage of Waste

Before handover waste to the authorized waste disposer contractor the produced waste shall be collected at worksite according to the current environmental regulation and corporate procedure (ref. nr. PRO-HSE-28 and IDL-HSE-29)

The temporary storage has a time limit which shall be observed before disposal according to earmarkable volumetric limits.

Control measure for temporary waste storing.

- Deposited wastes shall not contain neither polychloroiclorodibenzodioxins, polychlorodibenzofurans, polychlorodibenzophenols exceeding 2.5 parts per million (ppm) nor polychlorobiphebyl and polychlorotriphenyls exceeding 25 parts per million (ppm);
- Wastes shall be gathered and submitted to recycling and disposal operations according to one of the following methods:
    1. Time method: within a maximum of three months, regardless of the amounts stocked;
    2. Volumetric method: whenever the amount of wastes stocked reaches 60 mc of which a maximum of 20 mc of hazardous waste (HW). However, the temporary deposit may not last longer than 18 months.



The following is a set of examples per representation and simulation of the *volumetric method*:

Hazardous Waste [mc]	Non-Hazardous Waste [mc]	Total Volume (*) [mc]	Conformity [-]
0	< 60	< 60	Compliant
< 20	0	< 20	Compliant
< 20	< 40	< 60	Compliant
0	> 60	> 60	Non-compliant
> 20	0	> 20 (RP)	Non-compliant
> 20	> 40	> 60	Non-compliant
> 20	< 40	> 20 (RP)	Non-compliant

(*) Total Volume = Hazardous Waste + Non-Hazardous Waste

- The temporary storage shall be done by homogenous types of wastes and in compliance with relevant technical regulations, while the storage of hazardous substances shall be done in compliance with the rules that regulate the storage of hazardous substances.

- The rules relevant to the packing and labelling of hazardous wastes shall be implemented; therefore, a temporary storage of hazardous waste must be identified by the same signs provided by the CLP Regulation.
- The fixed and movable containers, containing hazardous substances, shall be marked with clearly visible labels or tags, attached on the containers or in the storage areas. These marks of 40 cm. side, must contain a black R on yellow.
- The mixing of different categories of hazardous waste is forbidden, as well as of hazardous and non-hazardous waste; whoever performs non-permitted activities of mixing waste, and does not proceed at its own expenses to the separation of the mixed waste, is subject to a penalty and, in case of hazardous waste, it is also subject to criminal proceedings.

It is essential to check that the generation of waste does not exceed the maximum quantities or the disposal delay.

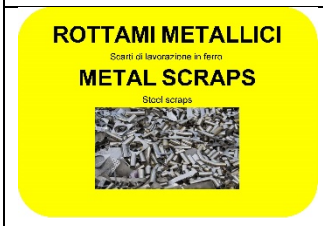
Control measure for industrial waste collection

Waste that comes from superficies where construction take place is collected in operative local areas according to what described in the column "collection method" for each waste. After that, the waste shall be put into the proper area (ref. to column "waste disposal") from which they will be collected for the final disposal.

The waste can be taken directly to the disposal area if it is not necessary or possible to collect it locally.

Industrial waste is produced by production activities and is collected as follows:

	INDUSTRIAL WASTE	COLLECTION METHOD
	PAPER / CARDBOARD	Signaled metal containers
	PLASTIC PACKAGING Transparent plastic film (eg heat shrink), bubble packaging (bubble wrap), transparent bags	Signaled metal containers
	MIXED PACKAGING Other packaging material such as straps	Signaled metal containers

	INDUSTRIAL WASTE	COLLECTION METHOD
	GRINDING DISKS	Signaled metal containers / Big Bag
	RAGS SOILED WITH OIL*	Signaled metal containers / Big Bag for hazardous waste
	METAL SCRAPS Iron processing waste	Signaled metal containers
	WELDING RESIDUES AND METALLIC POWDERS Flux, electrodes	Signaled metal containers
	WOODEN PACKAGING Pallets, crates. Unpainted boards, treated	Signaled metal containers
	EXHAUSTED BATTERIES	Directly in the disposal area
	SPRAY CANS	Container marked in warehouse
	PAINT BINS	Signaled metal containers
	NEON OR LIGHT BULBS (RAEE)*	Signaled containers
	TOOLS OR ELECTRICAL EQUIPMENT (RAEE) Air conditioners, portable equipment	Signaled containers
	CABLES	Signaled containers (if not collected)

	INDUSTRIAL WASTE	COLLECTION METHOD
	AQUEOUS WASHING SOLUTIONS	Special tank on pitch VTS, YSV
	EXHAUSTED OIL	Waste oil container or drums
	ROCK WOOL	Big Bag

For waste not mentioned in the table above or for more information,

For the offices located in Ravenna:

consult the "Il Rifiutologo" application of HERA or visit the website https://www.gruppohera.it/ ;

for the offices located in Milan:

consult the "Junkers" application or visit the website https://junker.app/

Control measure for Municipal waste collection

Mixed waste and separately collected waste that are similar in nature and composition to municipal waste and it is not generated within construction area (such as, canteen, offices or local areas with equal function) are collected as follows:

	MUNICIPAL WASTE	COLLECTION METHOD
 	<u>What is</u>: materials that cannot be used for differentiated waste collection, such as rubber, foam rubber, bones, ceramic shards, cigarette butts, animal bedding, rags, clothes hangers, treated or painted wood, diapers, sanitary napkins, gauzes, plasters, cutlery of plastic, chemical or oiled or dirty paper, non-electronic toys, filters and bags for vacuum cleaners, CD / DVD and related cases. <u>What is not</u>: all differentiable waste, hazardous waste, bulky waste, liquid substances, bright materials, waste from construction and demolition (eg aggregates, rubble). The material collected in this way is sent to the different plants of the supplier for disposal, for energy recovery or final disposal.	Containers reported in offices and vending areas. *For the Assago site the waste must be collected in transparent bags*

	MUNICIPAL WASTE	COLLECTION METHOD
 	<u>What is</u>: *newspapers, magazines, books, photocopies and various sheets, notebooks, wrapping paper, cards, paper bags, cardboard boxes for shoes and food (eg pasta, rice, salt, etc.), glasses in paper material, trays of cardboard, detergent drums, cardboard packaging, polylaminates (eg: tetrapaks and beverage cartons in general). Cards containing small parts of different materials, such as plastic windows on envelopes or pasta cartons, are also good.* ***Metal staples and adhesive tape should be removed***. <u>What is not</u>: *plastic-coated covers, glasses and plastic plates, plastic-coated paper, greaseproof or parchment paper, carbon paper, wallpaper, baking paper, chemical paper for fax or carbonless, greased or soiled paper with food or other substances, cartons with glue residues, greasy pizza boxes.* Simple rules: *Dirty paper should not be transferred to recycling containers because it contaminates the recyclable raw material. It should therefore be thrown out with unsorted waste or in the multi-material collection if present.* *The paper must be collected crushed and reduced in volume. Rinse the tetrapak boxes.*	Containers reported in offices and vending areas *For the Assago site, the colour identifying this type of waste is white.*

	MUNICIPAL WASTE	COLLECTION METHOD
	PLASTIC What is: *all the packages indicated with the letters PE (polyethylene), PP (polypropylene), PVC (polyvinyl chloride), PET (polyethylene terephthalate), PS (polystyrene), bottles of mineral water and soft drinks, bottles (eg detergents, detergents and liquids cosmetics) plastic or polystyrene food trays packaging films, disposable plastic plates and cups emptied of contents, plastic food packaging and bags, fruit and vegetable nets, plastic fruit crates ...* What is not: objects consisting of non-separable composite materials (tetrapak polylaminates, plastic-metal, plastic-wood, plastic-glass, cans for glues-paints-solvents ...), objects that did not function as packaging (furniture, toys, plastic cutlery, CDs / DVDs and their cases, bags / backpacks / suitcases, rigid plastic materials, coat hangers, furnishing and household accessories, ashtrays, pencil holders, litter bins, folders and briefcases, components and car accessories ...) CANS What is: Cans for drinks and food (soft drinks, oil, etc.), cans or jars for storing food (cans of peeled tomatoes, peas, tuna, etc.), gift boxes (biscuits, chocolates, sweets, sweets, liqueurs, etc.) food cans for animals, aluminum trays, caps and closures for jars and bottles, spent cans for food (eg cream) and products for personal hygiene (eg deodorants, lacquers, etc.) bearing the initials FE40 or ALU41. What is not: All that is not aluminum or steel or cans / cans that have contained dangerous chemical products (eg paints, solvents, engine oil, petrol, etc.)	Containers reported in offices and vending areas
	GLASS What is: *glass containers of any color (eg bottles, jars, food jars, flasks without straw, glasses ...).* What is not: *mirrors and crystals, glasses, oven-proof (pyrex), ceramic, porcelain, lamps and neon, coupled glass, wired glass, cans that have contained dangerous chemical products (eg paints, solvents, motor oil, gasoline, trichlorethylene ...).*	Containers in offices and vending areas *For the Assago site, the colour identifying this type of waste is light blue.*
BATTERIES	What is: *exhausted batteries, cellular lithium batteries.*	Containers in reception

	MUNICIPAL WASTE	COLLECTION METHOD
ELETTRONIC DEVICES (RAEE)	What is: *TVs, PCs and accessories such as scanners, screens, video and printers, fax machines, copiers, refrigerators, other large appliances used for refrigeration, food storage and storage, washing machines, dishwashers, cooking appliances, electric stoves, boilers, microwave ovens , electric heating appliances, electric radiators, air conditioners, vacuum cleaners, electric brooms, sewing machines, etc.* Simple rules: *remember to remove batteries and batteries from your RAEE and give them in the dedicated collection.*	Containers in ICT offices or warehouse. *For the Assago site, the treatment of this waste is carried out as necessary.*
TONER	What is: *cartridges for laser and inkjet printers, ribbons for needle printers, toners, fax cartridges and photocopier cartridges.*	Containers in offices

For waste not mentioned in the table above or more information,

for the offices located in Ravenna:

consult the "Il Rifiutologo" application of HERA or visit the website https://heracomm.gruppohera.it/ ;

for the offices located in Milan:

consult the " Junkers" application or visit the website https://junker.app/

3.16.3 Waste Delivery

The waste shall be delivered to waste disposers authorized to receive the specific type of waste, whose authorization shall be available beforehand at the site.

