



DECOMMISSIONING OF THE DELIMARA POWER STATION – PHASE 1
DISMANTLING OF HFO PIPELINES

OCCUPATIONAL HEALTH AND SAFETY RISK ASSESSMENT

Version 1 (June 2017)

Report Reference:

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Quality Assurance

Decomissioning of the Delimara Power Station - Phase 1
Occupational Health and Safety Risk Assessment for the dismantling of HFO
Pipelines - Version 1
June 2017

Report for: General Smontaggi

Revision Schedule

Rev	Date	Details	Prepared by	Reviewed by	Approved by
00	Jun 2017	Submission to Contractor	Steven Treeby Health and Safety Officer	Rachel Xuereb Director	Mario Sabolo Project Manager

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PURPOSE AND SCOPE OF WORKS

This document is the Occupational Health and Safety Risk Assessment for Dismantling works carried out on the HFO pipelines as part of the Decommissioning of the Delimara Power Station – Phase 1.

Part II Art 6 (1) of the Occupational Health and Safety Authority Act XXVII of 2000 states that *“it shall be the duty of an employer to ensure the health and safety at all times of all persons who may be affected by the work being carried out”*. If *“in pursuance of the foregoing an employer enlists competent services or persons, the employer shall not be discharged from such incumbent duties arising out of this Act and out of regulations made out of this Act.”*

This report has been prepared by En-Sure Ltd for General Smontaggi and is based upon the Method Statement prepared by the Contractor (Job ref: DPS-WMS05-Pipelines Rack – Revision 3) issued on 31 May 2017, uploaded on the Project’s Google Drive System.

En-Sure Ltd cannot be held liable for any dangers resulting from matters which were not divulged to them during the risk assessment.

The list of identified occupational health and safety hazards is non-exhaustive and includes those hazards that workers might encounter during the course of their work. The listed control measures are intended to minimise and, where possible, eliminate as far as is reasonably practicable the risks posed by the potential hazards.

The Contractor must ensure that the necessary control measures are put in place in order to prevent accidents from occurring and in order to conform to local Occupational Health and Safety legislation.

The recommended control measures are to be considered as a guide for action to be taken into consideration by the Contractor and any Sub-Contractors. However, it is important that professional competent persons are engaged to carry out civil, mechanical and electrical works, if any.

It is imperative that the Contractor explains all hazards identified within this risk assessment to all workers employed on the Project. It is recommended that this risk assessment be reviewed regularly in order to ensure its continued applicability and effectiveness to the work.

All workers are to follow instructions received by the Contractor’s Management during site induction training or any other relevant toolbox talks.

Suitable Personal Protective Equipment shall be worn by all workers at all times.

Good housekeeping and a satisfactory state of cleanliness shall be maintained by all workers in all areas of work as well as public areas surrounding the site.

A stocked first aid kit shall be available for use on site. A trained first aider shall also be present on site at all times during works.

The removal of potentially hazardous substances (such as Waste oils, Heavy Fuel Oil Sludge, etc) found at the Delimara Power Station does not fall within the remit of this risk assessment. Specific risk assessments will have to be carried out by the sub-contractor responsible for removal of such hazardous material.

An important aspect that should not be underestimated is that the HFO pipelines are situated close to Enemalta's assets, as well as other Enemalta pipelines which will not be dismantled at this stage. The pipelines are situated along common roads which are used by all the three operators (Enemalta, Electrogas Malta (EGM) and D3PG) on Site; hence alternative traffic routes will have to be identified prior to any temporary road closure.

Apart from the Client (Enemalta) and the Contractor (General Smontaggi), this Risk Assessment / Safe Works Method Statement report will be submitted to the other operators (EGM and D3PG) for their review, feedback and approval.

Risk Assessment Form			
1. Project title:		Decommissioning of the Delimara Power Station – Dismantling of the HFO Pipelines	
2. Version number: 01		3. Date: 26/06/2017	4. Location of work: Delimara
5. Duration of work: Refer to Contractor's Method Statement		6. Number of persons involved in work on Site at any one time: 9	
7. Name and contact details of Main Contractor: General Smontaggi SpA Viale dell' Industria, 5, 28060 San Pietro Mosezzo (NO) sabolo@generalsmontaggi.com [REDACTED]		8. Name of Sub-Contractor/s: En-Sure Ltd; Salv. Bezzina & Sons Ltd; and PTMATIC.	
9. Name and Contact details of PSDS: Malcolm Falzon on behalf of Shield Security Consultants Ltd pscs@shield.com.mt [REDACTED]		10. Name and Contact details of PSCS: Malcolm Falzon on behalf of Shield Security Consultants Ltd pscs@shield.com.mt [REDACTED]	
11. Name and Contact details of Contractor's H&S Site Officer: Steven Treeby obo En-Sure Ltd. steven.treeby@ensure.com.mt [REDACTED]		12. Name and Contact details of Contractor's Site Administrator/Site Foreman: Ermegildo Porzionato porzionato@generalsmontaggi.com [REDACTED]	
13. Name and Contact details of Project Manager: Mario Sabolo sabolo@generalsmontaggi.com [REDACTED]			

14. Safe Works Method Statement

An induction training session will be carried out for all workers who will be involved in some way or another during the demolition of the boilers, turbines, generators and transformers prior to commencement of works. Site offices, first aid facilities, welfare facilities and fire fighting equipment will be made available prior to commencement of works and shall be accessible at all times. An assembly point will also be designated.

