

Schedule 2

Annual Environmental Report - DPS

Important note

By this submission, you confirm that you give your explicit consent for the entire contents of this Annual Environment Report to be made available on the Authority's public website.

S2.1 Introduction

IPPC Permit Number	IP 0002/07/A
Reporting Year	2011
Name and location of Site	Delimara Power Station
Brief description of activities at the site	Combustion Installation > 50MW

S2.2 Environment Management System & Reporting

Please attach a supporting document with the following:

	Tick (✓)
1. Environmental Policy containing the installation's environmental objectives and targets;	✓
2. Environmental Management Programme report (for the reporting year);	✓
3. Environmental Management Programme proposal (for the following year);	✓
4. European Pollutant Release and Transfer Register Report (as per Condition 4.1.3) ¹ : [MEPA approved extension up to end June 2012]	-

S2.3 Process Data**S2.3.1 Annual Summary**

	Units	Previous reporting year	Current reporting year
Quantity of energy produced	MWh	1,134,539	1,152,633
Total Annual Energy Consumption (from electricity and other sources)	MWh	57,021	58,552
Energy consumption per unit product	MWh consumed/ MWh produced	0.0503	0.0508
Annual water consumption	m ³	227,509	257,515
Water consumption per unit product	m ³ /MWh	0.20	0.22
Annual quantity of waste produced	tonnes	168.44	232.11
Waste produced per unit product	tonne waste/ MWh	0.000148	0.00020

S2.3.2 Fuel consumption

	Units	Sulphur Content ²	Consumption	
			Previous Year	Current Year
Heavy Fuel Oil	t	0.692%	207,987	218,998
Gas Oil	t	0.055%	80,225	71,707

¹ The format used for reporting shall be that published in the Government Gazette (<http://www.doi.gov.mt/EN/gazetteonline/2007/07/gazts/GG%2013.7.pdf>)

² Specify units (e.g. as percentage, or mg/kg) – annual weighted average of fuel consignments from quality certificates.

S2.4 Monitoring Data

S2.4.1 Summary of emissions to air³

S2.4.1.1 Emissions of Dust (TSP), Nitrogen Oxides (NO_x) and Sulphur Dioxide (SO₂).

Parameter	Emission point reference	Standard methodology used	Annual average pollutant concentration ⁴	Mean Monthly Limit Value	Total annual number of exceedances of monthly mean value after validation		48 hourly Mean Limit Value	Percentage of exceedances of 48 hourly mean limit value after validation	
			mg.Nm ⁻³	mg.Nm ⁻³	Previous year	Present year	mg.Nm ⁻³	Previous year	Present year
Total Suspended Particulates	DPS1	EN 13284-2	37.802	50	0	0	55 (97%)	0.56	0.56
Oxides of Nitrogen	DPS1	ISO 7395	427.290	450	13 ⁵	1	495 (95%)	58.10	0.56
Sulphur Dioxide	DPS1	ISO 10849	1275.463	1490	0	1	1639 (97%)	0	2.79
Total Suspended Particulates	DPS2	ISO 1142-2	No CEMS	-	no data	no data	-	no data	no data
Oxides of Nitrogen	DPS2	ISO 1142-2	No CEMS	450	no data	no data	495 (95%)	no data	no data
Sulphur Dioxide	DPS2	ISO 1142-2	No CEMS	-	no data	no data	-	no data	no data
Total Suspended Particulates	DPS3	ISO 1142-2	No CEMS	-	no data	no data	-	no data	no data
Oxides of Nitrogen	DPS3	ISO 1142-2	No CEMS	450	no data	no data	495 (95%)	no data	no data
Sulphur Dioxide	DPS3	ISO 1142-2	No CEMS	-	no data	no data	-	no data	no data
Total Suspended Particulates	DPS4	ISO 1142-2	1.286	-	-	-	-	-	-
Oxides of Nitrogen	DPS4	ISO 1142-2	234.931	450	0	0	495 (95%)	0	0
Sulphur Dioxide	DPS4	ISO 1142-2	16.732	-	-	-	-	-	-
Total Suspended Particulates	DPS5	ISO 1142-2	1.271	-	-	0	-	-	-
Oxides of Nitrogen	DPS5	ISO 1142-2	140.919	450	0	0	495 (95%)	0	0
Sulphur Dioxide	DPS5	ISO 1142-2	19.296	-	-	-	-	-	-

Additional documentation to be submitted:

Accreditation certificate(s) of laboratory ☒ Tick (✓)

³ No CEMS have been installed on the Open Cycle gas turbine plants stacks at DPS due to technical reasons.

⁴ Arithmetic average of monthly concentrations.

⁹ This value is the sum total of boilers unit DPS 1A & DPS 1B. Total number of readings is 24.