The delivery of all waste to the carrier shall be mandatory accompanied by the identification form, which shall report, in particular, the following information:

- name and address of the waste generator and of the possessor,
- origin, type and quantity of the waste,
- date and course of the course-plotting,
- name and address of the receiver.

3.17 Movement of Vehicles and Material at Site

A transit and handling plan for the different means will be agreed during preliminary co-ordination meetings, after keeping into account the needs of the different companies involved and of CTR., and after evaluating any possible overlapping activities. Every subcontractor and vendor shall comply with what established.

Any possible obstacles shall be removed from transit way either dedicated to workers or lifting means.

If necessary, suitable devices shall be arranged to cover canalizations or other openings on the ground. Should grating or temporary coverings be accidentally damaged, it is necessary to immediately restore them.

Special attention shall be paid by truck drivers especially during the reverse motion. Drivers shall be supported by Flagman with high visibility vests who will provide instructions through suitable signals.

Near scaffolds or other temporary structures, means circulation shall be restricted to avoid any possible contact between structures and means.

Vehicles shall not be parked in areas where they can create obstacles to circulation or near fire hydrants, fire extinguishers, eyewash stations.

Special attention shall be paid, during co-ordination meetings to any possible interference among lifting means. It is forbidden to have cranes and/or other lifting means working simultaneously to avoid overlapping activities and invading working areas of other companies. Should this be necessary, the operation shall be included in a written procedure, by detecting priorities, subjects involved and HSE measures to be adopted. The above-mentioned procedure shall be countersigned by the Yard Manager of each subcontractor and vendor involved.

It is absolutely forbidden to stay or transit within the radius of action of lifting means. Areas shall be duly cordoned-off, signalled and forbidden to other operators.
At the Yard (YPB) entrance is posted a plan indicating the transit routes of vehicles and personnel.

The viability is subject to the provisions of the Traffic Laws and the provisions of the corporate procedure (ref. nr. PRO-HSE-16)

With reference to site access, please note that:

- Only working or good delivering vehicles are allowed on the site.
- Persons driving vehicles within the site shall have a valid driving licence and insurance.
- It is not allowed to park vehicles in front of emergency exits.
- It is not allowed to park vehicles in the areas assigned to people.
- It is not allowed to park vehicles on pedestrian streets.
- Once the vehicle is parked, the driver must turn it off, secure the handbrake and remove the key.
- The vehicles of workers or visitors will be parked in the appropriate outdoor areas.
- Driving of construction vehicles, such as cranes, forklifts, and MEWPs, is allowed after verification and approval of training certificates (as per law).

3.18 Other General Information

- Before starting works, all trace ways, sewer systems, etc. present within working areas shall be adequately covered, cordoned off and signalled, thus avoiding that any liquids may accidentally spill inside as well as any sparks and incandescent scraps.
  It is very important to know the paths of the sewer lines; all polluted water resulting from washing, shall not discharged into the sewer system. Whenever there is a significant risk of spillage of chemicals, and consequent accidental discharge into the sewer, the drain shall be close.
- Protective shields used during welding operations shall be fire-proof. The use of nylon is always forbidden.

- In case of transportation and movement of heavy loads (for example roll up operations, load out ones), the load bearing capacity of areas interested by passage and activities of lifting means or particularly heavy means shall be verified and, if necessary, said areas shall be consolidated.
- Works might be carried out nearby other companies; therefore, the provisions of paragraph: "Presence of several operators during works and relevant simultaneous activities in the same workplace" shall be strictly complied with.
- It is strictly forbidden to overload existing walking surfaces / platforms / etc., by exceeding the capacity allowed (always taking into account the weight of materials and of operators).

Existing overall provisions as to HSE matters at the workplace include the following prohibitions:

- Work on or visit the Project without having taken part in the safety induction meeting.
- Undertake actions without having taken part in the TBT.
- Enter limited access areas without being previously authorized.
- Utilise substances, tools or equipment not authorized.
- Lone working.
- Work without wearing Personal Protective Devices (PPE).
- Smoke into areas with the "No Smoking" sign.
- Use mobile phones and radio transmitters within areas considered flammable or with explosion hazard.
- Prevent access to safety devices (fire extinguishers, lances, medical first aid boxes, ladders, doors, etc.).
- Throw materials into the sea.
- Leave energized equipment when unattended /not in use.
- Operate on specific equipment (valves, flanges, emergency switches, electric cabins, etc.) without any written authorization.
- Operate on live plants or plants under pressure without the work permit.

What follows is compulsory for everyone:

- Keep the workplace tidy, by removing waste and unused materials.
- Notify to the supervisor any anomalous or dangerous situation observed.
- Stop works in the case of severe and immediate hazard.
- Everybody has the duty to correct or restore a hazardous condition or action.

The following are other general information:

- The working time may vary depending on the work planning and the seasons. The normal working hours is from 08:00 to 18:00 with an hour break for lunch.
- Pedestrian access is only through turnstile with badge or with a visitor pass issued by the reception.
- Visitors shall log in at the yard main entrance where they are provided of the visitor pass.
- Visitors and employees of subcontractors are not allowed in the site before having obtained authorization.

- Use of minimum PPE in yard construction area: helmet, safety shoes (with ankle support) or boots, goggles and earmuffs or earplugs for hearing protection (where required) and protective suit.
- Only working vehicles are allowed to the site. Privat vehicles shall be parked in designated areas outside the yard.

Off normal working hours (nighttime, weekends, etc.), the access to sites is generally prohibited. At this time the site is surveillance by the security service.

Each worker at site shall be provided with personal identification cards containing the names and addresses and employer subcontractor. This card shall be available for inspections.

3.19 Management of Change (MoC)

CTR has a documented Management of Change (MoC) process that is part of its HSSE-MS,

Any significant changes to the current project HSE management system shall be communicated to the interested parties (which include also both Subcontractors and CPY) before the change comes into effect.

Any significant changes of work instructions and safety procedures require an HSSE assessment aimed at the mitigation of risks and at the definition of the adequate control measures.

The MoC process is also outlined in the corporate procedures PRO-HSE-05.

3.20 Unplanned Events

In case of an unplanned may cause a significant risk for persons, assets and environment, the persons in charge shall suspend works, secure the area, and notify the Emergency Coordinator to proceed according to the established procedures.

4 SIMOPS risk management with Subcontractors

4.1 Project Schedule

Before to start works, it is issued a Project Works Schedule that lists all the different working phases, the relevant assumed durations, and the possible simultaneous execution.

The works schedule may be subject to revisions or changes, to be discussed during the weekly coordination meeting held by CM.

Any updates of the program, required by one or more subcontractors or stemming from technical needs of the construction, will always be assessed and, if necessary, this document will be update.

4.2 Weekly Coordination Meetings

CM, with the support of the PHSEM, chair a weekly coordination meeting with the subcontractors.

Topics of the meeting shall also include:

- Performed works during the previous week and next activities to be performed during the coming week.
- HSE findings analysis (from inspections or other records).
- Forecasted overlapping activities.
- Ranking priority of subcontractors

- Residual SIMOPs risk analysis
- Any STOP HSE Observation Card issued.

The minute of the meetings are transmitted to project Management, Yard Manager and subcontractors.

The report shall also send to PMs of other Projects highlighting those activities that may cause interference on their areas.

In case of unplanned SIMOPs risk or uncertain situations, activities shall be suspended and assessed by the CM, with the help of PHSEM, supervisors and subcontractors. Activities shall be resumed by CM only when the necessary control measures are in place and works can be carried out safely.

Other than the scheduled coordination meetings, others special "ad hoc" meeting can/shall be held if required.

The safety measures to reduce and control SIMOPs risks reported in the minutes of the coordination meetings, will integrate those stated in this document.

4.3 Commissioning Coordination Meeting

Once the Project will shift from construction to commissioning phase, a daily commissioning coordination meeting will be held between representatives from both CONTRACTOR, SUBCONTRACTOR and VENDORS.

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The aim of the Commissioning Coordination Meeting shall include planning and co-ordination of SIMOPS between pre-comm/commissioning and/or construction activities that are to be carried out on the project so that such works are done safely and with due regard to the health and welfare of all personnel working on the project.

The chairman of the Commissioning Coordination Meeting be the CONTRACTOR Commissioning Manager and the CONTRACTOR PTW Coordinator.

The outcome of the Commissioning Coordination Meeting is the authorization of the activity by authorizing the PTWs according to CTR PTW Procedure PRO-HSE-23 and process flowchart shown in **Attachment V PTW Process Flowchart**, as well as the MoM with the safety measures to be adopted and the layouts of the commissioning areas and energized equipment.

4.4 Subdivision of Worksite into Working Areas

The following working areas have been identified; no interferences are foreseen between them.

Area 1. Warehouse (next to workshops)
Area 2. Transit Yard Area from prefabrication workshops to painting area
Area 3. Workshops shed B (tettoia B),
Area 4. Workshop n. 9 and n. 10

4.5 Identification of Interfering Activities and Control Measures

During the coordination meetings are defined activities to be carried out in the following week, and the related SIMOPs risks are assessed taking in due consideration the following:

a) Division into working areas of the construction site.

b) Analysis of subcontractors' activity
c) Identification of interference hazards and the personnel involved.
d) Priority assigned to activities.
e) When and where activity shall be carried out.
f) Control measures to mitigate residual risk and PPE required.

4.6 SIMOPS residual risk assessment.

Following the implementation of the control measures defined in the previous sections in the following page is reported the SIMOPS residual risk assessment matrix.