The dismantling of the HFO pipelines will be performed in the following steps:

1. Identify a pipe segment on the rack and ensure that no live cables are in the vicinity of work;
2. Aspiration of the line section to be dismantled and disposed with specific equipment;
3. Washing the aspirated line section with water and collection of the same in appropriate bund with the pipe still on the rack. Oily water to be disposed of adequately. All pipelines shall be physically blanked with a flange downstream of the isolation valves;
4. Mechanical demolition of the hardened line segment by cold cutting procedures. The operators will access high levelled disassembly areas both from the existing surfaces – if possible - and through the aerial platform and by adjusting the means position to the disassembly progress to constantly prevent the risk of fall from height and ensure the best access to the working areas. Exclusion zones will be set up in order to ensure that no unauthorised access is present within areas above which demolition, dismantling and lowering activities are carried out. Drop-off edges left after removing the turbines structures shall be guarded with physical barriers to prevent workers from leaning over the edge. Should workers need to access areas where a drop-off height of greater than two metres is present, these workers must wear a full body safety harness attached to a safe and fixed anchorage point to prevent them from falling over. Segments which are being cut by cold cutting procedures shall be secured to prevent unforeseen collapse; and

5. Cleaning and carting away dismantled pipeline segments off-site. Ensure that loads are safely secured to fixed points on the loaded vehicle before driving off. Vehicles shall not be overloaded beyond their carrying capacity and no material will be untied if stability conditions have not been assessed beforehand. Ensure that no pedestrians are in the driver's path and a banksman is present to supervise reversing vehicles. The vehicle driver shall sign out before exiting Enemalta's main gate.

During the disassembly, particular attention will be paid to issues related to operators' safety and the choice of the portion to be removed. Before disassembly, cutting or mechanical lines and gripping points will be marked out. Cutting and mechanical disassembling include the following operations, to be cyclically repeated until full removal of the pipelines.

15. Hazard Identification							
Ref.	Type of OHS Hazard	Present	Absent	Ref.	Type of OHS Hazard	Present	Absent
1	Slips and trips	✓		20	Noise	✓	
2	Moving vehicles and machines	✓		21	Lighting		✓
3	Moving parts of machinery	✓		22	Electromagnetic fields		✓
4	Objects and parts with dangerous surfaces (sharp, rough, etc)	✓		23	Lifting equipment and related risks	✓	
5	Hot and cold surfaces or materials		✓	24	Third party Contractor / public safety		✓
6	Hand-held tools	✓		25	Confined spaces		✓
7	High pressure tools / machinery	✓		26	Works in water or damp conditions	✓	
8	Whole body vibration		✓	27	Adverse weather conditions	✓	
9	Hand-arm vibration	✓		28	Lack of signage	✓	
10	Hot or cold climate	✓		29	Overhead high and low voltage cables		✓
11	Manual handling / ergonomics	✓		30	Lack of first aid arrangements	✓	
12	Environment	✓		31	Lack of Personal Protective Equipment	✓	
13	Falls from heights	✓		32	Excavation / trenching works		✓
14	Falling objects	✓		33	Demolition / dismantling works	✓	
15	Fire	✓		34	Lack of welfare / sanitary facilities	✓	
16	Explosion	✓		35	Smoking / consumption of alcohol	✓	
17	Chemical substances (Hazmat)	✓		36	Assembly, disassembly and use of scaffolding		✓
18	Lack of security	✓		37	Underground services		✓
19	Electrical installations	✓					

16. Risk assessment guide

		Severity (S)				
		Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Extreme (5)
Probability (P)	Rare (1)	(L) Low	(L) Low	(M) Moderate	(H) High	(H) High
	Unlikely (2)	(L) Low	(L) Low	(M) Moderate	(H) High	(E) Extreme
	Moderate (3)	(L) Low	(M) Moderate	(H) High	(E) Extreme	(E) Extreme
	Likely (4)	(M) Moderate	(H) High	(H) High	(E) Extreme	(E) Extreme
	Certain (5)	(H) High	(H) High	(E) Extreme	(E) Extreme	(E) Extreme

Severity (S) ratings:

Insignificant - Near miss or very minor injuries addressed by in-house first aid treatment. Low financial loss.

Minor - Treatment by a medical doctor or at a hospital (as an out-patient). Medium financial loss.

Moderate - Significant non-permanent injury. Overnight hospitalisation required. High financial loss.

Major - Extensive permanent injury. Extended hospitalisation required.

Extreme - Death. Huge financial loss.

Probability (P) ratings:

Rare - An event that may take place in exceptional circumstances.

Unlikely - An event that is improbable to occur.

Moderate - Possibility that the event may occur at some time.

Likely - High possibility that the event may occur at some time.

Certain - Expected to occur at some time under most circumstances.

Risk ratings (RR):

Low (L) - Low risk to be managed by routine procedures.

Moderate (M) - Moderate risk whereby risk need to be reduced.

High (H) - High risk requiring urgent intervention.

Extreme (E) - Extreme risk requiring immediate intervention.

17. Assessment of risks

Reference	Hazard	Assessment without controls			Control measures	Assessment with Controls		
		P	S	RR		P	S	RR
1	Slips and trips	P3	S2	M	<ul style="list-style-type: none"> All workers must take reasonable care to avoid slipping or falling. All workers are required to give full attention to their surroundings during their work, especially in areas with the potential risk of falling from a height and when required to move close to rotating machinery. All surfaces are to be kept in good condition with minimal obstructions on floors. If any steps are present, these shall be kept in good maintenance and condition with hand rails in place. No cables, wires or other materials shall be left lying in the way of walkways and passageways without adequate protective covers. Where possible, electrical cords and wiring shall be routed in such a way as to avoid slips, trips and falls. Cables are to be protected by adequate means, such as cable ramps, against damage from vehicle traffic or raised at a safe height. Where possible C-rails and metal clamps or screw clamps shall be used for heavier cables. All other fastenings shall be executed using insulated wire or cable ties. Designated and segregated storage areas shall be decided upon and set up at ground level at the beginning of works. Where possible, debris shall be cleared from the site and carted away. Frequent inspections and cleaning practices shall be carried out by the Contractor in maintaining good housekeeping for the entire duration of works. All manholes and openings shall be suitably covered and / or surrounded by guardrails. Spills shall be cleaned as soon as is practicable in order to avoid creating a slip hazard. Drip trays will be placed underneath vehicles or any other mechanical plant as an interim measure in case of dripping oils, fluids or fuels. Absorbent material shall be kept on site to be used in the event of an emergency spill. Used absorbents will be treated and disposed of accordingly as hazardous waste. No material will be allowed to obstruct any of the internal routes, fire equipment or first aid stations at any time. 	P1	S2	L
2	Moving vehicles and	P3	S3	H	<ul style="list-style-type: none"> A good communication system with heavy plant operators and vehicle drivers shall be established. As far as is reasonably practicable, vehicle routes and pedestrian 	P2	S2	L