S2.4.1.2 Emissions of Carbon monoxide (CO)

Emission point reference	Standard methodology used	Annual average pollutant concentration	Monthly Limit Value	Total annual number of exceedances of monthly mean value after validation	
		mg.Nm ⁻³	mg.Nm ⁻³	Previous year	Present year
DPS1	EN 10558	6.439	100	0	0
DPS2	ISO 1142	No CEMS	50	no data	no data
DPS3	ISO 1142	No CEMS	50	no data	no data
DPS4	ISO 1142	1.287	50	0	0
DPS5	ISO 1142-2	1.796	50	0	0

S2.4.1.3 Emissions of Dioxins and Furans (PCDDs and PCDFs)⁶

Dates on which sampling was carried out:

1 st semester:	
2 nd semester:	July 2011

Emission point reference	Standard methodology used ⁷	Mean Annual Limit Value	PCDD & PCDF concentration 1 st semester	PCDD & PCDF concentration 2 nd semester	Annual average Pollutant Concentration	
		ng.Nm ⁻³	ng.Nm ⁻³	ng.Nm ⁻³	Present year	Previous year
					ng.Nm ⁻³	ng.Nm ⁻³
DPS1	EN 1948	0.1	---	ND <0.01	ND <0.01	ND <0.01

Additional documentation to be submitted:

Accreditation certificate(s) of laboratory Tick (✓)
☒

⁶ Measurement of PCDDs & PCDFs is required once every 2 years

⁷ If equivalent methodology has been used, kindly indicate which standard methodology has been used.

S2.4.1.4 Emissions of Metals**S2.4.1.4.1 Emissions of Cadmium (Cd) and Thallium (Tl)**

Dates on which sampling was carried out:

1 st semester:	not carried out
2 nd semester:	July 2011

Emission point reference	Standard methodology used	Mean Annual Limit Value	Cd & Tl concentration 1 st semester	Cd & Tl concentration 2 nd semester	Annual average Pollutant Concentration	
		mg.Nm ⁻³	mg.Nm ⁻³	mg.Nm ⁻³	Present year mg.Nm ⁻³	Previous year mg.Nm ⁻³
DPS1	EN 14385	0.05	no data	ND <0.001	ND <0.001	0.003

Additional documentation to be submitted:

Accreditation certificate(s) of laboratory Tick (✓)

✓

S2.4.1.4.2 Emissions of Arsenic (As), Chromium (Cr), Cobalt (Co), Copper (Cu), Manganese (Mn), Nickel (Ni), Lead (Pb), Antimony (Sb) and Vanadium (V)

Dates on which sampling was carried out:

1 st semester:	not carried out
2 nd semester:	July 2011

Emission point reference	Standard methodology used	Mean Annual Limit Value	Metals concentration 1 st semester	Metals concentration 2 nd semester ⁸	Annual average Pollutant Concentration	
		mg.Nm ⁻³	mg.Nm ⁻³	mg.Nm ⁻³	Present year mg.Nm ⁻³	Previous year mg.Nm ⁻³
DPS1	EN 14385	0.5	no data	0.2115	0.2115	0.21

Additional documentation to be submitted:

Accreditation certificate(s) of laboratory Tick (✓)
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⁸ Arithmetic average of stacks D1A & D1B {(0.131+0.292)/2}

S2.4.1.5 Emissions of PAH's⁹

Date on which sampling was carried out	January 2012
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Emission point reference	Standard methodology used ¹⁰	Naphthalene ng.kg ⁻¹ dust	Anthracene ng.kg ⁻¹ dust	Phenanthrene ng.kg ⁻¹ dust	Fluoranthene ng.kg ⁻¹ dust	Benzo(a) anthracene ng.kg ⁻¹ dust	Chrysene ng.kg ⁻¹ dust	Benzo(a) pyrene ng.kg ⁻¹ dust	Benzo(ghi) perylene ng.kg ⁻¹ dust	Benzo(k) fluoranthene ng.kg ⁻¹ dust	Indeno(1,2,3-cd)pyrene ng.kg ⁻¹ dust
DPS1/A	ISO 12884:2000	7673	ND <0.1	138	37	ND <0.1	3	ND <0.1	ND <0.1	ND <0.1	ND <0.1
DPS1/B	ISO 12884:2000	7234	ND <0.1	143	54	ND <0.1	4	ND <0.1	ND <0.1	ND <0.1	ND <0.1

Emission point reference	PAH (sum 10) ng.kg ⁻¹ dust	
	Present year	Previous year
DPS1/A	7851	ND <0.1
DPS1/B	7435	ND <0.1

Additional documentation to be submitted:

Accreditation certificate(s) of laboratory Tick (✓)
☒

⁹ Due to unforeseen circumstances, tests could not be carried out in December. MEPA accepted the results for January 2012 to represent 2011. In addition, the reported units are in ng/Nm³, hence template units had to be adjusted accordingly.

¹⁰ If equivalent methodology has been used, kindly indicate which standard methodology has been used.

S2.4.2 Monthly Statistical Analysis of Continuous Monitoring

S2.4.2.1 Monthly Concentration Data for Particulates, SO₂ and NO_x¹¹

ONE PAGE PER MONTH TO BE SUBMITTED FOR EACH PLANT

Reporting year	
Month	
Plant	

	Particulates	SO ₂	NO _x	CO
Monthly average concentration for the period (mg . Nm ⁻³)				
No of exceedances of 24 hr limit in period				
Highest individual 24 hr average in period (mg. Nm ⁻³)				
Mean daily average, in period (mg. Nm ⁻³)				
No of exceedances of 1 hr average in period				
Highest individual 1 hr average in period (mg. Nm ⁻³)				
Mean 1 hr average in period (mg. Nm ⁻³)				
Percentage of boiler operating time that continuous monitors available during reporting period.				

¹¹ Please refer to separate PDF files generated by CEMS's.