4.6.1 SIMOPS residual risk assessment matrix

Hazards	work environment			Collisions			Slips and tarps			Fall to Sea			Fall from Height			Handling of loads			Mech.. Hazards			Dropping objects			Electrocution			Fire			Explosion			Exposure to chemicals			Confine Space Works			Noise			Vibrations			Ionising radiations			Artificial Optical Radiations			Biological agents		
activity	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C	Likelyhood	Consequence	Risk = L x C
Work phase																																																				
1. Construction																																																				
1.1 Temporary support	1	1	**1**	1	3	**3**	1	2	**2**	0	0	**0**	1	2	**2**	1	3	**3**	1	3	**3**	1	2	**2**	1	3	**3**	1	3	**3**	1	2	**2**	1	3	**3**	0	0	**0**	2	1	**2**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
1.2 Topside structure construction	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	2	1	**2**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
2. Coating/Sandblasting																																																				
2.1 Topsides coating	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
3. Equipment																																																			
3.1 Installation of Mech. equipment	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	2	**2**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	0	0	**0**	1	3	**3**	1	2	**2**	1	3	**3**
4. Architectural																																																			
4.1 Internal insulation	1	2	**2**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
4.2 Installing Door and Window Profiles	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	1	2	**2**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
5. Piping																																																			
5.1 Piping Erection	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
5.2 Fit up del piping	1	2	**2**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	0	0	**0**	1	3	**3**	0	0	**0**	1	3	**3**	1	2	**2**	1	3	**3**
5.3 Piping welding	1	2	**2**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
6. HVAC																																																			
6.1 Installation of HVAC ducts	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	1	2	**2**	1	3	**3**
6.2 Equipment installation	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
6.3 Tubing installation	1	1	**1**	1	2	**2**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	1	2	**2**	1	3	**3**
6.4 Cable Laying	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
7. Electrical/Instrumental Works																																																			
7.1 Installation of electrical supports	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	1	2	**2**	1	3	**3**
7.2 Installation of cable trays	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
7.3 Installation of lights and panels	1	1	**1**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	1	2	**2**	1	3	**3**
7.4 Cable laying	1	1	**1**	1	2	**2**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
8. NDT																																																			
8.1 Non-distructive Controls	1	2	**2**	1	2	**2**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	1	2	**2**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
9. Commissioning																																																			
9.1 Piping testing	1	1	**1**	1	2	**2**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
9.2 Testing	1	1	**1**	1	2	**2**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
10. Final Activities																																																			
10.1 Weighing	1	1	**1**	1	2	**2**	1	2	**2**	0	0	**0**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	0	0	**0**	1	2	**2**	0	0	**0**	1	3	**3**	0	0	**0**	1	3	**3**
10.2 Load Out	1	2	**2**	1	2	**2**	1	3	**3**	1	3	**3**	1	2	**2**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	2	**2**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**
10.3 Sea Fastening	1	2	**2**	1	2	**2**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	3	**3**	1	2	**2**	1	3	**3**	1	3	**3**	0	0	**0**	1	3	**3**	1	3	**3**	1	3	**3**

5 COMMUNICATION & MEETINGS

Good communication is an essential requirement towards maintaining good HSE standards on the project and shall always be maintained.

CTR will maintain procedures to ensure that CTR's and SUBCONTRACTORS' personnel can report observation for improvements of HSE to management. Project personnel will be encouraged to report anomalies and suggestion.

CTR PMT promotes and support the reporting of any observation of an act or condition believed "unsafe" for the health, personal safety, and environment. Whoever witnesses an "unsafe" act or behaviour has the duty to report to the project HSSE staff who will request immediate actions and start the investigation process.

CTR will implement and incentive scheme for worker to promote and reward the reporting of unsafe situation and suggestion for safety improvement.

To overcome language barrier CTR shall ensure that key personnel (e.g., supervisor foreman, team leaders) are able to communicate both with PMT and workforce. Key personnel shall address, during the meeting with the workforce, the relevant HSE which may not be understood.

All work instructions, including HSE controls, shall be documented. Signage shall be appropriate to the risk and shall be in a medium understood by all.

Additionally, following meetings shall be conducted periodically, and documented, to ensure good awareness and understanding by all personnel involved in the project.

5.1 HSE Kick-Off Meeting with Subcontractor

HSE KICK-OFF MEETING with Subcontractors shall be scheduled before starting specific activities to be carried out to ensure the understanding of the safety provision transmitted during the tendering and contracting phase

The PHSEM, the CM and Subcontractor shall take attend the kick off meeting.

5.2 Initial Site Visit with Subcontractors

Before starting works, a site visit shall be arranged to evaluate risks raising from interferences or clashes with the project wok context (other works, equipment, structures etc.).

The site visit is performed by the Subcontractor Responsible person and a CTR supervisor.

Any possible provisions, instructions and additional information raised during the site visit shall be recorded before works start-up to ensure the safe and correct execution of works. The visit shall be recorded on module MOD HSE 34.

5.3 Pre-Shift Toolbox Meetings

At the beginning of the work shift or before critic work controlled by PtW, a toolbox meeting is held by the Supervisor with workforce at the work site.

This meeting promotes and develops a sense of safety awareness among the work team, and it is the time for a two-way communication aimed at the last-minute assessment of the risks the control measures in place for the works.

Any raised concern shall trig the review of the risk assessment.

5.4 Stand Down HSE Meetings

These meetings may be initiated by any of the management or supervision involved with the project, to discuss particular HSE issues, and will involve whole teams or everybody on the project. It shall generally be conducted at the worksite. Both the CTR and the CPY PMT may request a safety stand down if deemed appropriate. The stand-down must be agreed in collaboration with the CTR Area Manager or the CTR supervisor.

5.5 HSE meetings with CPY

Meetings shall be hold on weekly/monthly basis to analyse the performance, criticalities and discuss future activity to be performed at yard.

6 INDUCTION AND TRAINING PROGRAMME

6.1 HSE Induction

All personnel shall be inducted on HSE control measure in-force at worksite before to access the worksite.

CTR will ensure that the contents of the Project HSE Induction will include the following items but not be limited to:

- Emergency Alarms and response,
- Access requirements to and from site,
- Security,
- Reporting of all Near Misses incidents or accidents,
- Treatment of minor injuries,
- Location of first aid facility and personnel,
- Emergency Response capabilities and requirements for activation,
- Employees right to refuse work in unsafe areas,
- Major Site Hazards such as:
- Working at heights,
- Erection, alteration and dismantling of scaffolding,
- Heavy Lifts,
- Working in Confined Space
- Welding, cutting and grinding precautions,
- Release of hazardous gases
- Working over water
- Safety Data Sheet - SDS,
- Fire Protection,
- Equipment inspection program,
- Permit to Work System,

- No Drug & Alcohol at workplace,
- TBT,
- JSA,
- Covid-19 Management Protocol,
- Life Saving Rules and SAFE LIFE training.

Induction meetings are chaired by the site HSE staff.

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Dedicated commissioning induction prior to commissioning will be required.

The commissioning induction, including approved list of workers to access the topside, will be refreshed before H2 will be introduced into the system including the new risks and control measures.

Specific HSE provisions related to the risks of commissioning works will be addressed during Stand-downs, Toolbox Talks and the coordination meetings.

6.2 Training

HSE training shall include but is not limited to following subjects:

- Risk identification and assessment (unsafe act auditing, job risk analysis, cause tree analysis, work permit, and environment awareness)
- General operation safety (stepping-handling-lifting, personal protective equipment, working at height)
- Logistics safety (lifting gear, crane, forklift, container, personnel lifting,)
- Mechanical safety (welding, cutting, sand blasting, painting)
- Pressure safety (compressed air, high-pressure circuits, pressure vessels, pressurized operations
- Electricity safety (earth, lock out-tag out, hazardous area classification)
- Hazardous materials safety (fuels, acetylene, oxygen, hydrogen, explosives, radioactive materials,
- toxics, chemicals, hot products, treatment products, drugs and alcohol
- Pollution control and environmental protection
- Lifesaving and escape techniques (first aid, firefighting, emergency response/preparedness)

Person directly involved in commissioning operation shall be trained and competent as per law requirements.

When working in proximity of Media Voltage operators shall be QUALIFIED PERSON (PEI): "Person with the technical capacities to perform electrical works under tension. The eligibility shall be certified and issued in return for a training process exceeded successfully, that include theoretical and practical exercises."

In presence of large quantities of H_2 the ERT will be supported by professional fire watchers.

CTR will identify and provide the training needed for personnel performing critical activities related to HSE, such as crane drivers and operators, fire team members, electricians, scaffolders, and medics / first aiders.

Mandatory trade training for key HSE positions with reference to current law requirements is reported in the following tab.