	machines				<p>routes shall be kept separate. If vehicle routes have to be accessed by pedestrians, workers shall signal to the vehicle or machine operator before crossing the driver's path. Banksmen wearing high visibility clothing shall be used during movement of heavy vehicles.</p> <ul style="list-style-type: none"> • Operators shall not use mobile phones when operating equipment. • Exclusion zones shall be set up around rotating machinery such as excavators or reclaimer equipment. A banksman shall be posted nearby to ensure that no person is allowed within the rotating machinery's turning radius. • Vehicles shall enter and exit the site through designated passageways. 'No unauthorised entry' signage shall be posted in visible locations. • Heavy vehicle drivers shall abide by the general traffic rules during transport of material. • Appropriate management arrangements shall be implemented in order to ensure the smooth circulation of vehicles to and from the site. Vehicle passageways shall always be left unobstructed. • All workers must abide by all safety signs posted on site and make correct use of the machinery used during site operations. • All plant operators shall have sufficient knowledge, training and experience to carry out the role. Plant operators shall be fully aware of their roles and duties they are assigned. • A safe system of work / works method statement shall be set up and followed in order for operations to be safe and successful. • No machines shall be allowed underneath locations where dismantling works are in progress. • All vehicles and machines used during site operations shall be properly maintained, inspected and serviced regularly. A maintenance and service schedule is to be established and maintained. • Machines used by the Contractor shall be suitable for the purposes of work on site. All machines shall be fitted with suitable guarding mechanisms, whenever practical. • Machines are to be used properly, in accordance with the manufacturer's instructions. • Workers shall move away and attend at a safe distance from low loader trucks and reclaimer equipment during loading / un-loading procedures. Vehicles used to transport material shall not be overloaded; loads shall be balanced, fully contained and properly secured within the vehicle. • All moving vehicles and machinery shall be equipped with automatically activated audible reversing beepers. 			
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					<ul style="list-style-type: none"> • Passengers must not be carried on vehicles unless the vehicle is designed for that purpose. • Manoeuvring areas shall be kept segregated and vehicle drivers shall not exceed 10km/hr when driving on Site. • Vehicle engines shall be switched off when not in use or left unattended. • Vehicles and machines shall in no way create additional risks to Site personnel, nor damage or unduly stress any other structure or installation. • The Contractor shall ensure that the appropriate safety distance from all live conductors is strictly observed by its personnel, particularly in regard to the installation and relocation of scaffolds and cranes, material transport and storage. Warning signs and exclusion zones shall be set up. The Contractor shall only proceed with works if a Permit to Work is issued by Enemalta. 			
3	Moving parts of machinery	P3	S3	H	<ul style="list-style-type: none"> • All workers shall keep out of the lifting equipments' jib turning radii. Lifting equipments' jib turning radii shall be cordoned off if and when required and/or a banksman posted nearby. • All machines shall be fitted with suitable guarding mechanisms, whenever practical. Any equipment with damaged or missing guards shall not be used. • Machines are to be used properly, in accordance with the manufacturer's instructions. • Any rotating components of machinery used on Site shall be securely guarded. Any unguarded moving parts of machinery must be immediately reported to the Site Management. No machinery with unguarded rotating parts shall be used on Site. • Only trained workers shall operate plant and machinery. Plant operators will inspect the machine before use and each worker will be responsible for his own health and safety and the health and safety of others whilst operating the heavy machinery. Heavy lifting equipment shall be mounted on solid ground with outriggers extended as required. Outrigger pads shall also be placed underneath the outriggers as necessary. 	P2	S2	L
4	Objects and parts with dangerous surfaces (sharp, rough, etc)	P3	S3	H	<ul style="list-style-type: none"> • Storage facilities shall be segregated and only authorised persons shall be allowed to access such areas. • Should dismantled components have dangerous, sharp or rough surfaces, the Contractor should make the necessary arrangements in order not to put workers at risk of injury. 	P2	S2	L