S2.4.2.2 Monthly Loads of Particulates, SO₂¹² and NO_x

ONE PAGE PER PLANT TO BE SUBMITTED

Operator: Enemalta Corporation Ltd.	Plant no. DPS 1A
Location: Delimara.	Heat Value of Fuel fired: 40.621GJ.Mg ⁻¹
Reporting year: 2011	

Month	Fuel Burn During this period Mg. month ⁻¹	Monthly SO ₂ Load Mg	Monthly NO _x Load Mg	Monthly Dust Load Mg
January	1468.00	21.423	8.893	0.751
February	3863.87	51.891	22.160	1.660
March	10842.62	148.117	61.168	6.467
April	10159.27	142.314	56.127	6.096
May	10512.25	147.165	55.931	5.995
June	10637.53	148.533	74.622	7.133
July	12054.63	188.206	80.356	7.960
August	11016.20	179.067	79.593	7.936
September	10262.15	142.226	62.633	5.956
October	9409.42	125.698	64.652	6.111
November	4616.73	57.329	30.120	2.868
December	10318.40	130.662	70.304	6.778
TOTAL	105161.07	1482.632	666.560	65.712

Pollutant Load (Mg) = Pollutant concentration (µg.Nm⁻³) × 1×10⁻⁹ × WGF (m³.month⁻¹)
(WGF = waste gas flow rate).

¹² The values of SO₂ are the calculated values as agreed with MEPA

Operator: Enemalta Corporation Ltd.	Plant no. DPS 1B
Location: Delimara.	Heat Value of Fuel fired: 40.621GJ.Mg ⁻¹
Reporting year: 2011	

Month	Fuel Burn During this period Mg. month ⁻¹	Monthly SO ₂ Load Mg	Monthly NO _x Load Mg	Monthly Dust Load Mg
January	10863.50	158.534	61.749	3.649
February	9212.40	123.722	55.025	6.557
March	5964.36	81.477	41.162	3.026
April	8472.78	118.690	51.538	4.352
May	10910.72	152.743	55.655	4.618
June	10538.34	147.148	55.814	4.259
July	10203.85	159.310	59.974	4.663
August	11072.24	179.978	62.697	5.349
September	9770.68	135.415	53.259	3.830
October	10377.28	138.627	54.396	5.097
November	9034.34	112.186	50.412	4.726
December	7416.70	93.918	40.971	3.622
TOTAL	113837.19	1601.748	642.652	53.748

Pollutant Load (Mg) = Pollutant concentration ($\mu\text{g.Nm}^{-3}$) $\times 1 \times 10^{-9} \times \text{WGF (m}^3\text{.month}^{-1}\text{)}$
(WGF = waste gas flow rate).

Operator: Enemalta Corporation Ltd.	Plant no. DPS 2 ¹³
Location: Delimara.	Heat Value of Fuel fired: 42.940 GJ.Mg ⁻¹
Reporting year: 2011	

Month	Fuel Burn During this period Mg. month ⁻¹	Monthly SO ₂ Load Mg	Monthly NO _x Load Mg	Monthly Dust Load Mg
January	227.96	0.456	1.651	0.006
February	152.50	0.305	1.109	0.004
March	78.39	0.157	0.599	0.002
April	81.84	0.164	0.686	0.002
May	9.06	0.018	0.086	0.000
June	357.46	0.715	3.908	0.006
July	245.33	0.491	3.143	0.004
August	134.33	0.269	2.052	0.002
September	568.48	1.137	10.183	0.005
October	153.16	0.306	3.046	0.001
November	630.82	1.262	14.011	0.003
December	457.32	0.915	11.457	0.001
TOTAL	3096.65	6.193	51.931	0.035

Pollutant Load (Mg) = Pollutant concentration ($\mu\text{g.Nm}^{-3}$) $\times 1 \times 10^{-9} \times \text{WGF (m}^3\text{.month}^{-1}\text{)}$
(WGF = waste gas flow rate).

¹³ In the absence of CEMS on this plant, the above emissions are based on the fuel burnt for each month and for NO_x & dust plant emission factor based on the MPS OCGT CEMS values/ fuel burnt. SO₂ values are calculated and based on weighted average EF (weighted average of %S in fuel used in that month $\times 2/100$, then multiplied by fuel consumption for that month).

Operator: Enemalta Corporation Ltd.	Plant no. DPS 3 ¹⁴
Location: Delimara.	Heat Value of Fuel fired: 42.940 GJ.Mg ⁻¹
Reporting year: 2011	

Month	Fuel Burn During this period Mg. month ⁻¹	Monthly SO ₂ Load Mg	Monthly NO _x Load Mg	Monthly Dust Load Mg
January	329.28	0.659	2.385	0.008
February	174.57	0.349	1.270	0.004
March	8.48	0.017	0.065	0.000
April	250.06	0.500	2.098	0.005
May	17.32	0.035	0.165	0.000
June	268.63	0.537	2.937	0.005
July	694.80	1.390	8.901	0.012
August	408.16	0.816	6.236	0.005
September	396.39	0.793	7.100	0.004
October	65.64	0.131	1.305	0.000
November	521.96	1.044	11.593	0.003
December	797.36	1.595	19.976	0.002
TOTAL	3932.65	7.865	64.030	0.048

Pollutant Load (Mg) = Pollutant concentration ($\mu\text{g.Nm}^{-3}$) $\times 1 \times 10^{-9} \times \text{WGF (m}^3\text{.month}^{-1}\text{)}$
(WGF = waste gas flow rate).

¹⁴ In the absence of CEMS on this plant, the above emissions are based on the fuel burnt for each month and for NO_x & dust plant emission factor based on the MPS OCGT CEMS values/ fuel burnt. SO₂ values are calculated and based on weighted average EF (weighted average of %S in fuel used in that month $\times 2/100$, then multiplied by fuel consumption for that month).