Position	Mandatory trade training
Project Manager	Personal Training on HSE Leadership – D.Lsg. 81/08, Accordo Stato-Regioni 21/12/11
Construction Manager	Personal Training on HSE Leadership - D.Lsg. 81/08, Accordo Stato-Regioni 21/12/11
Site Construction Supervisor	Personal Training on HSE Leadership - D.Lsg. 81/08, Accordo Stato-Regioni 21/12/11
Lifting Superintendent	Personal Training on HSE Leadership - D.Lsg. 81/08, Accordo Stato-Regioni 21/12/11
Commissioning Manager	Specific Training on Commissioning and ATEX, Training on Electrical Equipment (PES/PAV) , Accordo Stato-Regioni 21/12/11
Project HSE Manager	Training on HSE Legislation
Crane Operator	Specific Training – D.Lgs. 81/08, Accordo Stato-Regioni 22/02/12
Forklift Operator	Specific Training – D.Lgs. 81/08, Accordo Stato-Regioni 22/02/12
Lifting Supervisor	Personal Training on HSE Leadership - D.Lsg. 81/08
MEWPs Operator	Specific Training – D.Lgs. 81/08, Accordo Stato-Regioni 22/02/12
Scaffolder	Specific Training on Scaffold Assembly – D.Lgs. 81/08
Scaffolding Supervisor	Specific Training on Scaffold Assembly – D.Lgs. 81/08, Personal Training on HSE Leadership - D.Lsg. 81/08

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6.2.1 Training Matrix

Training Matrix	PROJECT SAFETY INDUCTION	SAFE LIFE PROGRAM	PTW TRAINING - JOB SAFETY ANALYSIS	CONFINED SPACE ENTRY	ELECTRICAL HAZARD (GENERAL)	PPE (protection from hight hazards)	ELECTRICAL HAZARD (trade training as per law)	SCAFFOLD TRAINING	FORKLIFTS	WORK AT A HEIGHT (trade training as per law)	MEWP (trade training as per law)	LIFTING & HANDLING	CRANE DRIVER (trade training as per law)	RADIOGRAPHIC TESTING	FIRE FIGHTING	FIRST AID	COMMISSIONING INDUCTION (Including H2)	Other
Refresh period	Once	Once	Once	Once	Once	5 years	5 years	4 years	5 years	5 years	5 years	5 years	5 years	5 years	5 years	3 years	Once	-
PROJECT MANAGEMENT	M	M	R	R*		R*											R*	R*
OFFICE WORKER	M	M			R												R*	R*
SUPERVISOR	M	M	M	R*	R	R*	R*			R*		R					R*	R*
FOREMAN	M	M	M	R*	R	R*	R*			R*		R					R*	R*
HSE Personnel	M	M	M	R*	R	R*	M			R*							R*	R*
ELECTRICIAN (E/I, ATEX)	M	M	R	R*		R*				R*							R*	R*
MECHANIC	M	M		R*	R	R*				R*							R*	R*
WELDER	M	M		R*	R	R*				R*							R*	R*
INSULATOR	M	M		R*	R	R*				R*							R*	R*
RIGGER	M	M				R*				R*							R*	R*
CRANE OPERATOR	M	M	R			R*						M	M					R*
FORKLIFT OPERATOR	M	M			R	R*			M			R					R*	R*
SCAFFOLDER	M	M		R*		M		M		M		R					R*	R*
EQUIPMENT OPERATOR	M	M			R	R*						R					R*	R*
PIPE / STRUCTURAL FITTER	M	M		R*		R*				R*							R*	R*
BLASTER	M	M				R*				R*							R*	R*
PAINTER	M	M				R*				R*							R*	R*
RADIOGRAPHER	M	M	M	R*		R*				R*				M				R*
COMMISSIONING SPECIALIST	M	M	R*			R*	M			R*							R*	R*
HELPER	M	M		R*		R*				R*							R*	R*
STOREKEEPER	M	M				R*				R*								R*
VISITORS / VENDORS	M	M		R*		R*				R*							R*	R*
EMERGENCY RESPONSE TEAM	M	M		R*	R	R*	R			R					M	M	R*	R*
MEWP OPERATOR	M	M	R			M				M	M							R*

R recommended
M mandatory
R* recommended / mandatory in case employee is involved in specific activity

6.3 SAFE LIFE Program (based on IIF® - Incident and Injury Free)

The aim of the SAFE LIFE Program is to increase health, safety and environmental culture and awareness in the workforce through Toolbox Talk, periodical campaigns, HSE leadership roadmap, weekly walkthrough, Stop safety observation card and incentive schemes (refer to section 2.4).

All personnel are expected to take part to a SAFE LIFE Orientation session to be properly inducted to the program.

6.4 Training Review

Training programs shall be reviewed by Project HSE Manager in case of any change of the scope of work or in case of any Client specific request. The content of HSE training programs is also subject to verification and continuous improvement. During the analysis, the following factors should be considered:

- reports on the results of accidents and first-aid cases on the site.
- recommendations for improvement on the results of internal and external audits.
- changes in the current legislation.
- changes in the technological process.
- modifications in the layout of workplaces.
- feed-back from employees on the quality of training.

6.4.1 Evaluation of Effectiveness of Training

The effectiveness of training is evaluated by following means:

- Assessment test after the training, in the form of questionnaire.
- On the job field checks and inspections, performance.
- Training feedback form which is filled by participants.

The feedback of the training programs is captured from the participants and training programs are modified / updated, as appropriate.

6.4.2 Records

Records will be kept of all employees who have attended the Project HSE Orientation / Training. HSE Training that have been conducted for the Project's employees must be registered in an electronic database for audit purposes and more convenient management of updates.

Title	Maintained by	Retention period
Training Certificates	HSE officer	Till in service
Training attendance sheets	HSE officer	1 years after project completion
Training Feedback	HSE Manager	1 years after project completion

7 PROJECT, SITE AUDIT & INSPECTION

Verification is achieved through monitoring, inspection, and audit to check compliance with defined process, procedures, standards, and targets. Audit and inspection schedules are maintained and records of findings from inspections and audits area collected, collated, and reported. All actions are maintained on the action tracking file. Audits will be monitored, recorded, and reviewed to ascertain HSE compliances.

7.1 Monitoring

All project supervisor and managers are required to monitor the areas under their control as well as performance and activities of subordinates to ensure that acceptable standards are maintained.

When monitoring is carried out reference should be made to the relevant HSE procedures, the contents of the risk assessments reports and any other relevant information.

7.2 Inspections

The Project Manager shall ensure that all levels of supervision and Project HSE personnel take part in regular HSE Inspections of the work areas. All findings shall be tracked and reported to the project management.

The Inspections could include:

- Periodical (Daily and weekly) HSE Inspection "Walk Around" with topic for focus agreed in the weekly HSE meetings.
- Pre-use inspection of machineries.
- Inspection of premises/sites, plant and equipment by supervisors, maintenance staff or a joint team of management, HSE officers and other employees to ensure continued operation of hardware controls.
- Inspections and examinations carried out by external organizations as legally required arrangements for the preventive maintenance of plant and equipment, e.g. Lifting equipment, scaffolds etc.
- Conducting job hazard assessments and analysis will be conducted as required.
- Management site visits

7.3 HSE Audits

As per the corporate audit plan, internal audits are regularly preformed to verify if the systems of work, practices, and procedures meet the HSE applicable requirements.

7.4 Non-Conformities Management

Nonconformities detected in HSE Systems may enter two types:

1. System-related nonconformities.
2. Operational nonconformities.

The Non-conformity Report i shall be used to document both system-related nonconformity and operational nonconformity.

Operational NC are classified into four levels whose higher value indicates the higher importance and severity:

Level 1 *Hazardous Situation (HS)*: an unsafe act or condition, where no incident or event has happened. HS may also be classified as Safe Life violation or standard breach. Such condition may be recorded as an HSE Non-conformity in a form defined in the corporate module MOD-HSE-56 and handled either immediately or according to what stated in the non-conformity report.

Level 2 *Near Miss (NM)*: an event of lucky escape or potential accident and/or injury. Such condition shall be recorded as an HSE Non-conformity in a form defined in the corporate module MOD-HSE-56 and handled either immediately or according to what stated in the non-conformity report.

Level 3 *Incident* It accounts for an event, which has not caused damage to people but only to material goods. Such condition shall be recorded as an HSE Non-conformity in a form defined in the corporate module MOD-HSE-56 and handled according to the Accident Investigation methods.

Level 4 *Injury* It accounts for an event causing damage to one or more people. Such condition shall be recorded as an HSE Non-conformity in a form defined in the corporate module MOD-HSE-56 and handled according to the Accident Investigation methods.

Near Miss and incidents are managed in conjunction with corporate procedure Rif. Nr. IDL-HSE-02

8 EMERGENCY ARRANGEMENTS

CTR worksites have in place a site-specific emergency response plans and arrangements to cover all potential emergency scenarios t. Emergencies may be limited to individuals or smaller groups of personnel or may require mass response.

Emergency plans identify:

- Emergency response duties;
- Lines of command and communication;
- Emergency scenarios;
- Response plan to follow and follow-up;
- Emergency Equipment.

Emergency scenario and response procedures to apply at CTR site are outlined in the corporate document nr. Rif PRO-HSE-37and PRO-HSE-36.

The scenarios not outlined in the corporate documents and conceivable for the critical commissioning activities will be evaluated in the fire risk assessment document to be issued for the integrated test activities.

8.1 General Preparation

During the HSSE Inductions, all personnel are informed of the emergency arrangements and action to undertake in case of emergency.

Names and contact details of Emergency Response Team members and essential emergency information are posted at strategic locations throughout the facility.

Emergency Response Team (ERT) are trained as per current regulation.

ERT shall be present at the worksite.

Firefighting equipment is placed, signalled and ready for use a per fire plan approved by local fire authorities.

Additional firefighting equipment will be implemented during the project works to control addition fire risk.

The integrated test activity will undergo a dedicate fire assessment, and a fire report will be issued and endorsed by a qualified engineer. The report will outline the additional fire control measures to implement for the reduction of the risk and an ensure an adequate emergency response.

8.2 Alarms & Evacuation

The alarm is raised with the sounding of air horns.

- FIRE Continuous air horn (2 Minutes)
- ABANDON Continuous air horn (2 Minutes)

On the sounding of either alarm, all Visitors, Third Party Contractors, and CTR personnel except Safety and Fire Fighting personnel will evacuate the work site and assemble off site at the dedicated "MUSTER POINT.'

The muster will be ascertained by the CTR HSE Team who will communicate the same to the Client representative.

In case of missing personnel, a search operation, under the direction of Emergency Team or Civil Defence will commence until they are located.

8.3 Emergency Drills

To ensure an adequate emergency response of the ERT and all personnel, emergency drills are carried out regularly according to the site "emergency drill plan" issued annually periodically reviewed.

Drills shall cover all possible scenario.

