

Environmental aspects identification and evaluation - Direct Aspects - DPS

Environmental aspects	Environmental impacts	Activities, process	Data and information; evaluation criteria	N/A/E	Notes, comments, useful information	Improvement opportunities	Evaluation criteria								accidents (frequency x severity)	TOTAL	S/NS	Expected EMS reactions			
							Legal requirements	Interested parties concern	Relevance and vulnerability	Improvements opportunities	Availability of data	TOTAL	S/NS					Procedures	Training	Monitoring	Improvements
Fuel Consumption	Resource Depletion	Burning of fuel to produce electrical energy, Calculation of fuel used and plant thermal efficiency	Competent Person: Station Manager 1. Legal requirement: None 2. Concern: Enemalta, MRA 3. Relevance and vulnerability : Considerable consumption of resources 4. Possibility of improvement: Yes 5. Availability of data: Plant Generation report	N	See Annual Environmental Report	1. Interconnector Cable to Sicily on line 2. Marsa Power Station Shut Down on cold stand by 3. Decommissioning of D 1 at DPS	1	3	4	2	1	11	S							Fuel consumption is measured and recorded. Generation report shows the fuel consumed per boiler. Efficiencies of boiler and turbine are continuously measured to keep each boiler and/or turbine operating with the highest efficiency possible. At DPS On D 3 efficiencies are monitored per train.	1. Reduction of fuel consumption due to a higher efficiency on D 3 engines 2. Loaded interconnector
Electric Energy Consumption	Global warming & Air Emissions	Electricity consumption used in plant (Units used in plant) to drive pumps, machinery, lightning in plant	Competent Person: Station Manager 1. Legal requirement: None 2. Concern: MRA, ERA 3. Relevance and vulnerability: Energy needed to drive the plant machinery is quite substantial 4. Possibility of improvement: Yes 5. Availability of data: Units used in plant records and generation report	N	See Annual Environmental Report	1. Converting the D3 plant at DPS to LNG 2. Interconnector Cable to Sicily is on line 3. Shut down Marsa Power Station Decommissioning of Phase 1 at DPS	1	3	2	2	1	9	S							Units used in plant in Kwh are measured daily and recorded	1. Electricity reduced due to installation of High Efficiency Motors on Phase 1 at DPS 2. Electricity consumption reduced by shifting all load from MPS to DPS, since the auxiliary equipment on D3 is demand controlled
		Electricity consumption used in administration building and offices	Competent Person: Station Manager 1. Legal requirement: None 2. Concern Enemalta itself is concerned with respect to energy units consumed in administration building and offices 3. Relevance and vulnerability: Consumption is reasonable 4. Possibility of improvement: Minimal 5. Availability of data: Electricity meter readings	N	See Annual Environmental Report	1. Minimal improvements possible in Administration Building maybe better usage of electricity through education Note: Energy audits will be carried out if energy consumption readings are high to identify those areas with high consumption. Energy saving equipment will be installed especially for areas with high consumption.	1	2	2	2	1	8	S							Electricity meter reading is recorded every month and the monthly electricity consumption is calculated.	
Water Consumption	Resource Depletion	Domestic use in administration buildings and offices and workshops	Competent Person: Station Manager 1. Legal requirement: None 2. Concern: Enemalta itself is concerned with respect to water consumption in administration building and offices 3. Relevance and vulnerability: Consumption is reasonable 4. Possibility of improvement: Yes 5. Availability of data: Water meter readings	N		1. Use of harvested rain water for irrigation and other second grade applications	1	2	2	3	1	9	S							Water meter reading is recorded every month and the monthly consumption is being plotted and the trend for water consumption is being analysed	
Consumption of chemicals	Chemical consumption	Chemicals used for general maintenance	Competent Persons: Maintenance Engineers (Mechanical) 1. Legal requirement: None 2. Concern: Economical concern as regards to expenditure for chemicals 3. Relevance and vulnerability: Releases to the environment is proportional to consumption 4. Possibility of improvement: Reduce consumption 5. Availability of data : issues of chemicals from a specified category over a defined period of time from SAP	N		1. By converting the D 3 plant at DPS to LNG less chemicals will be used since this will require less frequent cleaning and boiler washing	1	2	3	3	1	10	S							Quantity of chemicals (kgs or ltrs) issued from stores (obtained from SAP)	