Operator: Enemalta Corporation Ltd.	Plant no. DPS 4
Location: Delimara.	Heat Value of Fuel fired: 42.940 GJ.Mg ⁻¹
Reporting year: 2011	

Month	Fuel Burn During this period Mg. month ⁻¹	Monthly SO ₂ Load Mg	Monthly NO _x Load Mg	Monthly Dust Load Mg
January	2880.93	5.762	19.947	0.107
February	1028.52	2.057	3.260	0.036
March	3006.55	6.013	17.998	0.110
April	1244.90	2.490	8.722	0.043
May	0.00	0.000	0.002	0.000
June	0.00	0.000	0.000	0.000
July	2093.74	4.187	11.886	0.070
August	4329.54	8.659	26.854	0.122
September	4290.63	8.581	26.301	0.119
October	2393.81	4.788	14.263	0.071
November	2307.92	4.616	13.741	0.068
December	714.38	1.429	4.648	0.028
TOTAL	24290.92	48.582	147.622	0.771

Pollutant Load (Mg) = Pollutant concentration ($\mu\text{g.Nm}^{-3}$) $\times 1 \times 10^{-9} \times \text{WGF (m}^3\text{.month}^{-1}\text{)}$
(WGF = waste gas flow rate).

Operator: Enemalta Corporation Ltd.	Plant no. DPS 5
Location: Delimara.	Heat Value of Fuel fired: 42.940 GJ.Mg ⁻¹
Reporting year: 2011	

Month	Fuel Burn During this period Mg. month ⁻¹	Monthly SO ₂ Load Mg	Monthly NO _x Load Mg	Monthly Dust Load Mg
January	41.98	0.084	0.000	0.016
February	2598.90	5.198	9.232	0.055
March	3920.26	7.841	17.293	0.029
April	3553.73	7.107	16.695	0.017
May	4160.74	8.321	16.268	0.006
June	2636.74	5.273	11.966	0.030
July	4523.50	9.047	19.894	0.031
August	5642.90	11.286	24.692	0.045
September	4971.87	9.944	20.749	0.017
October	3864.01	7.728	17.020	0.040
November	2932.89	5.866	12.662	0.023
December	1311.03	2.622	5.637	0.008
TOTAL	40158.55	80.317	172.108	0.316

Pollutant Load (Mg) = Pollutant concentration ($\mu\text{g.Nm}^{-3}$) $\times 1 \times 10^{-9} \times \text{WGF (m}^3\text{.month}^{-1}\text{)}$
(WGF = waste gas flow rate).

Operator: Enemalta Corporation Ltd.	Plant no. DPS 6 ¹⁵
Location: Delimara.	Heat Value of Fuel fired: 42.940 GJ.Mg ⁻¹
Reporting year: 2011	

Month	Fuel Burn During this period Mg. month ⁻¹	Monthly SO ₂ Load Mg	Monthly NO _x Load Mg	Monthly Dust Load Mg
January	Nil			
February	Nil			
March	Nil			
April	Nil			
May	Nil			
June	Nil			
July	Nil			
August	Nil			
September	Nil			
October	Nil			
November	Nil			
December	230	0.460	1.166	0.397
TOTAL	230	0.460	1.166	0.397

Pollutant Load (Mg) = Pollutant concentration ($\mu\text{g.Nm}^{-3}$) $\times 1 \times 10^{-9} \times \text{WGF (m}^3\text{.month}^{-1}\text{)}$
(WGF = waste gas flow rate).

¹⁵ DPS 6 is the new Block 4 diesel engines plant which is still under commissioning. Values given in this table are based on estimates and calculations and not CEMS information.

S2.4.3 Annual Data

S2.4.3.1 Annual Load of Particulates, SO₂ and NO_x

Delimara Power Station

Units	Rated Thermal Input MW _{TH}	Type	Fuel	Fuel Burn Mg.yr ⁻¹	Heat Value ¹⁶ GJ.Mg ⁻¹	Annual Emissions* SO ₂ Mg.yr ⁻¹	Annual Emissions* NO _x Mg.yr ⁻¹	Annual Emissions* dust Mg.yr ⁻¹
Delimara 1	332	Steam Boiler	HFO	218998.26	40.621	3084.380	1309.212	119.460
Delimara 2	121	Gas Turbine	Gasoil	3096.65	42.940	6.193	51.931	0.035
Delimara 3	121	Gas Turbine	Gasoil	3932.65	42.940	7.865	64.030	0.048
Delimara 4	121	Gas Turbine	Gasoil	24290.92	42.940	48.582	147.622	0.771
Delimara 5	121	Gas Turbine	Gasoil	40158.55	42.940	80.317	172.108	0.316
Delimara 6	308	Diesel engines	HFO					
			Gasoil	230.00	42.940	0.460	1.166	0.397
Total						3227.797	1746.069	121.027

¹⁶ Weighted average from fuel consignments during 2011 (as per GHG Report)

* Sum of the total emissions during normal operations + total emissions during start-up/shut down periods.