All drill reports shall contain at least the following information:

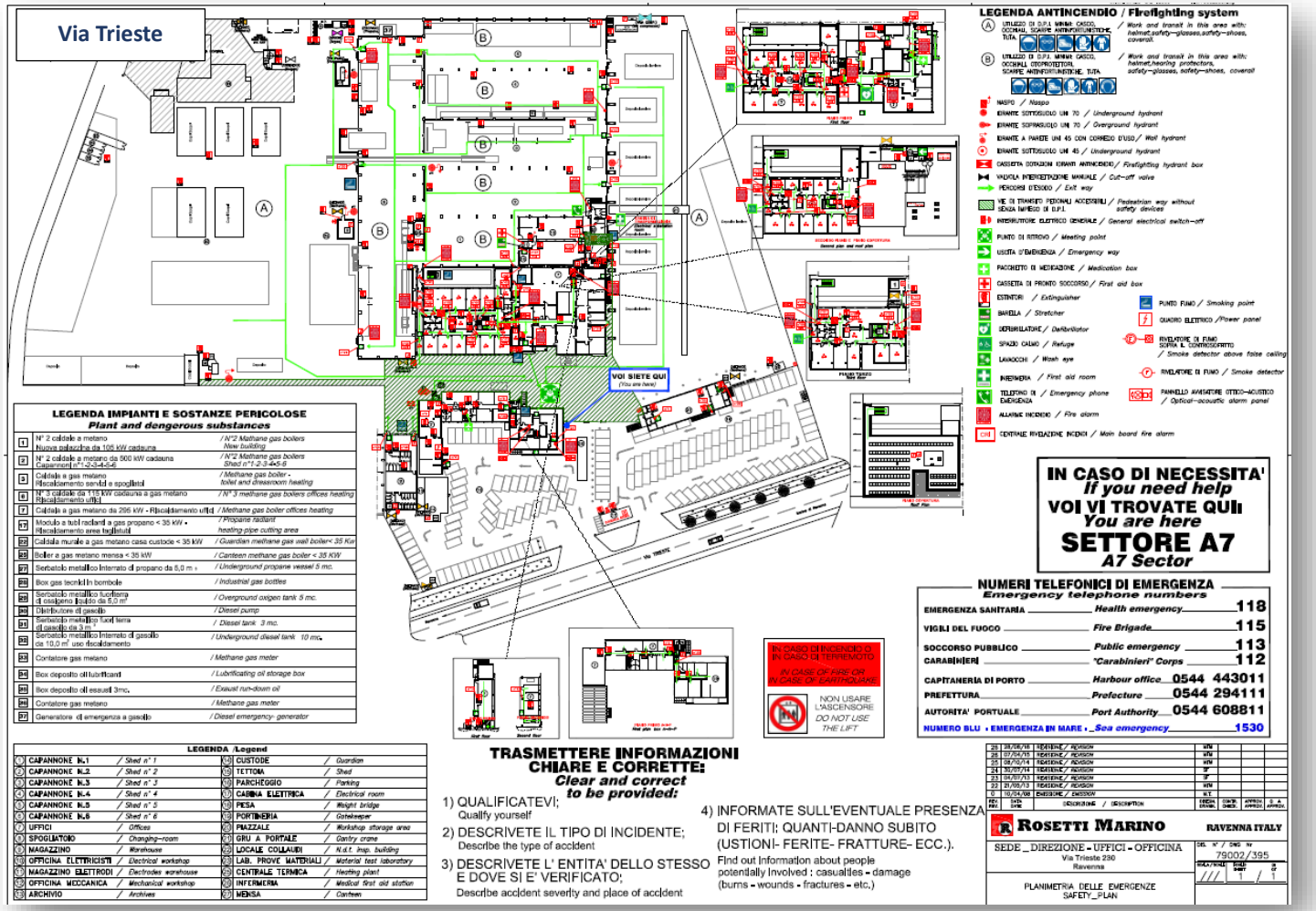
- Drill scenario
- Start time of the drill
- Timeline of ERT response
- End time of the drill
- General comments and notes for improvement. Action shall be tracked and followed-up.

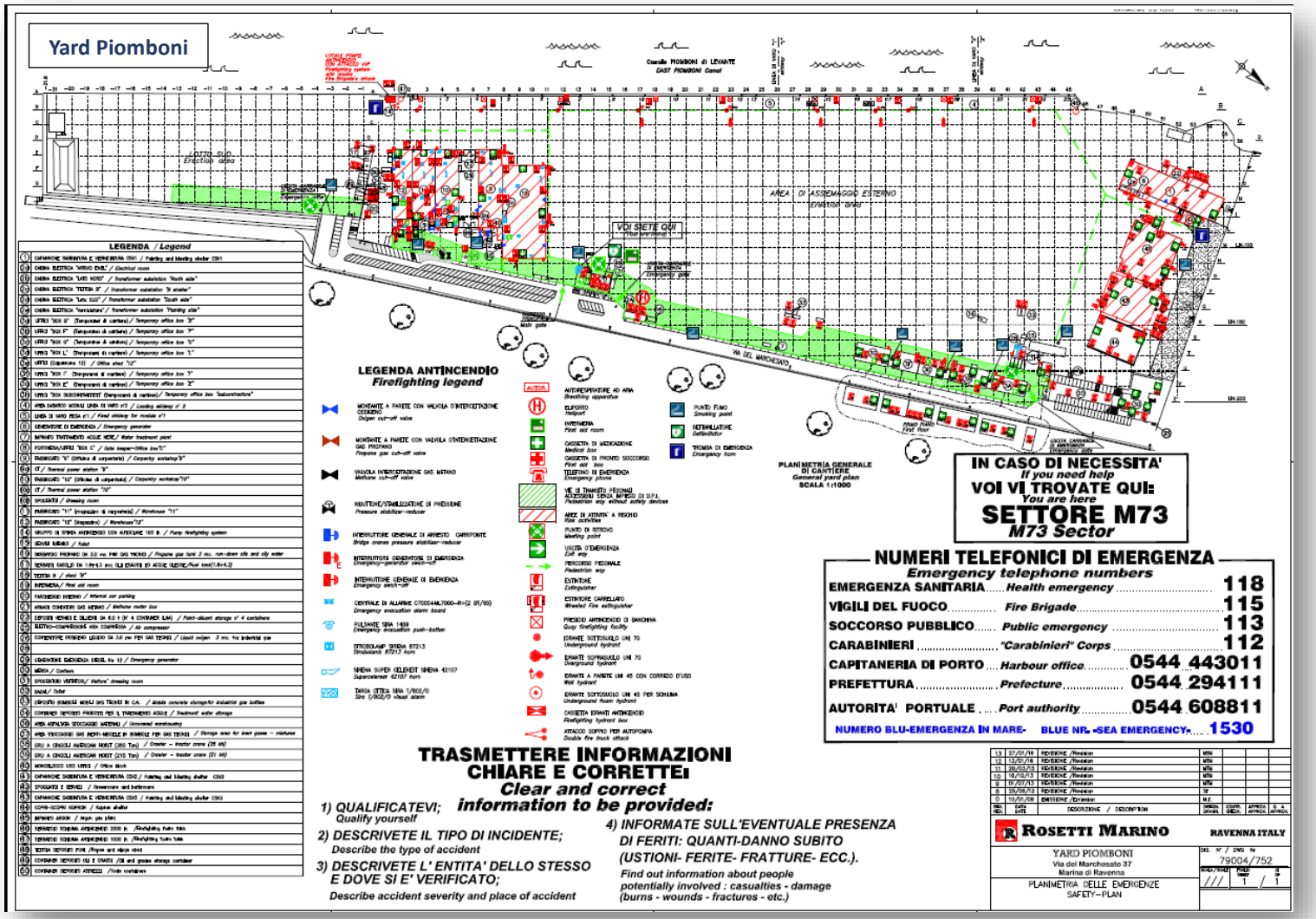
All drills reports will be files and available for auditing.

9 Attachments

Attachment I. CTR worksite Fire layouts
Attachment II. Emergency Response Teams
Attachment III. Emergency Communication
Attachment IV. CTR Corporate Document References
Attachment V. PTW process flowchart
Attachment VI. Temporary equipment arrangement and exclusion zone during testing with H2

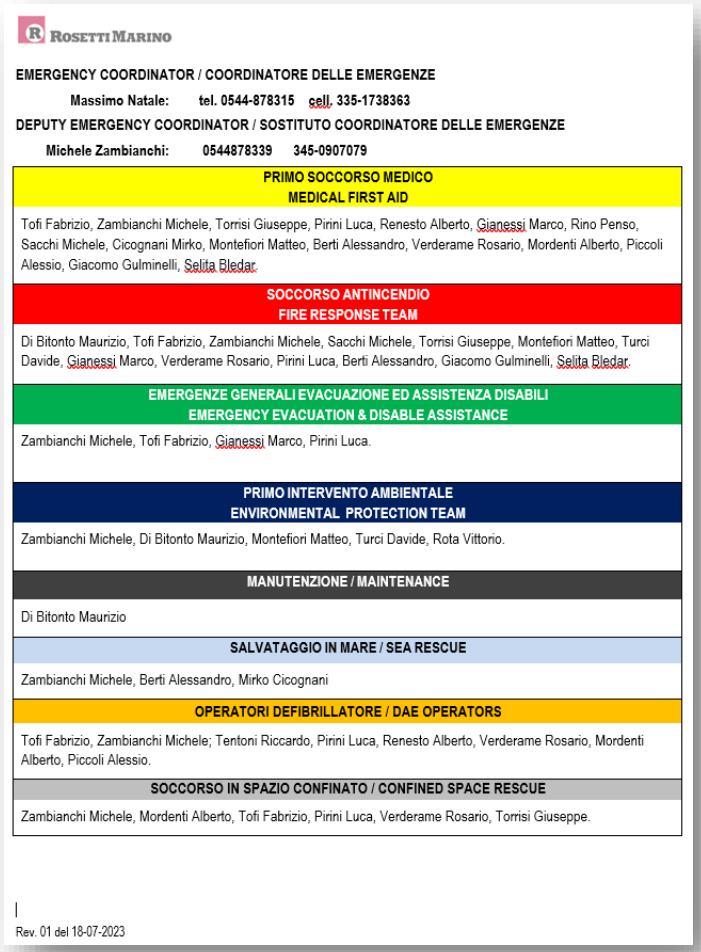
9.1 Attachment I CTR worksite Fire layouts