6	Hand-held tools	P4	S4	E	<ul style="list-style-type: none"> Non-ferrous tools shall be used in flammable atmospheres, if present, as far as is reasonably practicable. Spark-resistant tools made from aluminium, brass, wood or plastic will provide for safety. Insulated tools shall be used if there is a risk of contact with live electricity. Each and every tool shall be used for its intended purpose. No foul play will be permitted with any hand-held tool used on site. Tools shall be kept in good working condition. Power tools shall never be carried by the cord and never disconnected by pulling on the cord. Tools shall be disconnected when not in use, when being serviced and when changing accessories such as blades, bits, etc. Tool cords shall be kept away from heat, oil and sharp edges. Electric tools shall be stored in a dry place when not in use. Electric tools shall not be used in wet or damp conditions unless they are approved for that purpose. Plugs, sockets, outlets and couplers shall be of EN 60309 standard. Workers shall ensure that the cords of electric tools do not pose a tripping hazard. Workers shall not keep their fingers on the switch-on button of the tool in order to avoid accidentally starting the tool. All hand-held tools shall be inspected by the user prior to use for damaged or faulty wires, plugs, etc. If damaged tools are discovered, the tools shall be reported immediately and must not be used. Under no circumstance shall electrical repairs be carried out by workers not deemed to be a competent electrician. Abnormal body posture shall be avoided. Workers making use of tools are to adopt a safe stance and suitable balance at all times. All personnel required to use equipment shall have the necessary knowledge, training and experience to be able to operate the tools. Hand-held tools used for grinding works shall be fitted with suitable guards that cover the entire blade of the saw and a retractable lower guard. Power-induced hand-held tools shall be equipped with a constant pressure control. Blades shall be well maintained and the proper blade used for the material being cut. 	P3	S2	M
7	High pressure tools / machinery	P3	S2	M	<ul style="list-style-type: none"> All pipes, hoses and fittings shall have a rating of the maximum pressure of the air compressor. Hose ends must be secured in order to prevent whipping of the hose if an accidental cut or break occurs. 	P2	S1	L

					<ul style="list-style-type: none"> Compressed air shall only be used for its intended purposes. All components shall be maintained in a good state. Damaged components shall be removed and replaced immediately. The air compressor's shut-off valves shall be easily accessible and located as close as possible to the point of operation. Hoses shall not be allowed to cross walkways and passageways in order to prevent workers from tripping and falling. The air compressor shall be serviced regularly by a competent mechanical engineer and maintenance records kept and available for inspection. Visual checks shall be conducted by the user of the air compressor on all components and connections. Appropriate hearing protection shall be worn in close proximity to the air compressor. Equipment should not become overheated. 			
9	Hand-arm vibration	P3	S2	M	<ul style="list-style-type: none"> Ensure good ergonomics and avoid abnormal or uncomfortable postures. The right tool for the job shall be chosen. Workers shall allow the power tool to do the work by holding it with the slightest grip possible. Ensure correct operation of grinders and impact wrenches. Ensure that the grinding disk is kept sharp and that breaking activities are carried out at an intermittent pace. Job rotation mechanisms shall be considered if and when necessary. Vibrating equipment shall be maintained in good working condition at all times as per manufacturer's instructions. While the use of PPE is to be considered as a last resort, the use of anti-vibration industrial gloves is to be considered as mandatory when exposed to hazardous vibration levels. Legal vibration exposure limit values shall never be exceeded. 	P1	S2	L
10	Hot or cold climate	P3	S2	M	<ul style="list-style-type: none"> Workers exposed to hot temperatures are highly encouraged to drink water frequently and to take frequent, short breaks. In the event of improbable but possible extremely cold weather, workers shall wear suitable clothing with a waterproof outer layer and take proper rest periods. No works are to be carried out if working areas are exposed to bad weather conditions. Sheltering areas and adequate welfare facilities must be available for the workers employed on the Site. All workers shall be notified about any useful emergency contact numbers prior to commencement of works, most importantly 112. 	P1	S2	L

11	Manual handling / ergonomics	P3	S2	M	<ul style="list-style-type: none"> All workers shall be trained on the correct way of lifting heavy loads in accordance with Legal Notice 35 of 2003. Abnormal and uncomfortable body postures shall be avoided. A safe stance and proper body balance shall be maintained at all times. Workers shall not lift loads beyond their capacity. Workers are encouraged to seek help when a heavy load is to be moved. Precise information about the weight of loads shall be provided to the workers. If possible and reasonably practicable, loads are to be positioned close to the workstation in order to reduce the need to carry heavy loads over long distances. Workers shall ensure that no trip hazards are in the way while handling heavy loads and walking routes shall not be obstructed while carrying heavy loads. Where possible, mechanical assistance shall be provided. Where this is not reasonably practicable, ways of changing the task or spreading the load shall be looked into as an alternative. Workers shall be encouraged to use better manual handling techniques which rely more on the use of legs rather than on back muscles. Job rotation mechanisms shall be allowed. 	P2	S1	L
12	Environment	P3	S2	M	<ul style="list-style-type: none"> Areas beyond the site boundaries shall be kept in their original state of cleanliness. All loose dismantled material shall be stored in designated, segregated areas set up on site before such material is carted away off-site. All waste material shall be disposed of in the designated and corresponding waste receptacles properly. Where possible, workers are to reuse, reduce and recycle generated waste. Drip trays are to be placed underneath vehicles or any other mechanical plant as an interim measure in case of dripping oils, fluids or fuels. Spill kit material shall be kept on site to be used in the event of an emergency spill. A preventative maintenance approach should be adopted by the Contractor. No discharges to sea, of any type, shall be permitted. Airborne dust shall be minimised as far as is reasonably practicable. Safety data sheets shall be followed when handling chemical substances. 	P2	S1	L
13	Falls from heights	P3	S4	E	<ul style="list-style-type: none"> A fall prevention system by physical means shall be adopted at all times. Collective fall protection measures, including guard rails, scaffolds, secure work platforms, mobile elevating work platforms (MEWP) or cherry-pickers, safety nets, etc., have priority over individual fall protection measures. If a fall prevention system is defective, workers shall move away immediately, install clear warnings and seek to 	P2	S4	H