		Chemical dosing for plant operations - treatment for boiler water pH and antiscaling	Normal Conditions Competent Person: Operations Engineers 1. Legal requirement: None 2. Concern: Economical concern as regards to expenditure for chemicals 3. Relevance and vulnerability: Releases to the environment are proportional to consumption 4. Possibility of improvement: Reduce consumption 5. Availability of data: Yes - issues of chemicals from a specified category over a defined period of time can be extracted from SAP Emergency Conditions Frequency of occurrence Remote probably never Severity Moderate impact	N/E	New Chemicals were introduced on D3 as antifoaming and antiscaling agents for cooling water circuits	1. Decommissioning of D1 will bring a considerable decrease in antiscaling agents	1	2	3	3	1	10	S	1x3	3	NS	Trisodium phosphate is mixed with Sodium hydroxide to obtain the required pH level for boiler water. This produces magnetite which prevents boiler corrosion. The pH level of this solution is monitored. Boiler blowdown valves are opened during startup and cranked during operation.			Quantity of chemicals (kgs or ltrs) issued from stores (obtained from SAP)	
		Chemical dosing for plant operations - condenser antifouling	Competent Person: Operations Engineers 1. Legal requirement: None 2. Concern: Economical concern as regards to expenditure for chemicals 3. Relevance and vulnerability: Releases to the environment is proportional to consumption 4. Possibility of improvement: Reduce consumption or use alternatives less dangerous chemicals 5. Availability of data: Yes - issues of chemicals from a specified category over a defined period of time can be issued from SAP	N	There was a considerable increase in antifouling since the commissioning of Phase 3	1. Decommissioning of D 1 will bring a considerable decrease in antifouling	1	2	2	3	1	9	S				On Phase 3 the dosing rate is set to automatically maintain a level of <0.3ppm at condenser outlet			Quantity of chemicals (kgs or ltrs) issued from stores on a 3 monthly period	
		Chemical process- SOx and NOx abatement (for new diesel plant)	Competent Person: Operations Engineers 1. Legal requirement: None 2. Concern: Economical concern as regards to expenditure for chemicals 3. Relevance and vulnerability: Releases to the environment is proportional to consumption 4. Possibility of improvement: Decrease the overall consumption 5. Availability of data: Chemical consignment documents	N	Incase of emergency when the abatement is bypassed the consumption of Urea and SBC decrease while the SOx and NOx emissions increase	1. The conversion of D 3 to LNG will reduce the consumption of Urea and SBC	1	2	2	3	1	9	S				SOP38 Failure of Diesel Engines Plant Emissions Abatement Equipment			Weighing in of consignments	
		Stack Emissions (Particulates, SOx, NOx and Ammonia from Phase 3)	Normal Conditions Competent Person: Operations Engineer & Maintenance Engineer (Electrical) 1. Legal requirements: IPPC, NEC 2. Concern: ERA, 3rd party concern, Enemalta 3. Relevance and vulnerability: Extremely vulnerable may create significant environmental impacts 4. Possibility of improvements: Yes 5. Availability of Data: CEMS reports Emergency Conditions Frequency of occurrence: Might happen Severity: Limited environmental damage for a short time	N/E	See Annual Environmental Report	1. Decommissioning of D 1 at DPS 2. The conversion of D 3 to LNG	2	3	3	3	1	12	S	3x1	3	NS	SOP37 Continuous Emissions Monitoring System (CEMS) Installation, Operation & Maintenance, SOP38 Failure of Diesel Engines Plant Emissions Abatement Equipment			Continuous Emission Monitoring system continuously monitors the levels of Sulphur fuel Particulates and CO, O2, NOx & SOx concentrations (mg/Nmc) in the flue gas at the stack. Records keeping and reporting to MEPA as per IPPC permit Automatic calibration of CEMS Air/fuel ratio is continually monitored by boiler operator on Phase 1.	1. Decrease of SOx decreased due to use of low Sulphur fuel 2. The amount of both SOx and NOx decreased due to shifting of load to D3 working on abatement 3. Shifting of load to Sicily Malta interconnector while making use of renewable energy

Atmospheric Emissions	Air pollution	Stack Emissions (Particulates, SOx, Nox, Ammonia from Phase 3) during start-up and shut-down	Anomalous Condition Competent Person: Operations Engineer & Maintenance Engineer (Electrical) 1. Legal requirements: Regulated by IPPC & NEC 2. Concern: ERA 3. Relevance and vulnerability: Not vulnerable. Minimum pollution time-limited 4.Possibility of improvements: No 5. Availability of Data: Registration of start-up and shut down occurrences	A	Startup and Shutdown periods regulated by IED		2	2	1	1	1	7	NS							
		Emissions from welding and machinery (exhaust fumes, and particulates)	Competent Person: maintenance 1. Legal requirement: IPPC 2. Concern: No concern 3. Relevance and Vulnerability: Minor 4. Possibility of improvement: None 5. Availability of information: Qualitative information	N			2	1	1	1	2	7	NS							