Yard Piomboni
LEGENDA / Legend
LEGENDA ANTINCENDIO
Firefighting legend
PLANIMETRIA GENERALE DI CANTIERE
General yard plan
SCALA 1:1000
IN CASO DI NECESSITA'
If you need help
VOI VI TROVATE QUI:
You are here
SETTORE M73
M73 Sector
NUMERI TELEFONICI DI EMERGENZA
Emergency telephone numbers
EMERGENZA SANITARIA ..... Health emergency 118
VIGILI DEL FUOCO ..... Fire Brigade 115
SOCCORSO PUBBLICO ..... Public emergency 113
CARABINIERI ..... "Carabinieri" Corps 112
CAPITANERIA DI PORTO ..... Harbour office 0544 443011
PREFETTURA ..... Prefecture 0544 294111
AUTORITA' PORTUALE ..... Port authority 0544 608811
NUMERO BLU-EMERGENZA IN MARE- BLUE NR. -SEA EMERGENCY- 1530
TRASMETTERE INFORMAZIONI CHIARE E CORRETTE:
Clear and correct information to be provided:
1) QUALIFICATEVI; Qualify yourself
2) DESCRIVETE IL TIPO DI INCIDENTE; Describe the type of accident
3) DESCRIVETE L' ENTITA' DELLO STESSO E DOVE SI E' VERIFICATO; Describe accident severity and place of accident
4) INFORMATE SULL'EVENTUALE PRESENZA DI FERITI: QUANTI-DANNO SUBITO (USTIONI- FERITE- FRATTURE- ECC.). Find out information about people potentially involved : casualties - damage (burns - wounds - fractures - etc.)
ROSETTI MARINO
RAVENNA ITALY
YARD PIOMBONI
Via del Marchesato 37
Marina di Ravenna
PLANIMETRIA DELLE EMERGENZE
SAFETY-PLAN
79004/752

9.2 Attachment II Emergency Response Teams

Yard Piomboni



ROSETTI MARINO

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DEPUTY EMERGENCY COORDINATOR / SOSTITUTO COORDINATORE DELLE EMERGENZE

Michele Zambianchi: 0544878339 345-0907079

PRIMO SOCCORSO MEDICO MEDICAL FIRST AID
Tofi Fabrizio, Zambianchi Michele, Torrisi Giuseppe, Pirini Luca, Renesto Alberto, Gianessi Marco, Rino Penso, Sacchi Michele, Cicognani Mirko, Montefiori Matteo, Berti Alessandro, Verderame Rosario, Mordenti Alberto, Piccoli Alessio, Giacomo Gulminelli, Selita Bledar.
SOCCORSO ANTINCENDIO FIRE RESPONSE TEAM
Di Bitonto Maurizio, Tofi Fabrizio, Zambianchi Michele, Sacchi Michele, Torrisi Giuseppe, Montefiori Matteo, Turci Davide, Gianessi Marco, Verderame Rosario, Pirini Luca, Berti Alessandro, Giacomo Gulminelli, Selita Bledar.
EMERGENZE GENERALI EVACUAZIONE ED ASSISTENZA DISABILI EMERGENCY EVACUATION & DISABLE ASSISTANCE
Zambianchi Michele, Tofi Fabrizio, Gianessi Marco, Pirini Luca.
PRIMO INTERVENTO AMBIENTALE ENVIRONMENTAL PROTECTION TEAM
Zambianchi Michele, Di Bitonto Maurizio, Montefiori Matteo, Turci Davide, Rota Vittorio.
MANUTENZIONE / MAINTENANCE
Di Bitonto Maurizio
SALVATAGGIO IN MARE / SEA RESCUE
Zambianchi Michele, Berti Alessandro, Mirko Cicognani
OPERATORI DEFIBRILLATORE / DAE OPERATORS
Tofi Fabrizio, Zambianchi Michele; Tentoni Riccardo, Pirini Luca, Renesto Alberto, Verderame Rosario, Mordenti Alberto, Piccoli Alessio.
SOCCORSO IN SPAZIO CONFINATO / CONFINED SPACE RESCUE
Zambianchi Michele, Mordenti Alberto, Tofi Fabrizio, Pirini Luca, Verderame Rosario, Torrisi Giuseppe.

Rev. 01 del 18-07-2023

Via Trieste



ROSETTI MARINO

EMERGENCY COORDINATOR / COORDINATORE DELLE EMERGENZE

FUSSI Gianni (n.breve) 4827 cell. 345 210 9320

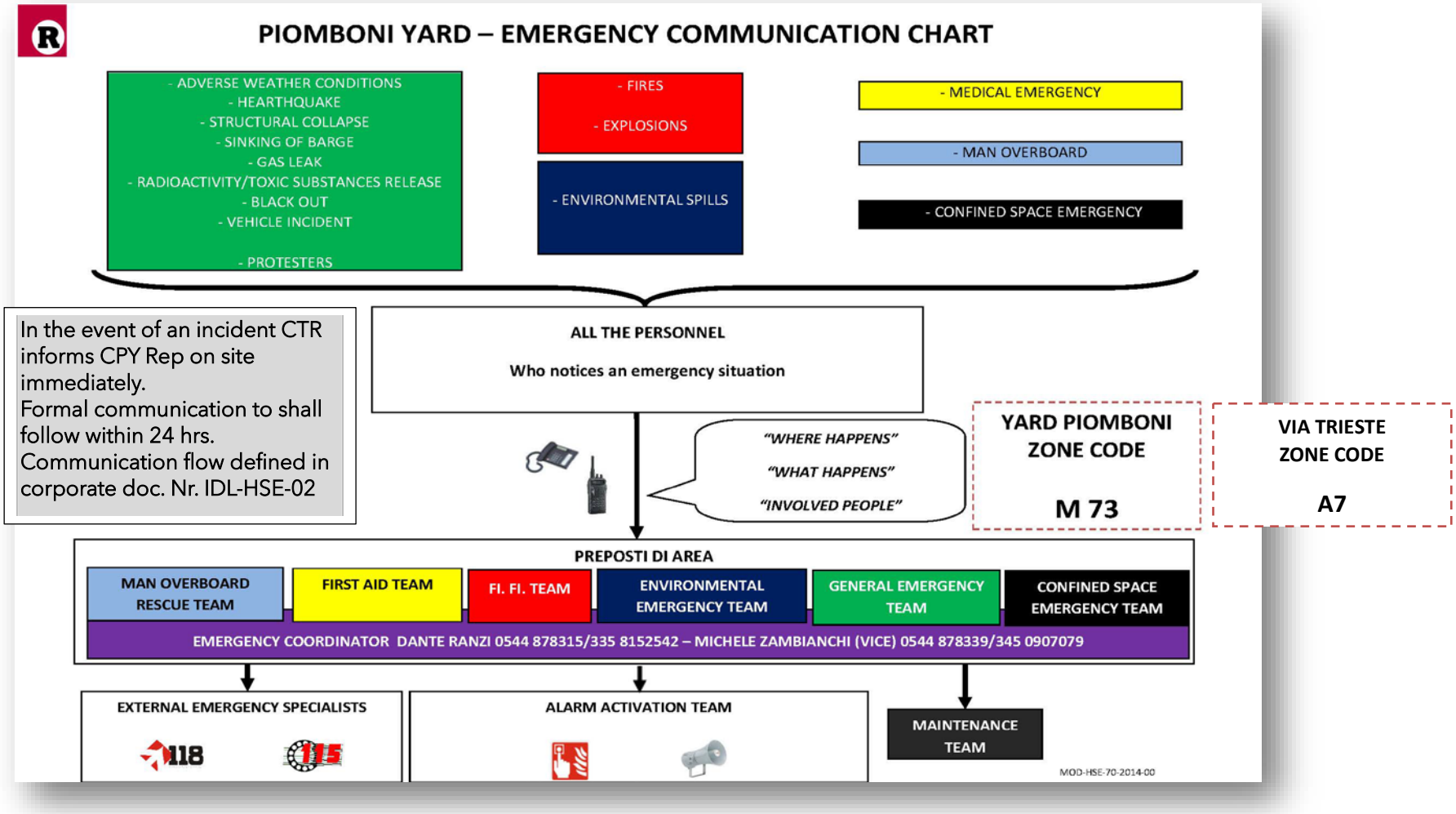
DEPUTY EMERGENCY COORDINATOR / SOSTITUTO COORDINATORE DELLE EMERGENZE

LAZZARO Giuseppe cell. 340 5295080

PRIMO SOCCORSO MEDICO MEDICAL FIRST AID
Baroni Arno, De Angelis Chiara, Fussi Gianni, Imouzaz Mohammed, Medri Teodora, Gurioli Mattia, Scopetti Aldo, Servadei Gianluca, Spedaluzzi Enrico, Tabanelli Maurizio, Vierani Rossano, Franchi Davide, Tozzi Lorenzo, Caon Manuel, Robert Hahn, Giancarlo Cascino, Fabio Loffredo, Giuseppe Grimaldi
SOCCORSO ANTINCENDIO FIRE RESPONSE TEAM
Buccinna' Mauro, Caon Manuel, Di Bitonto Maurizio, Fussi Gianni, Imouzaz Mohammed, Lamacchia Luca, Gurioli Mattia, Scalieri Cosimo, Scarponi Angelo, Servadei Gianluca, Spedaluzzi Enrico, Tabanelli Maurizio, Vierani Rossano, Tozzi Lorenzo, Franchi Davide, Robert Hahn, Giancarlo Cascino, Fabio Loffredo, Giuseppe Grimaldi
EMERGENZE GENERALI EVACUAZIONE ED ASSISTENZA DISABILI EMERGENCY EVACUATION & DISABLE ASSISTANCE
BAGIONI DONATELLA, BARONI ARNO, CECCHINI MARCO, DE ANGELIS CHIARA
PRIMO INTERVENTO AMBIENTALE ENVIRONMENTAL PROTECTION TEAM
DI BITONTO MAURIZIO, LAZZARO GIUSEPPE, SPEDALUZZI ENRICO, VIERANI ROSSANO, TOZZI LORENZO
MANUTENZIONE / MAINTENANCE
DI BITONTO MAURIZIO Int. 8171 338-5300682
LAZZARO GIUSEPPE 340-5295080