					<p>inform the Contractor's Management immediately for the necessary repairs to be made.</p> <ul style="list-style-type: none"> • All working platforms shall be fully decked. Guard rails, intermediate railings and toe boards shall be installed along all edges where there is a sheer drop height of two metres or greater. Installed edge protection along borders shall be made of suitable and secure material which is able to sustain the weight of any person walking close to it. • All manholes and openings shall be adequately covered and secured. • Where workers work on surfaces made of potentially fragile and / or unstable material through which it is possible to fall, preventive measures shall be taken in order for workers not to inadvertently walk on such surfaces. • Suspended platforms, such as man cages, shall be certified by a competent person before use. • Suitable ladders must be provided to workers to be able to access working platforms. Ladders shall only be used as access/egress routes and not as working stations. Ladders must be of sound material, free from defects and safely secured from the top to the structure and tied from the side rails rather than from the rungs. All ladders must extend by at least one metre above the landing floor. • Safety harnesses with fall restraint / arrest systems anchored to a suitable and secured anchor points are compulsory where works are performed near unprotected sheer drop areas of a height of two metres or more or if work is performed from a suspended platform such as a man cage. Suitable anchorage points, preferably at a height above the drop-off edge shall be chosen in order to reduce the fall distance and the pendulum effect. Workers shall receive prior information on the correct use of individual fall protection equipment. 			
14	Falling objects	P4	S4	E	<ul style="list-style-type: none"> • Lifting components of lifting machinery shall be certified by a competent engineer. • All workers shall move away from overhead suspended objects and shall approach with caution only when it is safe to do so. Exclusion Zones or the use of a banksman shall be set up accordingly. • No persons shall be allowed to stand underneath the load during manoeuvring or within exclusion zones. • The Site area shall be completely hoarded / fenced and no unauthorised access permitted. Floors below which dismantling works are being carried out must be completely closed off to prevent access due to the risk of falling objects from above. No workers shall stand within set up exclusion zones during works, unless authorised by the Site Foreman to do so and all necessary safety precautions have been taken. • Loads shall be properly secured and moved properly when lifted at a height. 	P2	S3	M

					<ul style="list-style-type: none"> • Work areas are to be kept clean and tidy at all times. • If works are carried out on work platforms located at a height, secured and solid guard rails, intermediate railings and toe boards shall be installed. • All material shall be stored at ground level in designated storage areas. No loose material shall be stored along walkways or working platforms which are located at a height. Hand tools are to be stored away from drop-off edges at all times. • No object shall be lifted along routes below of which or close to which live electrical cables are present. When in the slightest doubt, workers are not to move lifted objects on their own initiative but should check and confirm with the Site Foreman that the travelling route is safe and free of hazards. • When using the scissors excavator to cut large structures into smaller pieces, the area of works shall be cordoned off and ample space allowed for the working zone to prevent workers/visitors from being hit by potential shooting components during scissor cutting. 			
15	Fire	P3	S4	E	<ul style="list-style-type: none"> • Workers shall familiarise themselves with emergency response arrangements set up by the Contractor. • No smoking shall be allowed in enclosed areas or where flammable material will, or will likely be present. Smoking will only be permitted in designated areas within the Site. Cigarette butts are to be extinguished in designated buckets with lids filled with sand and labelled. A smoking sign shall be posted at the permitted area. • A sufficient number of fire fighting equipment, depending upon the nature and quantity of combustible material exposed, shall be made available on site during works. The fire fighting equipment shall be strategically located and easily accessible. Portable fire extinguishers shall have affixed a certification label and be annually tested by a competent person. A sufficient number of workers present on site shall be trained on the proper use of fire fighting equipment. • Records shall be kept for routine fire inspections and the maintenance and testing of fire fighting equipment, if applicable. • Temporary electrical systems, if any, must comply with legal standards and shall be protected from weather elements. An electrician shall be appointed to ensure that all necessary precautions have been considered when changes in electrical systems are made. The provision of fire arrangements shall also be considered when such changes are made. No hot cutting works shall be carried out on the HFO Pipelines as all cutting works will be carried out by means of cold cutting procedures and done manually. • Hazardous material such as fuels and oils are to be stored in designated locations within bunds. 	P2	S3	M

					<ul style="list-style-type: none"> • Refuelling of machines and mechanical plant, if any, shall be carried out when such machines are switched off and cold to touch. Appropriate measures shall be put in place for refuelling such as using a funnel or spout to avoid fuel spillages in the surroundings. An ABC dry powder or CO₂ fire extinguisher shall be readily available during refuelling procedures. • Flammable materials shall be stored in separate areas, protected from sources of ignition. Oil and solvent-soaked rags shall be stored and disposed of properly to prevent combustion fires. Suitable fire extinguishing equipment shall be maintained close to these storage areas. • The levels of flammability inside the HFO pipelines shall be tested before performing cutting works. • Emergency exit routes shall be kept clear and free from obstruction at all times. • An appointed employee on Site shall be responsible for coordination and evacuation from the Site. • Designated assembly points shall be situated at ground level and away from the Site. 			
16	Explosion	P2	S5	E	<ul style="list-style-type: none"> • Explosion hazards may be derived from but not limited to: <ul style="list-style-type: none"> ➢ Heavy Fuel Oil; ➢ Petrol; ➢ Cellulose-based paints; ➢ Aerosols; ➢ Diesel fuels; ➢ Mineral oil lubricants; ➢ Hydrogen flammable atmospheres; ➢ Carbon Monoxide. • In areas where flammable gases or vapours may arise in hazardous concentrations and their mixture with air could lead to explosions, measures for explosion protection shall be considered. • Adequate supervision shall be provided by the Contractor when works are undertaken in potentially explosive environments. • Oxy/fuel gas blow pipes shall never be used on a drum, pipe, or tank that has contained, or may have contained flammable material, unless gas tests confirmed that it is gas free and the sub-contractor responsible for removal of hazardous substances confirms that the drum, pipe, or tank is completely substance-free. • All explosive zones shall be posted with the applicable warning signs at their entry. Exclusion zones shall be set up and no unauthorised access allowed within in accordance with Annex II of Legal Notice 41 of 2004. 	P1	S3	M