Green house gas emissions	Global warming	Fuel combustion - CO ₂ emissions	Competent Person: Operations Engineer & Boiler Operator 1. Legal requirement: MRA GHG Emissions Permit 2. Concern: 3rd party concern (NGOs), MRA, Enemalta 3. Relevance and vulnerability: Financial concern (ETS) 4. Possibility of improvement: Yes 5. Availability of data: GHG Emissions Annual Verified Report	N		1.Energizing of Interconnector Cable to Sicily 2.Closing down of Marsa Power Station 3.Decommissioning of D 1 at DPS	2	3	3	3	1	12	S				SOP34 Monitoring & Reporting Procedures for Greenhouse Gas Emissions, SOP37 Continuous Emissions Monitoring System (CEMS) Installation, Operation & Maintenance		CEMS (Continuous Emissions Monitoring System) and automatic control systems of plant	1. A decrease in GHG emissions due to shifting of load from MPS to DPS 2. A decrease of GHG emissions due to D 3 in operation 3. A decrease of GHG emissions due to Interconnector in operation
		Operation and maintenance of High voltage switchgear - SF ₆ leakages or explosion of switchgear	Competent Person: Operations and Maintenance Engineers (Mechanical) Normal Conditions 1. Legal requirement: MRA GHG Emissions Permit, LN 93/2010 2. Concern: Authorities MRA, MEPA 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: No Availability of data: Annual SF ₆ gas consumption report Emergency Conditions: Explosion of switchgear during switching Frequency of Occurrence: Extremely unlikely may happen once in a lifetime of the switchgear Severity: may cause significant environmental damage	N/E	See Annual Environmental Report More SF ₆ containing switchgear was installed as part of the Phase 3 SF ₆ losses are usually incurred during planned maintenance procedures or under exceptional circumstances (switchgear explosion)		2	3	3	1	1	10	S	2x4	8	S	SOP11 Maintenance of Equipment Containing SF ₆ and Management of leak control; SOP 16 Operations SF ₆ management and leaks control	Maintenance personnel are trained and certified to handle and recover SF ₆	Daily monitoring of SF ₆ gauges; Reporting annual consumption of SF ₆ gas to MRA and to ERA as per IPPC permit.	
Loss of Ozone Depleting Substances	Ozone layer depletion	Maintenance of airconditioning units	Competent Person: Manager Estate Management & Station Manager Emergency Conditions Frequency of Occurrence: Reasonably likely especially on old A/C units Severity: Limited environmental damage	E	The majority of units containing R22 have been replaced and remaining units are not being used unless in emergencies.	Remaining units are being replaced in the near future								3x2	6	S	SOP 31 Maintenance of airconditioning units for DPS		Airconditioning Units Inventory	Air conditioning units containing ODS gases are being phased out according to a plan
Electromagnetic Frequency radiation	EM waves pollution	Electric energy distribution (transformation)	Competent Person: Maintenance Engineers (Electrical) 1. Legal requirement: No local legislation concerning EMF radiation however reference is made to EU Directive 2013 / 35 / EU of 29th June 2013 2. Concern: Employee concern 3. Relevance and vulnerability: Minimum pollution 4. Possibility of improvement: No 5. Availability of data: Yes report issued giving measurements taken at various locations across the plant	N	Electromagnetic radiation readings were taken at strategic points in the plant such as near transformers, control room, underground cables, etc A report ref EMF/DPS/2014 dated 28 May 2014 was issued. The EMF readings obtained and the conclusions show that the EMF levels were very low and hence there was no concern. This exercise will be repeated for the new Delimara Development.		2	2	1	1	1	7	NS							
Noise & Vibrations	Sound pollution	Plant and machinery	Competent Person: Station Manager 1. Legal requirement: IPPC 2. Concern: ERA,neighbour concern, local councils 3. Relevance and vulnerability: Minimum pollution no sensitive areas close to power station 4. Possibility of improvement: No 5. Availability of data: Yes Consultant's report	N			2	3	1	1	1	8	S						Annual Noise measurement and assessment carried out by 3rd party according to BS4142:1997; Level of noise emitted from the installation at all operational times does not exceed the background noise level by 5dB, excluding during the use of emergency sirens, alarms and during start-up Noise survey carried out by 3rd party annually	
		Evaporator discharge and condenser/plant cooling	Competent Person: Evaporator operator 1. Legal requirements: IPPC 2. Concern: MEPA, NGOs 3.Relevance and vulnerability: Minor pollution 4. Possibility of improvement: No 5. Availability of data: Sea water discharge Analytical reports and temperature recordings	N	All water discharges from different plants (Phase 1, Phase 2B, Phase 3 and Evaporators) exit at the sea water outfall. On Phase 3 the maximum temperature differential (8 deg.C) required in the permit is automatically controlled at the plant.		2	3	1	1	1	8	S				SOP40		pH readings of outlet will be monitored and recorded; Sea water samples are taken from outflow where we are discharging to the sea on a quarterly basis and tested by a third party laboratory; Reporting to MEPA as per IPPC permit	