Rev. 00_2023

9.3 Attachment III Emergency Communication



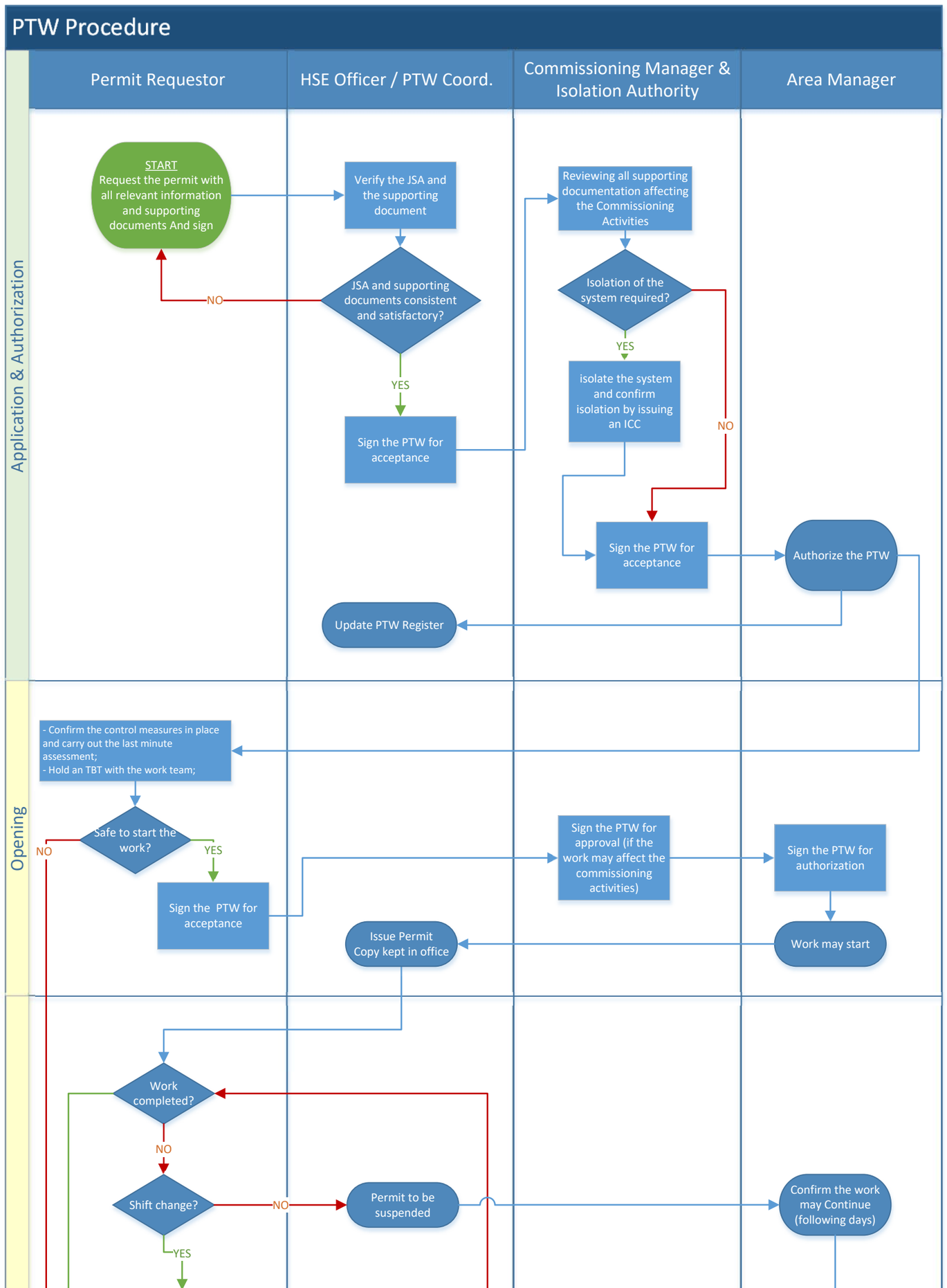
9.4 Attachment IV CTR Corporate Document References

corporate rif.nr.	title
DOC-COR-02	HSE POLICY
DVR-HSE-01	DOCUMENTO DI VALUTAZIONE DEI RISCHI (CORPORATE RISK ASSESSMENT_IT)
DVR-HSE-08	VALUTAZIONE RISCHIO ESPLOSIONE (CORPORATE RISK ASSESSMENT_IT)
DVR-HSE-10	VALUTAZIONE RISCHIO INCENDIO VTS (CORPORATE RISK ASSESSMENT_IT)
DVR-HSE-11	VALUTAZIONE RISCHIO INCENDIO YPB (CORPORATE RISK ASSESSMENT_IT)
DVR-HSE-30	VALUTAZIONE RISCHIO ESPLOSIONE_MODULI (CORPORATE RISK ASSESSMENT_IT)
DVR-HSE-31	VALUTAZIONE RISCHIO INCENDIO_MODULI (CORPORATE RISK ASSESSMENT_IT)
IDL-HSE-02	INCIDENTS AND NEAR MISSES MANAGEMENT
IDL-HSE-07	CRITERIA FOR RISKS ASSESSMENT
IDL-HSE-15	USE OF MOBILE CRANES
IDL-HSE-18	USE OF INDUSTRIAL GASES
IDL-HSE-19	MANUAL HANDLING OF LOADS
IDL-HSE-20	WELDING OPERATIONS AND RELEVANT TECHNIQUE
IDL-HSE-24	HEAT STRESS
IDL-HSE-27	QUALIFICATION AND AUTHORIZATION FOR SUBCONTRACTOR ENTRANCE
IDL-HSE-29	DIFFERENTATION OF WASTE
IDL-HSE-98	VERIFICA INIZIALE DI ATTREZZATURE IMPRESE (IT)
IDL-MAN-06	MANTEINANCE OF LIFTING EQUIPMENT AND DEVICES
MOD-HSE-03	CONTRACT EVALUATION REPORT
MOD-HSE-34	SURVEY AT YARD
MOD-HSE-56	HSE NON CONFORMITY REPORT
PRO-HSE-04	CONTROLLO DEGLI ACCESSI AI SITI ROSETTI MARINO SPA
PRO-HSE-08	COMMISSIONING AND START UP OPERATIONS
PRO-HSE-14	PRESSURE TEST
PRO-HSE-16	TRAFFIC MANAGEMENT PLAN YPB
PRO-HSE-17	LIFTING AND HOISTING
PRO-HSE-18	WORKS AT HEIGHTS
PRO-HSE-20	CONFINED SPACES ENTRY
PRO-HSE-23	PERMIT TO WORK
PRO-HSE-26	SCAFFOLDING
PRO-HSE-30	WORKING WITH ELECTRICITY
PRO-HSE-36	EMERGENCY AND EVACUATION PLAN_VTS
PRO-HSE-37	EMERGENCY AND EVACUATION PLAN_YPB

Referenced documents

9.5 Attachment V PTW Process Flowchart

PTW Procedure



9.6 Attachment VI Temporary equipment arrangement and exclusion zone during testing with H2

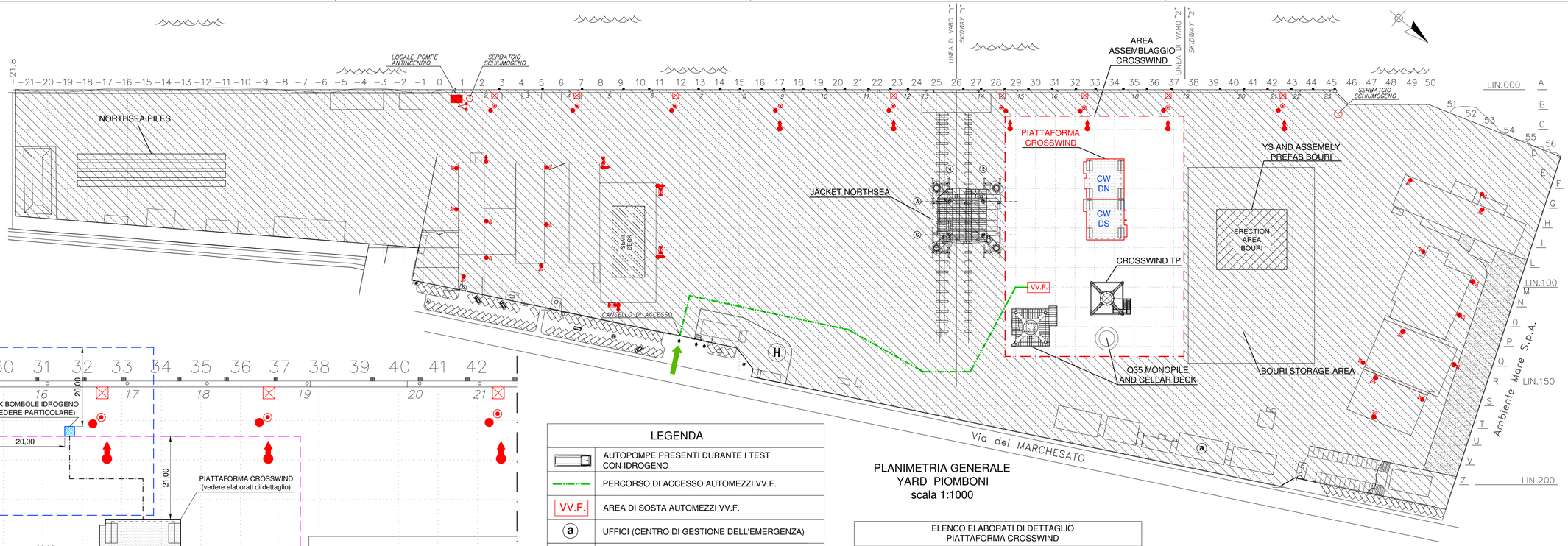
AREA ASSEMBLAGGIO PROGETTO CROSSWIND

AREA DI RISPETTO PIATTAFORMA PER TEST CON IDROGENO (DISTANZA DI SEPARAZIONE)