					<ul style="list-style-type: none"> Any generated airborne dust or metal filings shall be removed with vacuums. Safety data sheets shall always be consulted beforehand and recommended safety measures followed when working in areas where chemical substances or gases are present. Workers shall be appropriately trained in explosion protection. Any escape and, or release, whether or not intentional, of flammable gases, vapours, mists or combustible dusts, which may give rise to explosion hazards must be suitably diverted or removed to a safe place or, if that is not practicable, safely contained or rendered safe by some other suitable method. Prevention of ignition hazards must also take account of electrostatic discharges, where workers or the working environment act as charge carrier or charge producer. Workers must be provided with appropriate working clothes consisting of materials which do not give rise to electrostatic discharges that can ignite explosive atmospheres. Equipment shall be chosen in respect of the manufacturer's manual in terms of the conditions it is intended to be used for. No electric power tools shall be used, although lighting shall be used using explosion proof light sources, with switches being isolated far away from the area of works. 			
17	Chemical substances (Hazmat)	P3	S3	H	<ul style="list-style-type: none"> All hazardous materials present within the areas of works shall be identified prior to demolition and/or dismantling. No demolition or dismantling works shall be carried out in areas unless chemical substances have been completely cleared from these areas. Safety data sheets must be readily available and shall be followed when handling chemical substances. Appropriate PPE shall be worn by all workers handling hazardous chemical substances as described in the Safety Data Sheet. Workers must be aware of the contents of the Safety Data Sheets. If any dust-creating equipment or process is used, workers shall opt for either dust collection devices or wetting down of material. Wetting down of material is only to be carried out in a safe environment free from electrical hazards. Disposal of chemical substances and hazardous material is addressed in the Waste Management Plan; such materials must be managed according to recommendations in this Plan. A lock/out – tag/out procedure shall be adopted and implemented at all times to ensure that the pipelines are isolated at the borders. Isolating valves shall be padlocked and safety signs attached in place nearby displaying the permit to work 	P2	S2	L

					number and a warning not to unlock or remove the isolating valves.			
18	Lack of security	P3	S2	M	<ul style="list-style-type: none"> All workers admitted to the Site shall report at Enemalta's Security Room near the main gate before entering. In this way, a roll call could easily be called out in the event of an emergency. Access to the Site shall be strictly controlled by Enemalta Plc. Sufficiently high temporary hoarding / fencing will be placed around the perimeter of the Site in order to prevent unauthorised access to work areas. Access to the demolition area around the turbine hall shed and the boilers shall be completely closed off during demolition. The fencing shall only be removed once the demolished material has been collected and carted away off-site. Access of staff not directly involved in the work is strictly prohibited. Areas of works shall be completely closed off when no works are carried out. 	P1	S2	L
19	Electrical installations	P4	S4	E	<ul style="list-style-type: none"> A thorough survey shall be carried out by Enemalta's engineers in order to identify all electrical distribution systems and that their respective routes are clearly marked and visible on site. Approval shall be obtained by the Contractor from Enemalta before the start of any works in order to ensure that no live electricity remains in areas close to dismantling / demolition works. Enemalta's engineers will be responsible for the cutting of cables and rendering them dead. If electricity routes cannot be cut off, isolated or re-routed, clear and visible warning signs shall be erected by the Contractor. No dismantling or demolition works, lifting procedures, are to be carried out close to live electrical cables for any reason. Workers shall ask somebody from the Contractor's Management Representatives if in doubt whether electrical cables are still live or not. A permit to work must be issued by Enemalta for the Contractor to be able to proceed with dismantling/demolition works. A lock-out/tag-out system shall be in place to prevent unauthorized start-up. If any electricity distribution boxes are used for the duration of works on Site, these shall be kept under the control of authorised persons and kept locked at all times. Distribution panels shall be properly and securely installed in a safe place on Site. Where special tools and equipment require a supply of 240V AC or above, a Residual Current Device (RCD) shall be provided by the Contractor and connected into the circuit. The RCD be checked in compliance with applicable laws. All electricity cables used on site for temporary electrical supplies must be in accordance to local standards and equipped with ELCB protection. Every cable must be in good condition and frequently inspected for cracks / fraying. Under no circumstance shall electrical repairs be carried out by workers not deemed 	P2	S3	M

					<p>to be a competent electrician. Only suitably qualified electrically skilled personnel shall be employed to work on electricity distribution systems.</p> <ul style="list-style-type: none"> Generators and electrical equipment present on site, if any, shall be tested regularly. No unauthorised access shall be permitted. Only trained individuals shall operate generators or other equipment present on site. No equipment shall be plugged in with power on. No cables shall be unplugged with electrical units running. 			
20	Noise	P2	S4	H	<ul style="list-style-type: none"> Noise suppressing attachments shall be added to noisy plant, as is reasonably practicable. Workers who are exposed to noise levels greater than 80dB shall wear appropriate PPE, such as ear defenders. The use of PPE shall be considered as the last resort when implementing measures to reduce the impact from noisy work environments. 	P2	S2	L
23	Lifting equipment and related risks	P3	S4	E	<ul style="list-style-type: none"> Machines are to be used properly, in accordance with the manufacturer's instructions. Lifting components of lifting machinery shall be certified by a competent engineer. All lifting machinery shall be certified by a competent and warranted mechanical engineer once every twelve months whilst lifting slings, chains, tackles, etc shall be certified once every six months, as required by local occupational health and safety legislation. Hard copies of such certificates are to be kept by the Contractor on Site in the H&S file. The manufacturer's instructions shall be followed in determining the safe working loads of identifiable hooks. The use of open hooks without a safety latch is prohibited. All lifting equipment must be clearly indicated with the maximum permissible load it is able to carry, at various radii. All lifting equipment shall be only allowed to work within the required set limits. Lifting equipment, also including any slings to be used, their fastenings and fittings, shall be inspected daily before use and kept in good working condition. Heavy lifting equipment shall be mounted on solid ground with outriggers extended as required. Outriggers shall be mounted onto outrigger pads in order to enhance stability if necessary. Workers shall not operate cranes or other lifting equipment unless they are qualified to do so. Crane operators shall be assisted with signallers and slingers at all times. Slingers shall ensure that the load is safely secured before lifting commences. Signallers shall ensure that no workers are standing underneath overhead lifted 	P2	S3	M