S2.4.3.2 Annual Load of Ni and V*ONE PAGE PER PLANT TO BE SUBMITTED*

Operator: Enemalta Corporation Ltd.	Plant no. DPS 1ⁱ
Location: Delimara.	Heat Value of Fuel: 40.704 GJ/t
Reporting year: 2011	

Method 1: Metal content of fuel x fuel burn

Year	Fuel Burn (Mg . year ⁻¹)	Average Ni content (mg Ni.Mg ⁻¹)	Average V content (mg V.Mg ⁻¹)	Annual Ni Load (Mg)	Annual V Load (Mg)
Previous	207,986.90	27537	22877	5.748	4.775
Current	218,998.26	21490	26019	4.706	5.698

Metal Load (Mg) = metal content (mg metal .Mg⁻¹) × 1×10⁻⁹ × FB (Mg.year⁻¹)

FB = Fuel Burn.

Metal = nickel or vanadium.

Method 2: Metal concentration in flue gas x flue gas volumeⁱⁱ

Year	Flue gas volume (Nm ³)	Average Ni content (mg/Nm ³)	Average V content (mg/Nm ³)	Annual Ni Load (kg)	Annual V Load (kg)
Previous Total ⁱⁱⁱ	see footnote	see footnote	see footnote	see footnote	see footnote
Current D1/A	1,448,868,314	0.049	0.055	70.99	79.69
Current D1/B	1,600,615,766	0.049	0.062	78.43	99.24
Current Total				149.42	178.93

Additional documentation to be submitted:

Accreditation certificate(s) of laboratory Tick (✓)
✓

ⁱ The values are the annual weighted averages based on fuel consignment quality certificates.

ⁱⁱ Based on discontinuous measurement of concentration and total annual emission flow from ever stack

ⁱⁱⁱ Previously not required by IPPC permit, hence no data was submitted

S2.5: Certificates of Analysis for physical and chemical parameters of fuels

Documentation to be submitted:

Certificates of analysis for physical and chemical parameters of fuels for reporting year (indicate number of certificates submitted)
Accreditation certificate(s) of laboratory

Tick (✓)

[see attachmentsⁱ](#)

S2.6: Wind Rose

Documentation to be submitted:

Wind rose for the reporting year showing wind speed and direction at the site

Tick (✓)

[see attachment](#)

ⁱ Please refer to separate folder containing fuel quality certificates.

S2.7 Emissions to Marine Water

Name of outlet: **MAIN OUTFALL**

Parameter	Limit	Standard methodology used ⁱ	Total annual number of exceedances ⁱⁱ		Concentration (Annual Average)			Total Annual Mass Emissions		
			Previous year	Present year	Units	Previous year	Present year	Units	Previous Year	Present Year
pH ⁱⁱⁱ	6-10	n/a	0	0	n/a	8.15	8.11	n/a	n/a	n/a
Temperature ^{iv}	15°C above marine	n/a	No data	No data	n/a	No data	No data	n/a	No data	No data
BOD5	25 mg.dm ⁻³	Method 521B, AWWA/ APHA	0	0	mg/l	0	below inlet	kg	0	0
COD	30 mg.dm ⁻³	ISO 6060	2	===	mg/l	0	===	kg	0	===
Total Nitrogen	10 mg.dm ⁻³	SO/TR 11905-2: 1997	0	0	mg/l	0	<1	kg	0	0
Total Phosphorous ^v	1 mg.dm ⁻³	see footnote	0	0	mg/l	0	0.0011	kg	0	271.81
AOX ^{vi}	0.15 mg.dm ⁻³	see footnote	0	0	mg/l	0	===	kg	0	===
Chlorine dioxide and oxidants (given as chlorine) ^{vii}	0.3 mg.dm ⁻³	---	0	0	mg/l	0	0	kg	0	0
Arsenic	0.1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	<0.00012	kg	0	0
Cadmium	0.05 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0.00004	kg	0	8.58
Chromium (total)	0.5 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.00008	0.00235	kg	19.70	566.57
Copper	0.5 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.00221	0.00813	kg	544.94	1964.27
Lead	0.1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.00060	0.00079	kg	148.77	189.72
Mercury	0.03 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0	kg	0	0
Nickel	0.5 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.00183	0.00215	kg	449.50	519.46

ⁱ If an equivalent methodology is used, kindly indicate this instead of the quoted standard.

ⁱⁱ If the total number of exceedances exceeds 0, the value of each of these exceedances (for the reporting year) must be submitted in a separate report, together with action taken to regularise the situation.

ⁱⁱⁱ Enemalta is currently in the process of investigating & installing appropriate pH and temperature sensors in the main outfall.

^{iv} See footnote iii for pH.

^v Standard methods for the examination of waters and waste waters 16th ed. ALPHA

^{vi} The analytical reports do not include the AOX test. However several individual component tests are included and the results were always below the LOD. Test methods were mainly GC/MS.

^{vii} Chlorine dioxide measurements are taken **BEFORE** seawater entry into condensers and it's difficult to measure at outfall due to the nature of the pollutant, given its instability. ClO2 concentration at the main outlet will be well below any equipment resolution level and annual concentration and quantity discharge values are therefore considered as nil.

Parameter	Limit	Standard methodology used ⁱ	Total annual number of exceedances ⁱⁱ		Concentration (Annual Average)			Total Annual Mass Emissions		
			Previous year	Present year	Units	Previous year	Present year	Units	Previous Year	Present Year
Tin	1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	below inlet	kg	0	0
Vanadium	4 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	below inlet	kg	0	0
Zinc (insert limit value)	1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.00786	0.0362	kg	1936.96	8735.94
Petroleum hydrocarbons	5 mg.dm ⁻³	Analysis of PH's in Environmental Media – Total PH criteria	0	0	mg/l	0	below inlet	kg	0	0
Tributyltin compounds	0.005 mg.dm ⁻³	subcontracted test	0	0	µg/l	0	0.0003	kg	0	66.44
Total Suspended Solids	35 mg.dm ⁻³	Method 2540D, AWWA/ APHA	1	1	mg/l	0	below inlet	kg	0	0
Benzene	-	By GC-FID	0	0	mg/l	0	0	kg	0	0
PAHs	-	Analysis of PH's in Environmental Media – Total PH criteria	0	0	mg/l	0	<0.010	kg	0	0

ⁱ If an equivalent methodology is used, kindly indicate this instead of the quoted standard.