Water discharge	Seawater pollution	Demineralising plant's neutralising pit discharge	Competent Person: Demineralisation Plant Operator 1. Legal requirement: IPPC 2. Concern: ERA, NGOs 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: No 5. Availability of data: pH and temperature readings	A	Filters used in the demineralisation process are regularly regenerated with sulphuric acid (4%) and caustic soda (4%). The effluents resulting from this process are directed to a neutralising pit. The neutralized effluent is discharged to the outflow to the sea. Discharges resulting from acid cleaning of the evaporator heat exchanger tubes to remove calcium carbonate is also transferred to the D/M neutralizing pit.		2	3	2	1	1	9	S				SOP40 Monitoring of Emissions to Marine Water Installation Discharge Water Sampling, Analysis and Reporting Requirements		Regular verification of pH readings registered by the automatic pH measurement equipment; Testing of samples taken from outflow on a 3 monthly basis and reporting to ERA as per IPPC permit	
		Boiler washing pit/ Boiler washing tanks	Competent Person: Maintenance Engineer (Mechanical) 1. Legal requirements: IPPC 2. Concern: MEPA, NGOs 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: Low-margin improvement 5. Availability of data: Sea water discharge Analytical reports and temperature recordings	A	Boiler washing effluent is contained and neutralised with caustic soda. The pH of the resulting effluent is tested at various intervals. When the pH is confirmed to be neutral the effluent is discharged to the sea. Phase 3 boiler washing effluent is neutralised during process and either evaporated or disposed of through a licensed contractor.	Evaporate most/all Boiler Washing effluent When converted to LNG the plant will require less frequent Boiler Washing. Decommissioning Phase 1 plant	2	3	3	2	1	11	S				SOP 24 Discharge of Treated Waste Water from Boiler Wash Down Neutralising		Monitoring of pH of effluent before discharging	
		Boiler blowdown/boiler drainage (boiler is emptied when plant is shutdown for maintenance 1-3 times a year)	Competent Person: Maintenance Engineer (Mechanical) 1. Legal requirements: IPPC 2. Concern: MEPA, NGOs 3. Relevance and vulnerability: The procedure is operator controlled 4. Possibility of improvement: Low-margin improvement 5. Availability of data: Sea water discharge Analytical reports and temperature recordings	A	Boiler water is dosed with a mixture of Trisodium phosphate and Sodium Hydroxide in order to obtain the necessary pH level to help in the formation of magnetite to avoid boiler corrosion. Boiler valves are open during startups and cracked during operation. Boiler water pH is maintained between 9-10.	Decommissioning of Phase 1 plant	2	3	1	1	2	9	S				SOP40 Monitoring of Emissions to Marine Water Installation Discharge Water Sampling, Analysis and Reporting Requirements			The decommissioning of Phase 1 plant will see the removal of 2 large steam boilers and a considerable decrease in boiler bowdow
		Drainage of bunds for HFO, Diesel Tank Areas and Phase 3 Service tanks	Competent Person: Maintenance Engineer (Merchanical) 1. Legal requirements: IPPC 2. Concern: MEPA, NGOs 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: Low-margin improvement 5. Availability of data: Sea water discharge Analytical reports and temperature recordings	A	Drain valves are normally kept closed. They are opened only to drain water after heavy rainfalls which are not so frequent in Malta. The resulting water will flow through the polishing interceptor where any traces of oil are separated from the water and left in the interceptor before the water can flow out to the sea.	Conversion to LNG and hence use of HFO is discontinued Phase out of Phase 1	2	3	3	2	2	12	S				SOP17 Tank Area Bund Wall Inspection; SOP9 Interceptor cleaning; SOP10 Interceptor inspection SOP 30 Interceptor Maintenance		Interceptor inspection per shift; 3rd party annual inspection of tank bund walls	
		Overflow of interceptors to the sea	Competent Person: Operations Engineer Frequency of occurrence: Unlikely but may happen once in a lifetime Severity: causes severe environmental damage	E	Bund drains interceptor, Drain cooling interceptor and Phase 3 interceptor all discharge into a final stage (polishing) interceptor before being discharged into the sea. See Annual Environmental Report	Installation of surface oil film detector and alarms on polishing interceptor								2x4	8	S	Emergency plan for oil spills SOP10 Interceptor Inspection		Polishing interceptors oil film detector. Phase 3 filtration and 5ppm oil detector. Interceptor inspection checklist per shift	After the installation of the oil film detectors the probability that oil reaches the sea is minimal