					<ul style="list-style-type: none"> loads. Lifting equipment shall not be used during significantly windy weather conditions, when instructed by the Site Management. Tag lines shall be used when moving loads by means of lifting equipment, if possible. The Contractor shall ensure that the appropriate safety distance from all live conductors is strictly observed by its personnel, particularly in regard to the installation and relocation of lifting equipment, material transport and storage. No object shall be lifted along routes below which or close to which live electrical cables are present. When in the slightest doubt, workers are not to move lifted objects on their own initiative but should check and confirm with the Contractor's Site Management that the travelling route is safe and free of hazards. No persons shall be allowed to stand underneath the load during manoeuvring. 			
26	Works in water or damp conditions	P3	S3	H	<ul style="list-style-type: none"> No electrical equipment shall be used in damp conditions. Insulated tools shall be used at all times. Insulated gloves shall be worn as a precaution when operating electrical equipment. Cordless tools and tools with lower voltages are to be used if wet conditions are present. If possible, works shall be carried out in dry locations. If this is not possible, then adequate precautions shall be taken in preventing hazards resulting from works in damp conditions. 	P1	S1	L
27	Adverse weather conditions	P4	S2	H	<ul style="list-style-type: none"> Weather forecasts shall be checked before carrying out any work on site and changes monitored during the day. No mechanical plant which includes, but is not limited to, cranes and lifters, shall be operated during adverse weather conditions when lightning is present or in significantly windy conditions. Thunder is to be considered as a warning. No dismantling or demolition works are to be carried out when workers are exposed to inclement weather. 	P2	S2	L
28	Signage	P4	S3	H	<ul style="list-style-type: none"> The Contractor shall attach an occupational health and safety sign board for construction sites to designated entry point/s of the work area. The Contractor shall attach a notice board as stipulated by Schedule I Paragraph I of the Environmental Management Construction Site Regulations (Legal Notice 295 of 2007). All occupational health and safety signs shall be clearly visible as required by Legal Notice 45 of 2002. During demolition works, 'no unauthorised access' signs shall be attached to clearly 	P2	S2	L

					visible locations along the boundary fencing.			
30	Lack of first aid arrangements	P4	S3	H	<ul style="list-style-type: none"> The Contractor shall ensure that workers have rapid access to first aid whenever needed. Stocked first aid boxes shall be made available in a strategic place on site as required by Legal Notice 11 of 2002. One first aid box shall cater for fifty persons employed on Site and additional first aid boxes provided for every fifty persons further employed. The first aid box shall be well maintained; items replenished or replaced when used or expired respectively and should be water and dust proof. A first aid room already set up at the Enemalta Site will be used in the event of an emergency. If tap water is not available, the Contractor shall provide a supply of sterile water or sterile normal saline in disposable containers. At least one qualified first aider per fifty employees shall be present on site during works. In exceptional cases when qualified first aiders are not available on site, the Contractor shall nominate a designated person to take charge of emergency procedures in the event of an accident. 	P2	S2	L
31	Lack of Personal Protective Equipment (PPE)	P3	S3	H	<ul style="list-style-type: none"> Appropriate and suitable PPE shall be provided by the Contractor to all employed workers on the Project, free of charge. Workers shall wear PPE when required. PPE shall be well-maintained and properly stored. All PPE must be CE marked and meet all EN standards. Safety footwear (with mid-sole and toe cap), high visibility clothing and hard hats are to be worn by all workers at all times. Task-related PPE is included in the following non-exhaustive list: <ul style="list-style-type: none"> ➤ Safety glasses to be used when cutting material, during power washing activities, when working close to cutting operations, when exposed to direct sunlight or when exposed to dusty draught; ➤ Hearing protection to be used in noisy environments, if any; ➤ Safety gloves to be used when handling material and when operating electric tools; ➤ Full face masks to be worn during hot works; 	P2	S3	M

					<ul style="list-style-type: none"> ➤ Flame-resistant clothing including heavy, long-sleeved shirt and/or leather aprons and /or leather sleeves for additional protection; ➤ Respiratory Protective Equipment in work environments concentrated with dust, fumes, vapours, or gases; ➤ Impermeable gloves to be worn when working with irritant or corrosive chemicals, if any, and during power washing activities; and ➤ Full body safety harness to be used when working at height and edge protection cannot be installed or if working inside a confined space. <ul style="list-style-type: none"> • Legs shall be entirely covered at all times. • PPE is to be used as a last resort and when no other reasonable practicable measure can be taken. 			
33	Demolition / dismantling works	P5	S5	E	<ul style="list-style-type: none"> • Demolition works shall be carried out in accordance with building standards and codes. • Enemalta Plc's competent persons will be informed in advance by the Contractor prior to dismantling and demolition works in different areas and / or of different elements. These shall issue official clearance in writing that the area is service cleared and safe to work in. The Contractor's structural engineer / architect in charge must ensure and certify that there is no danger of structural instability or collapse of walls to all areas prior to demolition and dismantling works. • In the event of structure deformation or if any unexpected movement is noticed, demolition / dismantling works shall be immediately suspended until the field engineer is consulted and a decision taken by himself on the best way forward. • Floors shall never be overloaded beyond their sustainable weight load capacity. • When dismantling / demolishing staircases, it must be ensured that a second staircase is available to be used in an emergency. • All services should be identified prior to demolition and dismantling works. • All persons employed to carry out dismantling and demolition works should be competent in the job they are expected to carry out and such works are to be well planned. Demolition and dismantling works shall be carried out under the supervision of a competent person such as an architect or engineer or site foreman or H&S representative. • A safe access and egress route shall be maintained on Site at all times during demolition works. • Dismantling of pipelines is to be carried out in such a way as to ensure that cut segments are secured without any risk of unforeseen collapse. Any openings shall be immediately boarded over in such a way that they are able to sustain the weight of any person walking over it. Dismantling of pipelines is to be systematic and 	P3	S3	H