ⁱⁱ If the total number of exceedances exceeds 0, the value of each of these exceedances (for the reporting year) must be submitted in a separate report, together with action taken to regularise the situation.

Name of outlet: **OILY WATER INTERCEPTOR (Point 2 next to lab)**

Parameter	Limit	Standard methodology used ⁱ	Total annual number of exceedances ⁱⁱ		Concentration (Annual Average)			Total Annual Mass Emissions		
			Previous year	Present year	Units	Previous year	Present year	Units	Previous Year	Present Year
pH	6-10	n/a	0	0	n/a	8.13		n/a	n/a	n/a
Temperature ⁱⁱⁱ	15°C above marine	n/a	No data	no data	n/a	No data	No data	n/a	No data	No data
BOD5	25 mg.dm ⁻³	Method 521B, AWWA/ APHA	0	0	mg/l	0	0.91	kg	0	0.03
COD	30 mg.dm ⁻³	ISO 6060	4	===	mg/l	0	===	kg	0	===
Total Nitrogen	10 mg.dm ⁻³	SO/TR 11905-2: 1997	0	0	mg/l	0	0.50	kg	0	0.02
Total Phosphorous	1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.00016	0.02	kg	0.0026	0.56
AOX ^{iv}	0.15 mg.dm ⁻³	see footnote	0	===	mg/l	0	===	kg	0	===
Chlorine dioxide and oxidants (given as chlorine) ^v	0.3 mg.dm ⁻³	---	0	0	mg/l	0	0	kg	0	0
Arsenic	0.1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0	kg	0	0
Cadmium	0.05 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.00002	0.02	kg	0.0003	0.49
Chromium (total)	0.5 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.0059	0.01	kg	0.0937	0.26
Copper	0.5 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.0016	0.01	kg	0.0252	0.18
Lead	0.1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0.02	kg	0	0.59
Mercury	0.03 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0	kg	0	0
Nickel	0.5 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0	kg	0	0

ⁱ If an equivalent methodology is used, kindly indicate this instead of the quoted standard.

ⁱⁱ If the total number of exceedances exceeds 0, the value of each of these exceedances (for the reporting year) must be submitted in a separate report, together with action taken to regularise the situation.

ⁱⁱⁱ See footnote iii for pH.

^{iv} The analytical reports do not include the AOX test. However, several individual component tests are included and the results were always below the LOD. Test methods were mainly GC/MS.

^v Refer to comment for previous outlet

Parameter	Limit	Standard methodology used ⁱ	Total annual number of exceedances ⁱⁱ		Concentration (Annual Average)			Total Annual Mass Emissions		
			Previous year	Present year	Units	Previous year	Present year	Units	Previous Year	Present Year
Tin	1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0	kg	0	0
Vanadium	4 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.0012	0	kg	0.019	0.14
Zinc (insert limit value)	1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.008	2.33	kg	0.1265	2.33
Petroleum hydrocarbons ⁱⁱⁱ	0.03 mg.dm ⁻³	Analysis of PHs in Environmental Media – Total PH criteria	1	0	mg/l	0	0.02	kg	0	0.51
Tributyltin compounds	0.0005 mg.dm ⁻³	subcontracted test	0	0	µg/l	0	0	kg	0	0
Total Suspended Solids	35 mg.dm ⁻³	Method 2540D, AWWA/ APHA	0	3	mg/l	11.5	40.48 ^{iv}	kg	181.33	1.22
Benzene	-	By GC-FID	0	0	mg/l	0	<0.014	kg	0	0.42
PAH's	-	GC/MS	0	0	mg/l	0	<0.010	kg	0	0.15

ⁱ If an equivalent methodology is used, kindly indicate this instead of the quoted standard.

ⁱⁱ If the total number of exceedances exceeds 0, the value of each of these exceedances (for the reporting year) must be submitted in a separate report, together with action taken to regularise the situation.

ⁱⁱⁱ GRO (C10 – C10) & EPH (C10 – C40)

^{iv} Exceedances of the TSS may be due to several environmental factors given that may result in a false alarm. Given the nature of the site, this may include, for example, dead vegetation (e.g. leaves) or dust (due to extensive on site construction works for the new plants) which find they way into the interceptor. Hence, results are not truly representative of what the installation is generating by virtue of its operations. The exceedances of the ELV may also be due to these factors.