		Storm water runoff from contaminated areas, including boiler area, turbine hall, including waste site	Competent Person: boiler operator/ waste site coordinator 1. Legal requirement: IPPC 2. Concern: MEPA, local councils, NGOs 3. Relevance and vulnerability: Small pollution 4. Possibility of improvement: No 5. Availability of data: Yes checklists	A	Waste site drain to oily water interceptor is fitted with isolation valve and normally in closed position. See Annual Environmental Report	Installation of surface oil film detector and alarms on waste site interceptor	2	3	2	2	1	10	S				SOP10 Interceptor Inspection		Interceptor inspection checklist per shift	After the installation of the oil film detectors the probability that oil reaches the sea is minimal
		Storm water runoff from uncontaminated areas	Competent Person: - 1. Legal requirement: IPPC 2. Concern: No concern 3. Relevance and vulnerability: Not Vulnerable 4. Possibility of improvement: No 5. Availability of data: Yes	A			2	1	1	1	1	6	NS							
		Urea Mixing Tank bund	Emergency Conditions: Frequency of Occurrence: Not likely Severity: Oxygen depletion in seawater in the possibility of large amount of sea water in urea.	E	The urea tanks are bunded and hold at least the whole content of the tank.									1x2	2	NS				
		Discharge to sewer	Competent Person: Civil engineer 1. Legal requirement: IPPC 2. Concern: WSC 3rd party 3. Relevance and vulnerability: Minimal Pollution (Sewer Contamination) 4. Possibility of improvement: No 5. Availability of data: Yes	N	Permit is issued from Water Services Corporation for the use of the main sewage system as per IPPC permit. Sewage is collected into a cesspit and discharged into the village sewer by means of automated pumps. There are two automatic systems, one standby and one running.		2	2	1	1	1	7	NS							

Chemical spills	land/soil/water/sea pollution	Chemical spills during boiler/turbine dosing by operations	Emergency Conditions Frequency of occurrence: reasonably likely Severity: minimal impact due to the small amount (few kilos) of potential chemical spill	E											3x2	6	S	SOP23 Chemical Procurement, storage and handling	Training in Chemical handling	Weekly monitoring checklist of chemical areas	
		Chemical spills during turbine cooling dosing	Emergency Conditions Frequency of occurrence: Extremely unlikely Severity: Moderate	E	Antifouling for turbine cooling water is done by means of Chlorine dioxide. This is generated in situ and quickly decomposes with time. However ClO ₂ is generated in situ under water by mixing hydrochloric acid and biocaf. Both chemicals have adequate storage areas which are bundled.										2x3	6	S	SOP DPS 23 Chemical Procurement, Storage and Handling	Training in Chemical handling	Weekly monitoring checklist of chemical areas Checking for concentration at condenser outlet	
		Incorrect handling of chemicals during transport and general maintenance	Emergency Conditions Frequency of occurrence: can happen once a year Severity: moderate	E	Transportation of chemicals is done by IBC's or containers (25l-200l capacity)										3x2	6	S	SOP23 Chemical Procurement; Storage and handling	Training in chemical handling Training for using forklifters		
Oil spills	land/soil/water/sea pollution	Transfer of fuels from tanker to tank farm	Competent Person: Tank Area Operator Frequency of Occurrence: May happen once in a lifetime of installation Severity: Signifcant environmental damage	E	Installation of isolation couplers on lines for diesel oil Phasing out of HFO										2x4	8	S	SOP28 Fuel Transfer Lines Management and Inspections; Emergency plan for oil spills	Training in Emergency response	Pressure tests are carried out periodically on fuel unloading line. Transfer operation monitored ny operator.	This procedure will be carried out on Diesel Fuel only when the HFO is phased out. Diesel fuel will be a secondary fuel source. The main fuel will be LNG.
		HFO or diesel oil storage (Tank farms)	Competent Person: Tank Area Operator Frequency of Occurrence: May happen once in a lifetime of installation Severity: May cause significant environmental damage	E	Installation of level gauges on fuel tanks. An alarm is sent in real time if the level of fuel exceeds the high level setting of the gauge Phasing out of HFO										2x4	8	S	Emergency plan for oil spills	Training in Emergency response	Daily inspections of bunds and adjacent fuel lines	This procedure will be carried out on Diesel Fuel only when the HFO is phased out. Diesel fuel will be a secondary fuel source. The main fuel will be LNG.
		Oil leakages from damaged or broken pipework and valves	Emergency condition: Frequency of occurrence: once in a lifetime of installation Severity: Significant damage which can cause serious environmental damage	E	Phasing out HFO										2x4	8	S	SOP DPS 28 Fuel Transfer Lines Management and Inspections Emergency plan for oil spills	Training in Emergency response Emergency drills	Daily visual inspection of pipework Detailed weekly visual check Annual hydrostatic test	
		Oil pumping from tank to combustion	Competent Person: Tank Area and Boiler Operators Frequency of occurrence: Unlikely could occur once in a lifetime of installation Severity: Significant damage which can cause serious environmental damage	E	Daily visual inspection of pipework Detailed weekly visual check Annual hydrostatic test Detection of leaks the system is isolated										2x4	8	S	SOP28 Fuel Transfer Lines Management and Inspections Emergency plan for oil spills	Training in Emergency response Emergency drills	Checklist to be filled in by the operator during the visual inspection	
		Oil leakage from transformer	Competent Person: Control Room Operators Frequency of occurrence: once in a lifetime of installation Severity: Significant damage which can cause serious environmental damage	E	Transformer are surrounded by bunds which are designed to contain the volume of oil in the transformer in case of a major leak. Transformer bunds are visually inspected for cracks and damages Conservator level is checked daily										2x4	8	S	SOP18 Transformer Bund and Reservoir Inspection, Maintenance and Cleaning	Training in Emergency response	Transformer bund wall inspection logbook; Certification form to be filled in by the engineer for every inspection and intervention	

		Incorrect handling of oils and lubricants during operations and general maintenance	Emergency Condition: Frequency of occurrence: may happen more than once but not so frequently Severity: Limited	E	D3 lubrication oil is transported by bowser and transfers are supervised. Lubricant storage tanks are bunded.										3x2	6	S	Emergency plan for oil spills	Emergency response team training		
Waste Management	Land/ soil/ water/sea pollution (Process related)	HFO and diesel storage - Sludge resulting from cleaning of fuel tanks	Competent Person: All employees 1. Legal requirement: IPPC 2. Concern: 3rd Party - ERA 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: Low-margin improvement 5. Availability of data: waste register, consignment permits, consignment notes	N	See Annual Environmental Report	Phasing out HFO	2	3	4	2	1	12	S				SOP29 Waste Management Procedure Sludge from tank cleaning is disposed of by licensed contractor	EMS Awareness and Waste Management	Daily Waste monitoring		
		Oil pumping from tank to combustion storage and disposal of oily rags and oil contaminated waste	Competent Person: All employees 1. Legal requirement: IPPC 2. Concern: 3rd Party - ERA 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: Low-margin improvement 5. Availability of data: waste register, consignment permits, consignment notes	N		Phasing out of HFO	2	3	3	2	1	11	S				SOP29 Waste Management Procedure	EMS Awareness and Waste Management	Daily Waste monitoring		
		General mechanical maintenance - Storage and disposal of industrial waste - oils, metal, contaminated gloves, oily rags, aerosol cans etc,	Competent Person: All employees 1. Legal requirement: IPPC 2. Concern: 3rd Party - ERA 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: Not identified 5. Availability of data: waste register, consignment permits, consignment notes	N			2	3	3	1	1	10	S				SOP29 Waste Management Procedure SOP23 Chemical Procurement, storage and Handling procedure	EMS Awareness Waste Management, Chemical Handling	Daily Waste monitoring		
		Sea water filtration storage and disposal of waste collected from seawater screens	Competent Person: All employees 1. Legal requirement: IPPC 2. Concern: ERA 3. Relevance and vulnerability: Not vulnerable 4. Possibility of improvement: Waste accumulated not within control of EMC 5. Availability of data: waste register, consignment permits, consignment notes	A			2	2	1	1	1	7	NS				SOP DPS 29 Waste Management Procedure	EMS Awareness and Waste Management	Daily Waste monitoring		
		Storage and disposal of Waste of particulates from flue gases and bottom ash	Competent Person: Operations Engineer/Maintenance 1. Legal requirement: IPPC 2. Concern: 3rd Party - ERA, Local Council 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: Low-margin improvement 5. Availability of data: waste register	N			2	3	3	1	1	10	S				SOP29 Waste Management procedure to include in waste classification this waste stream	Training of personnel in the operation of abatement system and the waste disposal operation	Daily Waste monitoring		
		Storage and disposal of Waste from SOx abatement	Competent Person: Operations Engineer/Maintenance Engineer 1. Legal requirement: IPPC 2. Concern: 3rd Party - ERA, Local Council, NGO 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: good opportunity for improvement 5. Availability of data: waste register	N		Considerable decrease in SOx abatement waste after changing over to LNG	2	3	3	3	1	12	S				SOP 29 Waste Management procedure to include in waste classification this waste stream	Training of personnel in the operation of abatement system and the waste disposal operation	Daily Waste monitoring		
		Disposal of Phase 3 Boiler washing liquid	Competent Person: Operations Engineer/Maintenance 1. Legal requirement: IPPC 2. Concern: 3rd Party - ERA 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: good opportunity for improvement 5. Availability of data: waste register	A		Evaporate most/all Boiler Washing effluent. When converted to LNG the plant will require less frequent Boiler Washing.	2	3	3	3	1	12	S				To include in SOP29	EMS Awareness and Waste Management	Daily Waste monitoring		
		Disposal of Phase 3 lubricating oil	Competent Person: Operations Engineer/Maintenance 1. Legal requirement: IPPC 2. Concern: 3rd Party - ERA 3. Relevance and vulnerability: Highly vulnerable 4. Possibility of improvement: Improvement not identified 5. Availability of data: waste register	A			2	3	3	1	1	10	S				To include in SOP29	EMS Awareness and Waste Management	Daily Waste monitoring		
		land/soil/water/sea pollution Non process related - Hazardous waste	WEEE	N			2	3	2	1	1	9	S				SOP29 Waste Management Procedure	EMS Awareness and Waste Management	Daily Waste monitoring		
land/soil/water/sea pollution Non process related - Non-hazardous waste	Mixed Waste	N		2	3	1	1	1	8	S				SOP29 Waste Management Procedure	EMS Awareness and Waste Management	Daily Waste monitoring					
Impact on landscape	Visual impact	Plant and auxiliary buildings	Competent Person: Station Manager 1. Legal requirement: None 2. Concern: Local Council / Residents 3. Relevance and vulnerability : High structures considered as eyesore 4. Possibility of improvement: Good Possibility of improvement 5. Availability of information: Environmental impact assessment for new Delimara plant/ Decommissioning Plan for D1	N		Decommissioning and Demolition of Phase 1	1	3	1	2	1	8	S				DPS Decommissioning Plan				
Fire risk	Land/sea/air/water pollution	Plant and ancillaries	Competent Person: Head Health and Safety Frequency of occurrence: Extremely unlikely once in a lifetime of the installation Severity: Serious possible risk of death; event falls under Major Accident according to COMAH	E	Emergency plans Comprehensive fire detection & fire fighting equipment installed, including hydrant systems, sprinklers and extinguishers. Scheduled inspection and maintenance program for fire fighting equipment fire deluge, fire extinguishers Regular Emergency drills and exercises held Fire drill plan to be executed at various Enemalta sites is drawn up at the start of year Monitoring devices are installed on transformers, switchgear rooms etc and tested periodically.	Implementation of actions or recommendations (where applicable) from COMAH inspection reports								2x5	10	S	Emergency plans Emergency drills plan	Emergency Response Training for ERT personnel Annual Emergency drill plan	Annual checks of fire extinguishers and fire deluge systems Annual checks of fire alarms		

Major Accident	Land/sea/air/water pollution	Fuel Storage	Competent Person: Station Manager Frequency of Occurrence: Extremely unlikely once in a lifetime of the installation Severity: Serious possible risk of death; falls under Major Accident according to COMAH	E	Emergency Response report COMAH inspections COMAH inspection report Safety Report produced by Enemalta to show compliance with COMAH. The competent authority conducts regular inspections on site, and may request additional improvements or remedial action	Implementation of actions or recommendations (where applicable) from COMAH inspection reports Purchasing of more equipment for ERT									2x5	10	S	Emergency plans Emergency drills plan		Carrying out of emergency drills. Analysis of and reporting of emergency situations and scheduled emergency drills	
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Environmental aspects identification and evaluation - Indirect Aspects - DPS

Enemalta activities, process	Purchased services / works/other	Connected environmental aspects	Data and information; evaluation criteria	N/A/E	Notes, comments, useful information	Improvement opportunities	Evaluation criteria														Expected EMS reactions			
							Legal requirements	Interested Parties	Relevance & vulnerability	Improvements opportunities	Availability of data	Degree of influence	TOTAL	S/NS	Accidents frequency	Accidents severity	FXG	Degree of influence	Total	S/NS	Procedures	Training	Monitoring	Improvements
Procurement of services: tender preparation, contract, control of supplier' activities on site	Suppliers involved in maintenance and new installations, plants, etc including electrical works, buildings.	Use of hazardous chemicals, Waste production and management: oils, metals, empty cans, etc.; noise; spills, soil contamination; water discharge, etc.	1. Incorrect behaviour of suppliers may lead to law infringement 2. Yes, depending on the relevance of the activity 3. Because of vicinity of the city and seawater 4. Yes, through better tender specs 5. Good information about suppliers under contract I. High influence through contracts	N/E	EMS auditing of contractors, endorsement of DOC2		2	3	1	3	2	0.8	8.8	S	4	2	8	0.8	6.4	S	Briefing document and relevant EMS documents are provided to all suppliers working for Enemalta and/or within Enemalta sites. Contractors are monitored. SOP23, SOP29		EMS Performance of contractor's activities through Internal Auditing	
Procurement of services purchasing: tender preparation, contract,	Cleaning services	Waste management, cleaning water discharge	1. Incorrect waste segregation, law infringement 2. Not likely 3. Because of vicinity of the city and seawater 4. Yes: better waste segregation 5. Good information about suppliers under contract I. High influence through contracts	N	Briefing document to contractor. Cleaning at the power station is done partly in house by our cleaners whereas office cleaning is done by subcontractor. Endorsment of DOC2		2	1	2	2	1	0.7	5.6	NS							SOP23 Chemical Procurement and Handling SOP29 Waste Management		Provision of SDSs for chemicals used	
Procurement of services : tender preparation, contract,	Replacement of office equipment (PCs, copiers, etc.), Including replacement of A/C's	Waste Management (WEEE)	1. Legal requirement for phasing out of R22 refrigerant 2. Not likely 3. Not likely 4. Yes: waste segregation 5. Good information about suppliers under contract I. High influence through contracts	N	There are appropriate sections to take care for the maintenance of the various office equipment. Tendering and purchasing of new equipment is performed by the respective section in liaison with the procurement section.		2	1	1	1	2	0.7	4.9	NS							SOP29 Waste Management SOP31 Maintenance of Airconditioning units	Training and certification of personnel on Safe handling and recovery of GHG	A/C units inventory, Waste register	
Procurement of services : tender preparation, contract,	Environmental monitoring (ex. Chemical analysis; noise assessment, CEMS calibration for equipment + certification)	Accuracy and reliability of analytical methods related to environmental data.	1. Technical rules and norms to make measurements 2. ERA and general public 3. Because it is necessary to have reliable measurements (also for ERA) 4. Better control through tenders specifications 5. Good information about suppliers under contract; I. High influence through contracts	N	Periodically the following assessments are being performed: Sea water outflow, blowdown pH testing, Yearly noise assessment. Continuous chimney air monitoring is the most important (CEMS).		2	3	2	2	1	0.8	8	S							SOP37 Continuous Emissions Monitoring System (CEMS) Installation, Operation & Maintenance		Labs accreditation and standard methods Equipment calibration	
Procurement of goods	Technical equipment, spare parts for power stations	Product life cycle impact	1. No 2. Higher quality/ environment friendly material cost more 3. Quantities are not large 4. To take lifetime impact, quality and warranties into consideration. 5. Product life cycle investigation required. Information regarding use is available but needs to be improved. I. Department of Contracts restrictions and costs do not allow ENE to have high influence	N	Spare parts are mostly OEM products, practically there is no choice		1	2	3	2	2	0.3	3	NS										
Transport of Waste	Transport and disposal of waste	Transport and disposal or recovery impact; Dangerous waste chemical spill, D 3 abatement residue, waste oils, etc.	Normal Conditions 1. Permit for waste management is required 2. ERA, general public 3. Quantities are not large; hazardous wastes produced 4. Better waste sorting; reduction in waste (assuming recycled waste will result to the same amount of waste consumed). 5. Poor, to be improved (type and quantity of waste, licences, etc.) I. High influence through contracts; anyway few licenced waste carriers and consignee are available Emergency Conditions Frequency of occurrence: once in a lifetime of installation Severity: Significant damage which can cause serious environmental damage	N/E	Suppliers are requested to ensure that they carry out the correct management of waste	Reduction of waste of waste	2	3	3	3	2	0.7	9.1	S							Waste tender contract Visitor's and Contractor's Briefing document Tender Clauses related to EMS SOP29 - Waste Management		Transfer of hazardous waste form Waste disposal certificate Direct control of waste carriers and consignee licences	

Transport of goods	Transport of goods, urea, SBC, lube oil and chemicals	Spills, noise and air emissions; use of gasoil. Storage of chemicals off-site	1. ADR for dangerous chemicals 2. By Enemalta, ERA 3. Yes, for dangerous chemicals 4. Better control through tenders specifications 5. Good information about suppliers under contract I. High influence through contracts	N/E	Significant for dangerous chemicals carriers		2	1	2	2	2	0.8	7.2	NS	3	3	9	0.8	7.2	S	Controls through tender specifications		ENE should ensure that chemical supplier has its own emergency plan and equipment in case a spill occurs while the fuel is being transported to the station.	
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