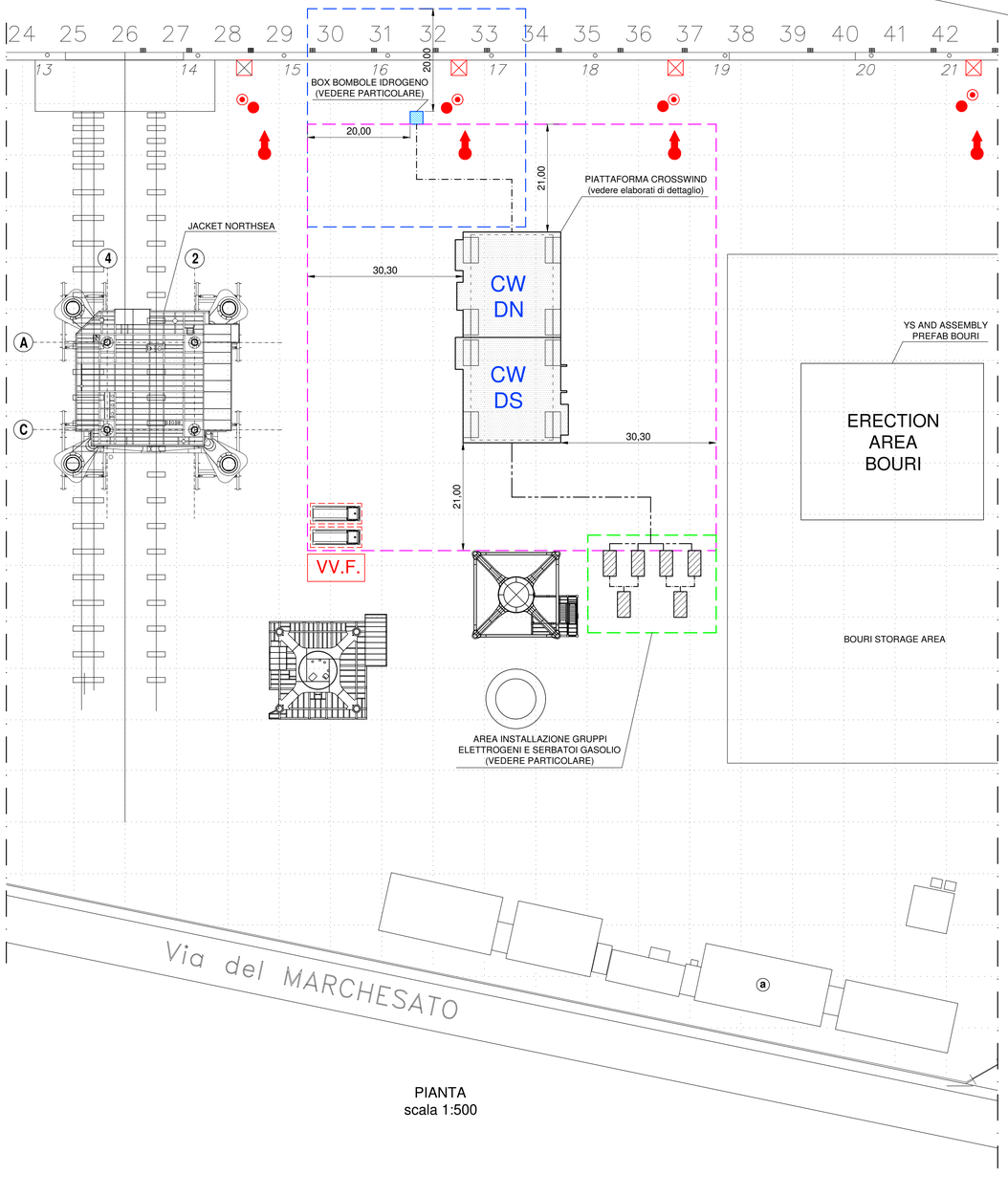
AREA DI RISPETTO BOX BOMBOLE IDROGENO (DISTANZA DI SICUREZZA INTERNA)

AREA DI RISPETTO GRUPPI ELETTROGENI E SERBATOI GASOLIO (DISTANZA DI SICUREZZA INTERNA)

AREA NON OGGETTO DI INTERVENTO



PLANIMETRIA GENERALE
YARD PIOMBONI
scala 1:1000

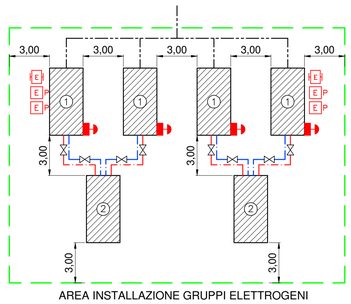


PIANTA
scala 1:500

LEGENDA

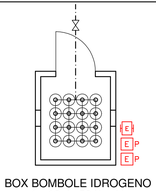
	AUTOPOMPE PRESENTI DURANTE I TEST CON IDROGENO
	PERCORSO DI ACCESSO AUTOMEZZI VV.F.
VV.F.	AREA DI SOSTA AUTOMEZZI VV.F.
a	UFFICI (CENTRO DI GESTIONE DELL'EMERGENZA)
	IDRANTE SOTTOSUOLO UNI 70
	IDRANTE SOPRASUOLO UNI 70
	IDRANTE A PARETE UNI 45 CON CORREDO D'USO
	IDRANTE SOTTOSUOLO UNI 45 PER SCHIUMA
	PRESIDIO ANTINCENDIO DI BANCHINA
	CASSETTA IDRANTI ANTINCENDIO
	ATTACCO DOPPIO PER AUTOPOMPA
	LINEA ELETTRICA DAI G.E. ALLA PIATTAFORMA
	TUBAZIONE IDROGENO DAL BOX ALLA PIATTAFORMA

ELENCO ELABORATI DI DETTAGLIO PIATTAFORMA CROSSWIND
123A90-DDL-PP-DL-70070_ATT2: PIANTE
123A90-DDL-PP-DL-70072_ATT2: PROSPETTI
123A90-DDL-SAF-DL-30026_01 - ESTINTORI E US
123A90-DDL-SAF-DL-30027_ATT1 -SH1 - IMP. RIV. INCENDI E GAS 1di2
123A90-DDL-SAF-DL-30027_ATT1 -SH2 - IMP. RIV. INCENDI E GAS 2di2
123A90-DDL-SAF-DL-30022_ATT1 - ATEX (PIANTE)
123A90-DDL-SAF-DL-30024_ATT1 - ATEX (PROSPETTI)
123A90-DDL-PR-DG-80000 - DIAGRAMMA CAUSA-EFFETTO
K559-2254-PR-PID (DA 001 A 013) - P&ID



AREA INSTALLAZIONE GRUPPI ELETTROGENI E SERBATOI GASOLIO DI DEPOSITO
scala 1:200

LEGENDA GRUPPI ELETTRONICI E SERBATOI GASOLIO	
1	GRUPPO ELETTROGENO A GASOLIO POT. 1000 kW
2	SERBATOIO GASOLIO DI DEPOSITO CAPACITA' 9 mc
	TUBAZIONE DI ALIMENTAZIONE GRUPPI ELETTROGENI DAI SERBATOI DI DEPOSITO
	TUBAZIONE DI SCARICO DEL TROPPO PIENO NEI SERBATOI DI DEPOSITO
	VALVOLA DI INTERCETTAZIONE
	LINEA ELETTRICA ALIMENTAZIONE PIATTAFORMA
	PULSANTE DI ARRESTO DI EMERGENZA
E P	ESTINTORE PORTATILE A POLVERE 21A-113B-C
E	ESTINTORE CARRELLATO A POLVERE A-B1-C



BOX BOMBOLE IDROGENO
(n. 16 da 50 l/cad.)
scala 1:50

LEGENDA BOX BOMBOLE IDROGENO	
	BOMBOLA DI IDROGENO 50 l a 200 bar
	TUBAZIONE IDROGENO ALLA PIATTAFORMA
	VALVOLA DI INTERCETTAZIONE
E P	ESTINTORE PORTATILE A POLVERE 21A-113B-C
E	ESTINTORE CARRELLATO A POLVERE A-B1-C

Committente

ROSETTI MARINO S.p.A.

VIA TRIESTE, 230 - 48122 RAVENNA

UBICAZIONE: VIA DEL MARCHESATO, 37 - 48122 MARINA DI RAVENNA (RA)

Oggetto

REALIZZAZIONE DI UNA PIATTAFORMA CON IMPIANTO PRODUZIONE IDROGENO PRESSO UN CANTIERE NAVALE

Progettazione

Techno S.r.l.
Via Pirano n. 7 48122 - Ravenna
Tel. 0544.591393 Fax 0544.591402
e-mail: info@techno-hse-com

Il professionista antincendio

Il presidente

REV.	DATA	MOTIVO REVISIONE	ESEGUITO	CONTROLLATO	APPROVATO
4					
3					
2					
1					
0	19/07/2024	EMISSIONE	F. SERVADEI	G. MAZZA	R. NICOLUCCI

Scala 1:1000 - 1:500 1:200 - 1:50

Commessa C3331

File DIS-Rosetti-C3331-Crosswind-PI-01.0.dwg

Tavola N. PI-01.0

Elaborato di prevenzione incendi

PLANIMETRIA GENERALE E PIANTE