Name of outlet: **OILY WATER INTERCEPTOR (Point 4 – Tank Farm)**

Parameter	Limit	Standard methodology used ⁱ	Total annual number of exceedances ⁱⁱ		Concentration (Annual Average)			Total Annual Mass Emissions		
			Previous year	Present year	Units	Previous year	Present year	Units	Previous Year	Present Year
pH	6-10	n/a	0		n/a	8.13	7.75	n/a	n/a	n/a
Temperature ⁱⁱⁱ	15°C above marine	n/a	No data	no data	n/a	No data	No data	n/a	No data	No data
BOD ₅	25 mg.dm ⁻³	Method 521B, AWWA/ APHA	0	0	mg/l	0	0.833	kg	0	20.29
COD	30 mg.dm ⁻³	ISO 6060	4	===	mg/l	0	===	kg	0	===
Total Nitrogen	10 mg.dm ⁻³	SO/TR 11905-2: 1997	0	0	mg/l	0	0.917	kg	0	22.32
Total Phosphorous	1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.00016	0.014	kg	0.0026	0.33
AOX ^{iv}	0.15 mg.dm ⁻³	see footnote	0	===	mg/l	0	===	kg	0	===
Chlorine dioxide and oxidants (given as chlorine) ^v	0.3 mg.dm ⁻³	---	0	0	mg/l	0	0	kg	0	0
Arsenic	0.1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0	kg	0	0.0096
Cadmium	0.05 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.00002	0.001	kg	0.0003	0.0254
Chromium (total)	0.5 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.0059	0.001	kg	0.0937	0.0176
Copper	0.5 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.0016	0.004	kg	0.0252	0.0938
Lead	0.1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0.001	kg	0	0.0244
Mercury	0.03 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0	kg	0	0.0001
Nickel	0.5 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0.001	kg	0	0.0172

ⁱ If an equivalent methodology is used, kindly indicate this instead of the quoted standard.

ⁱⁱ If the total number of exceedances exceeds 0, the value of each of these exceedances (for the reporting year) must be submitted in a separate report, together with action taken to regularise the situation.

ⁱⁱⁱ See footnote iii for pH.

^{iv} The analytical reports do not include the AOX test. However, several individual component tests are included and the results were always below the LOD. Test methods were mainly GC/MS.

^v Refer to comment for previous outlet

Parameter	Limit	Standard methodology used ⁱ	Total annual number of exceedances ⁱⁱ		Concentration (Annual Average)			Total Annual Mass Emissions		
			Previous year	Present year	Units	Previous year	Present year	Units	Previous Year	Present Year
Tin	1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0	0.001	kg	0	0.0142
Vanadium	4 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.0012	0.002	kg	0.019	0.0528
Zinc (insert limit value)	1 mg.dm ⁻³	Method 3125B, AWWA/ APHA	0	0	mg/l	0.008	0.027	kg	0.1265	0.6624
Petroleum hydrocarbons ⁱⁱⁱ	0.03 mg.dm ⁻³	Analysis of PHs in Environmental Media – Total PH criteria	1	0	mg/l	0	0.091	kg	0	2.2161
Tributyltin compounds	0.0005 mg.dm ⁻³	subcontracted test	0	0	µg/l	0	0	kg	0	0.0001
Total Suspended Solids	35 mg.dm ⁻³	Method 2540D, AWWA/ APHA	0	0	mg/l	11.5	2	kg	181.33	48.706
Benzene	-	By GC-FID	0	0	mg/l	0	0.014	kg	0	0.3409
PAH's	-	GC/MS	0	0	mg/l	0	0.005	kg	0	0.1218

Name of laboratory where tests in this section have been carried out	Alcontrol Laboratories
Is this laboratory accredited (certified) for the above tests?	Yes ^{iv} ☐ No ☐

Additional documentation to be submitted:

Accreditation certificate(s) of laboratory Tick (✓)
✓

ⁱ If an equivalent methodology is used, kindly indicate this instead of the quoted standard.

ⁱⁱ If the total number of exceedances exceeds 0, the value of each of these exceedances (for the reporting year) must be submitted in a separate report, together with action taken to regularise the situation.

ⁱⁱⁱ GRO (C10 – C10) & EPH (C10 – C40)

^{iv} As per indication in test reports

S2.8 Noise monitoringⁱ & ⁱⁱ

Monitoring point ⁱⁱⁱ	Date sampled	Time sampled	Operating conditions	Noise measurement	Units	Other comments (if any)

Additional documentation to be submitted:

	Tick (✓)
Map showing monitoring points	✓
Detailed noise report ^{iv}	✓

ⁱ Noise monitoring shall be carried out according to BS 4142:1997.

ⁱⁱ [Please refer to attached report for 2011.](#)

ⁱⁱⁱ Monitoring points should be labelled using a unique code, and should be suitably sited. A corresponding labelled map showing the location of each monitoring points shall be submitted.

^{iv} The detailed noise report should include information about the various monitoring points chosen, an analysis of the results and suggestions for improvement (if applicable).

S2.10 Off-site transfers of waste

Date of transfer	EWC Code ⁱ	Description of waste	Quantity of waste (in kg)	Treatment applied before transfer	Mode of transport	Names of agent & transporter of waste	Ultimate destination (address) of waste	Consignment note number ⁱⁱ	Name of person responsible for ultimate disposal/recovery	Disposal/Recovery	Details of Recovery (if applicable)
Over 1 year 2011	15 01 01	Paper and Cardboard	13165	nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	Not available	Mary Gaerty	Recovery	R3
Over 1 year 2011	15 02 03	Plastic	8922	nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	Not available	Mary Gaerty	Recovery	R3
Over 1 year 2011	15 01 03	Wood	2727	nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	Not available	Mary Gaerty	Recovery	R3
Over 1 year 2011	20 03 01	Mixed Waste	44832	nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	Not available	Mary Gaerty	Disposal	D5
Over 1 year 2011	17 04 07	Scrap Metal	14250	nil	skips	DDE Attard Co. Ltd (Disma Attard)	Scrap Lane, Valletta Road, Luqa	Not available	Disma Attard	Recovery	R4
Over 1 year 2011	15 01 07	Glass	460	nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	Not available	Ms Mary Gaerty	Recovery	R5
Over 1 year 2011	10 01 26	Waste from Sea Water Filtration	12780	nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	Not available	Ms Mary Gaerty	Disposal	D5
Over 1 year 2011	13 07 03*	Waste Oil	23535	nil	Road tanker	Waste Oils Co. Ltd.	42, Spencer Hill, Marsa MRS 1955	Not available	Mr Oliver Debono/ Mr David Falzon	Recovery	R9