					<p>sequential. No demolition or dismantling works are to be carried out if workers are exposed to inclement weather conditions.</p> <ul style="list-style-type: none"> • Areas where demolition works are in progress shall be completely hoarded in order to prevent unauthorised access. Preferably, heras fencing is to be used in order to border exclusion zones. • Parts of the roads close to the areas of works will be closed during the dismantling. Only access for workers will remain accessible at all times. • Signs warning persons about ongoing demolition works shall be posted in various parts of the Site, particularly at the Site entrance. • No lone worker works and situations are permitted. 			
34	Welfare / sanitary facilities	P1	S3	M	<ul style="list-style-type: none"> • A suitable number of toilet, welfare, and hygiene facilities shall be provided by the Contractor. • Welfare facilities must include the following: <ul style="list-style-type: none"> ➢ Basin/s or sink/s large enough for workers to wash their face, hands, and forearms; ➢ A supply of hot or warm and cold running water; ➢ Soap and towels or dryers; ➢ A rest room; and ➢ Mobile toilets. 	P1	S1	L
35	Smoking / consumption of alcohol	P2	S3	M	<ul style="list-style-type: none"> • No smoking shall be allowed in enclosed areas or where flammable material will, or will likely be present. Smoking will only be permitted in designated areas within the Site. Cigarette butts are to be extinguished in designated buckets with lids filled with sand and labelled. A smoking sign will be posted at the permitted area. • It is strictly prohibited for employees to enter the Site under the influence of alcohol / drugs. Alcohols and drugs shall not be consumed on Site in any circumstance. 	P2	S1	L

18: Permits required			19: Training certificates required		
	Yes	No		Yes	No
Confined Space Entry		X	Scaffold		X
Hot works		X	Fork lift	X	
Excavation		X	Crane operator	X	
Tower crane erection		X	Excavator / Sheer cutting machinery	X	
High voltage equipment		X	Electrician		X
Access riser shafts		X	Welders		X
Use of harnesses	X		Mobile elevating platform		X
Permit to access		X	Divers		X
Demolition	X		Others		X
Works in an occupied building		X			
20: Personal Protective Equipment			21: Further risk assessments required		
	Yes	No		Yes	No
Safety helmet	X		Asbestos		X
Safety boots or Protective footwear	X		Hazardous substances	X	
High visibility vest or jacket	X				
Eye protection	X				
Safety gloves	X				
Knee caps		X			
Hearing protection	X				
Full body safety harness	X				
Full face welding mask	X				
Heat resistant gloves	X				
Wet suit		X			



22: Emergency arrangements	
Any first aid measures	Any rescue / security measures required
<p>In case of an injured person, the emergency services must be contacted on 112.</p> <p>A log of all accident and near misses shall be kept at the Site offices by the Contractor.</p> <p>The first aid box is located in the Site offices.</p> <p>A first aider is to be present on Site at all times during works.</p> <p>The name and contact number of the designated first aider/s must be posted on Site in visible locations.</p> <p>The aims of a first aider are:</p> <ul style="list-style-type: none"> • To minimise injury and complications; • To recognise life threatening situations; • To call for medical assistance; • To supply artificial ventilation when required; • To control bleeding; • To prevent infection; and • To comfort the victim 	<p>In case of fire or in the case of an emergency, the emergency services must be contacted on 112.</p> <p>A log of all accident and near misses shall be kept at the Site offices by the Contractor.</p> <p>A suitable amount of fire extinguishers must be kept on Site at all times.</p> <p>In case of a work accident, the following procedure must be followed:</p> <ul style="list-style-type: none"> • Stop working; • Clear the work area and make it safe; • Call for help; • Ensure that the injured person/s are not in further danger; • Ensure that other persons do not interfere with injured persons or rescue services or expose themselves to danger; and • Debriefing and accident reporting.

23: Declaration:

This is to declare that En-Sure Ltd have prepared this occupational health and safety risk assessment for General Smontaggi for their works that will include dismantling of the HFO Pipelines as part of the decommissioning of the Delimara Power Station – Phase 1.

It is the responsibility of General Smontaggi to ensure that all the necessary control measures listed within this Document are implemented.

General Smontaggi must also ensure that the findings of this risk assessment are explained to all workers appointed on the Project, including sub-contractors and authorised third parties that may visit the area of works.

24. Prepared by:	Name: Steven Treeby Health & Safety Officer obo En-Sure Ltd	Signature: 	Date: 26/06/2017
25. Reviewed by:	Name: Rachel Xuereb Director obo En-Sure Ltd	Signature: 	Date: 26/06/2017
26. Contractor's representative:	Name: Mario Sabolo Contractor's representative obo General Smontaggi	Signature:	Date: <div>Page 29</div>

27. PSDS/PSCS:	Name: Malcolm Falzon PSCS obo Enemalta	Signature:	Date:
28. Electrogas Malta's representative:	Name:	Signature:	Date:
29. D3PG's representative:	Name:	Signature:	Date: