

2023(H) ENVIRONMENTAL/ENERGY PERFORMANCE REPORT

Significant Environmental Aspect	Environmental/Energy Objective		Performance			PIC																																	
	Target	Criteria(Q'ty)	Result	Achievement(%)	Remark																																		
Marine pollution due to emergencies such as hull damage, etc.	Prevent emergencies And minimize damage	The number of emergency (ZERO)	Oil spill zero	100.0	* Continuous verification of safety procedures through audit/inspection. * Implementation of PMS for each vessel and maintaining records.	VESSEL, MT, QAT																																	
Marine pollution due to malfunction of machinery/equipment	Management of pollution prevention equipment	Oily bilge separator 15ppm Monitoring System Calibration (34 vessels)	21 vessels	61.8	* 21 vessels performed. -. CNTR 1T : 2 vessels, CNTR 2T : 10 vessels, CNTR 3T : 2 vessels LNG&BULK T : 1 vessels, TANKER : 6 vessels -. In case of Tanker/LNG fleets, annual calibration has been being carried out in accordance with the requirements of major company and MESQAC.	VESSEL, MT																																	
Air pollution from ship operation	Minimize fuel consumption and increase energy efficiency	Reduction of fuel consumption (0.85%, reduction rate compared to baseline in 2022)	0.28%	32.9	* fuel consumption in 2022(H) : 400,155 M/T (BASELINE) * fuel consumption in 2023(H) : 399,035 M/T (0.85% reduction compared to 2022) * Machinery applied : Main Engine, Aux. Engine (Aux. Boiler excluded) * 2.1k CNTR : The vessel was excluded due to lack of data through being handed over to 2022/23 years.	R&D																																	
		F.O consumption intensity (0.8124g/DWT*km)	0.6937	114.6	* Annual performance of F.O consumption intensity <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th style="text-align: center;">2020</th> <th style="text-align: center;">2021</th> <th style="text-align: center;">2022</th> <th style="text-align: center;">2023(H)</th> </tr> </thead> <tbody> <tr> <td>CNTR</td> <td style="text-align: center;">1.0058</td> <td style="text-align: center;">0.9315</td> <td style="text-align: center;">0.9428</td> <td style="text-align: center;">0.8440</td> </tr> <tr> <td>TANKER</td> <td style="text-align: center;">0.3594</td> <td style="text-align: center;">0.3462</td> <td style="text-align: center;">0.3541</td> <td style="text-align: center;">0.3508</td> </tr> <tr> <td>BULK</td> <td style="text-align: center;">0.6972</td> <td style="text-align: center;">0.7508</td> <td style="text-align: center;">0.7056</td> <td style="text-align: center;">0.5331</td> </tr> <tr> <td>LNG</td> <td style="text-align: center;">0.8810</td> <td style="text-align: center;">0.9536</td> <td style="text-align: center;">1.2213</td> <td style="text-align: center;">0.8185</td> </tr> <tr> <td>MPV</td> <td style="text-align: center;">-</td> <td style="text-align: center;">1.9900</td> <td style="text-align: center;">2.0114</td> <td style="text-align: center;">2.0663</td> </tr> <tr> <td>TOTAL</td> <td style="text-align: center;">0.8171</td> <td style="text-align: center;">0.8140</td> <td style="text-align: center;">0.8307</td> <td style="text-align: center;">0.6937</td> </tr> </tbody> </table> * Target : 1% improvement for value of the 3 years average (2020-2022) * LNG fleet : F.O consumption intensity has been reduced compared last year due to the use of BOG mainly for fuel. * CNTR fleet : ① F.O consumption intensity has been reduced following the		2020	2021	2022	2023(H)	CNTR	1.0058	0.9315	0.9428	0.8440	TANKER	0.3594	0.3462	0.3541	0.3508	BULK	0.6972	0.7508	0.7056	0.5331	LNG	0.8810	0.9536	1.2213	0.8185	MPV	-	1.9900	2.0114	2.0663	TOTAL	0.8171	0.8140	0.8307
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					effective route planning and declined congestion of ports. ② F.O consumption intensity has been reduced through RPM operation monitoring and F/back per each vessels. * BULK fleet : F.O consumption intensity has been reduced by returning vessels of BDRM,BPVI having poor fuel efficiency.	
Air pollution from ship operation	Minimize fuel consumption and increase energy efficiency	Hull Inspection (80 vessels)	54 vessels	67.5	* 54 vessels performed. -. CNTR 1T: 14 vessels, CNTR 2T : 14 vessels, CNTR 3T: 15 vessels TANKER : 6 vessels, LNG&BULK T : 5 vessels -. Inspection period of the CNTR fleet is every 6 months. -. Other fleet except CNTR has been performed according to the vessel condition	MT, R&D
	Minimize emission of VOCs	VECS calibration (10 vessels)	5 vessels	50.0	* VECS calibration 시행 -. TANKER : 5 vessels (OGDR, OODD, OUCA, OUPT, OUWN)	TANKER
	Legal operation of Incinerator	Incinerator procedure (Violation ZERO)	Violation ZERO	100.0	* No violation existed.	QAT
Marine pollution from ship operation	Legal management of Garbage	Disposal of Garbage (Violation ZERO)	1 Violation	0	* Operation of the plastic compactor and garbage grinder (18 vessels) -. CNTR 1T : 1 Vessel (HHCB), CNTR 2T : 2 Vessels (HHPP, HHBB) -. LNG&BULK : 5 Vessels (TFSS, BIAE, BIDE, B1DU, B1AT) -. TANKER : 10 Vessels (OULD, OUWN, OUCA, OUPT, OUVT, OODD, OOGL, OGDR, OGFT, OGHP) -. HMM DHAKA : Discharge of food waste at sea within 12 nautical miles of china territorial sea (8.3 nautical miles from china baseline) (Violation of MARPOL)	VESSEL, QAT, MT

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	Minimize generation of Waste oil	Waste oil generation ratio (1.81 %)	1.94 %	93.0	* Annual performance of W.O(Waste Oil) generation (%) <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>2020</th> <th>2021</th> <th>2022</th> <th>2023(H)</th> </tr> </thead> <tbody> <tr> <td>W.O generation (%)</td> <td>1.73</td> <td>1.83</td> <td>1.92</td> <td>1.94</td> </tr> </tbody> </table> * CNTR Fleet : W.O generation increased due to decrease in fuel consumption regarding to slow steaming from voyage sliding and schedule relatively. * TANKER Fleet : W.O generation increased due to W.O before hand over from vessels handed over this year. * W.O generation increased due to due to low quality of fuel oil supplied. * The average rate of W.O generation (%) has remained as last year overall.		2020	2021	2022	2023(H)	W.O generation (%)	1.73	1.83	1.92	1.94	
		2020	2021	2022	2023(H)											
W.O generation (%)	1.73	1.83	1.92	1.94												
Legal management of Ballast water	Ballast water management regulation/convention (Violation ZERO)	Violation ZERO	100.0	* 69 vessels are operating the BWMS. (Total : 72 vessels) -. CNTR 47 vessels, TANKER 12 vessels, LNG 1 vessel, MPV 4 vessels, BULK 5 vessels. * According to BWMS installation, Revision of BWMP (reflecting D-2) and re-issue of IBWMC would be conducted.	QAT											

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Marine pollution from ship operation	Legal operation of Scrubber	EGCS washwater discharge regulation (Violation ZERO)	4 Violations	0	* 57 vessels are operating the Scrubber. (Total : 72 vessels) -. CNTR 39 vessels, TANKER 11 vessels, BULK 3 vessel, MPV 4 vessels. -. The remaining 15 ships are using VLSFO with a sulfur content of 0.5% or less. -. Updating Control area to ban discharge of washwater from EGCS has been conducting continuously. -. HMM STOCKHOLM : <u>Violation of washing water discharge due to miss operation by crew during departing from CNTAO.</u> -. HMM ST. PETERSBURG : <u>Violation of washing water discharge due to miss operation by crew during departing from CNTAO.</u> -. HMM COPENHAGEN : <u>Violation of washing water discharge due to the EGCS Data Log is not continuously updated during departing from CNTAO.</u> -. HMM DUBLIN : <u>Violation of washing water turbidity during departing from CNTAO and CNYTN.</u>	VESSEL, R&D, QAT																				
	Compliance with regional regulations for various incidental discharges from ship operation.	National discharge regulations (Violation ZERO)	Violation ZERO	100.0	* Identify and thoroughly comply with regional regulations such as US VGP regulations, VOC, gray water, and sewage discharges, etc.	QAT																				
Resources management of office	Reduce fuel oil consumption for vehicle	Gasoline 21,509 ℓ	12,301 ℓ	87.4%	* Annual environmental performance of office <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="text-align: center;">구 분</th> <th style="text-align: center;">2020</th> <th style="text-align: center;">2021</th> <th style="text-align: center;">2022</th> <th style="text-align: center;">2023(H)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Gasoline (ℓ)</td> <td style="text-align: center;">17,197</td> <td style="text-align: center;">19,975</td> <td style="text-align: center;">23,110</td> <td style="text-align: center;">12,301</td> </tr> <tr> <td style="text-align: center;">Diesel (ℓ)</td> <td style="text-align: center;">120</td> <td style="text-align: center;">43</td> <td style="text-align: center;">120</td> <td style="text-align: center;">133</td> </tr> <tr> <td style="text-align: center;">Boiler (Nm³)</td> <td style="text-align: center;">42,903</td> <td style="text-align: center;">41,791</td> <td style="text-align: center;">24,129</td> <td style="text-align: center;">-</td> </tr> </tbody> </table>	구 분	2020	2021	2022	2023(H)	Gasoline (ℓ)	17,197	19,975	23,110	12,301	Diesel (ℓ)	120	43	120	133	Boiler (Nm ³)	42,903	41,791	24,129	-	CAD
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		Diesel	143 ℓ	133 ℓ	53.8%	Cooking facility (Nm ³)	14,251	12,415	5794	-
						Electricity (MWh)	2,765	2,920	2004	458
	Reduce the electricity	Electricity (2,571 MWh)		458 MWh	280%	Employee	919	940	958	949
						Energy consumption (MJ)	12,704,303	13,229,769	9,086,457	2,028,969
						Energy consumption (MJ/Person)	13,824	14,074	9,485	2,139