ⁱ European Waste Catalogue Code (Reference: Schedule 1 of LN 337 of 2001)

ⁱⁱ For hazardous waste only. If waste is not hazardous, please write "n/a".

Date of transfer	EWC Code ⁱ	Description of waste	Quantity of waste (in kg)	Treatment applied before transfer	Mode of transport	Names of agent & transporter of waste	Ultimate destination (address) of waste	Consignment note number ⁱⁱ	Name of person responsible for ultimate disposal/recovery	Disposal/Recovery	Details of Recovery (if applicable)
Over 1 year 2011	13 03 07*	Waste transformer Oil	7560	Nil	Road tanker	Waste Oils Co. Ltd.	42, Spencer Hill, Marsa MRS 1955	28400, 29600, 29626, 29628, 30223	Mr Oliver Debono/ Mr David Falzon	Recovery	R9
Over 1 year 2011	15 02 02*	Oily Rags	3185	Nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	various	Ms Mary Gaerty	Disposal	N/A
Over 1 year 2011	16 07 09*	Boiler cleaning waste	74000	Nil	Used IBCs	PT Matic	12 Via LC Ragghianti, 5612 PISA, Italy	MT11/000012	TESECO SpA	Disposal	N/A
Over 1 year 2011	15 01 11*	Aerosol cans	100	Nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	various	Ms Mary Gaerty	Disposal	N/A
Over 1 year 2011	16 07 09*	Discarded chemicals	905	Nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	various	Ms Mary Gaerty	Disposal	N/A
Over 1 year 2011	15 01 10*	Contaminated packaging	16	Nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	various	Ms Mary Gaerty	Disposal	N/A
Over 1 year 2011	20 01 21*	Spent Tubes	180	nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	Not available	Ms Mary Gaerty	Disposal	N/A
Over 1 year 2011	20 01 21*	WEEE	1660	nil	skips	Green Skip Ltd	Ta' I-Imriekeb, Ramla Road, Maghtab, Naxxar NXR 08	Not available	Ms Mary Gaerty	Recovery	R4

S2.11 Testing of bunds, pipes, pumps, valves, flanges and over-ground pipes

Number of oil interceptors on site	4
Date of last test for pipes, pumps, valves and flanges for fuel delivery from delivery ship to tank farm	30/9/11 (HFO) 10/9/11 (GDO)
Testing of pipes, pumps, valves and flanges for fuel delivery from delivery ship to tank farm due on (date)	By December 2012
Date of last test for other flanges, valves and over-ground pipes on site	Visual Inspection carried out on a weekly basis in 2011
Testing of other flanges, valves and over-ground pipes on site due on (date)	Visual Inspection carried out on a weekly basis.
Date of last test for oil interceptors	monitoring carried out at regular intervals
Testing for oil interceptors due on (date)	cleaning & inspection carried out twice annually

Additional documentation to be submitted if test was carried out during previous reporting year:

	Tick (✓)
Inspection report and certification by approved auditor for bunds on site	Not available
Inspection report and certification by approved auditor for pipes, pumps, valves and flanges for fuel delivery from delivery ship to tank farm	Not available
Inspection report and certification by approved auditor for other flanges, valves and over-ground pipes on site	Visual Inspection carried out at regular intervals. Auditor report carried out during December 2011. Report attached.
Inspection report and certification by approved auditor for oil interceptors	programmed for 2012

Number of bunds on site	5
Number of visual inspections carried out during reporting year on each bund	40
Total number of faults identified during reporting year	HFO: 1 extra cover on expansion joint seals
Total number of faults rectified during reporting year	1

Additional documentation to be submitted:

	Tick (✓)
Bund certification by independent warranted civil engineer	to be reported in 2012
Summary report by warranted engineer on the visual inspections undertaken during the reporting year (including reports on faults and remedial actions taken)	

S2.12 Incidents and Complaints

S2.12.1 Non-Compliance Incidents during Reporting Year

Date of incident	Brief description of Incident	Cause	Corrective action
---	Nil	---	---

Total number of non-compliance incidents for previous year:⁵⁴

N/A

Total number of non-compliance incidents for current reporting year:

Nil

S2.12.2 Complaints made by the public

Date of complaint	Description of complaint	Actions taken
---	Nil	---

Total number of complaints for previous year: ⁱ

N/A

Total number of complaints for current reporting year:

Nil

S2.13 Transport

Name of ADR certified carrier used during reporting year	Material(s) transported
PTMATIC	Boiler Cleaning Waste

Name of registered waste carrier used during reporting year	Waste type(s) transported
Waste Oils Co. Ltd.	waste lube & fuel oils
DDE Attard Co. Ltd (Disma Attard)	waste scrap metals
Green Skip Services Ltd	Various as per Table S2.10

⁵⁴ "Previous year" data is not required in the first reporting year (2008).