

# Environment and Energy Program Plan in 2025

Significant Environmental Aspect	Environment/Energy Objective			Details	P.I.C	Remarks
	Target	Criteria(Q'ty)	Item			
Marine pollution due to emergencies such as hull damage, etc.	Prevent emergencies and minimize damage	The number of marine pollution accident from emergencies (ZERO)	Collision, Ground, Oil spill	<ul style="list-style-type: none"> <li><input type="checkbox"/> Implementation of verification of compliance with work safety procedures when audit/inspection, visit for ships</li> <li><input type="checkbox"/> Carried out the training for hazard prevention, TBM and risk Assessment.</li> <li><input type="checkbox"/> Use of Special &amp; Critical Checklist</li> <li><input type="checkbox"/> When dangerous working, ensure safety though 'Permit to Work' system</li> <li><input type="checkbox"/> Implementation onboard navigation audit by master (within 1 month from the date of joining for each auditee)</li> <li><input type="checkbox"/> Compliance with crew's minimum rest hours</li> <li><input type="checkbox"/> Thorough enforcement of Bridge watch instruction</li> <li><input type="checkbox"/> Improvement of emergency response ability through ship's familiarization with contingency procedures and periodic execution of emergency drill.</li> <li><input type="checkbox"/> Weather monitoring and cargo management, optimization of machinery /equipment's condition.</li> <li><input type="checkbox"/> Periodic patrolling and site monitoring when oil transfer work.</li> <li><input type="checkbox"/> Thorough management of shipboard oil response equipment and waterproofing materials for each ship.</li> <li><input type="checkbox"/> Periodic sounding for all tanks and check level gauge thoroughly.</li> </ul>	SHIP, MT, QAT	

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	Target	Criteria(Q'ty)	Item			
Marine pollution due to malfunction of machinery / equipment	Prevent malfunction of marine pollution prevention machinery / equipment and minimize damage	The number of marine pollution accident caused by malfunction of machinery / equipment (ZERO)		<input type="checkbox"/> Maintenance of pollution prevention machinery/equipment and management of overdue item in accordance with the PMS. <input checked="" type="checkbox"/> 15ppm monitoring system calibration for Oily Water Separators (Plan: 49 ships) ① CNTR Team1 : 2 ships (HHDR, HHHO) ② CNTR Team2 : 10 ships (HOOS, HORO. HOSO, HOSK, HHBB, HHPP, HHSU, HHVO, HHGW, HHIT) ③ CNTR Team3 : 6 ships (HOMI, HHOK, HHCT, HHDK, HHCE, HHPU) ④ CNTR Team4 : 4 ships (HHBV, HHCR, HHFA, HHFC) *Implemented every 2.5 years(30 months) per ship ⑤ Tanker Team : 14 ships *Annual calibration as required by Oil Major and in accordance with MESQAC(Marine Environmental, Safety and Quality Assurance Criteria) ⑥ LNGC Team : 1 ship (GHEO) *Annual calibration as required by Oil Major and in accordance with MESQAC(Marine Environmental, Safety and Quality Assurance Criteria) ⑦ BULK Team : 12 ships (TGLT, TGAT, TGST, TTAA, BOFL, BOGX, BPC1, BSS7, BOCP, BODR, BIAE, B1MS) <input checked="" type="checkbox"/> Minimize stern tube lubrication oil discharge : Strengthen PMS maintenance for stern tube sealing and enhance management through UMA Checklist <input type="checkbox"/> Management of minimum holding quantities of spare part in critical item. <input type="checkbox"/> Implementation of safety device function test periodically. <input type="checkbox"/> If the related regulation is changed, information would be provided to ships for the change and supplement equipment if needed. <input type="checkbox"/> Provide technical support and guideline when receiving ship's request.	SHIP, MT	*Marine Environmental, Safety and Quality Assurance Criteria
Air pollution from ship operation	Appropriate maintenance of CII grade	Maintaining a ratio of vessels with a CII rating of D or higher (95% higher)	CII grade	<input type="checkbox"/> Voyage optimization management. (Through adjustment of Trim, Draft, Speed, Propeller immersion, etc.) <input type="checkbox"/> Management of machinery efficiency. (prohibit G/E parallel operation under low load, machinery condition management, etc.)	R&D, MT	HMMCompassuses (HMMIT system)

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	Minimize fuel consumption and increase energy efficiency	F.O consumption intensity (0.7412 g/DWT*km)	g/DWT*km	<input type="checkbox"/> Compliance with SEEMP procedure. (using CII CHECK LIST) <input type="checkbox"/> Management for minimizing resistance (Hull management, Underwater work, Application of premium AF paint, etc.) <input type="checkbox"/> Application of ESD(Energy Saving Device), EPL/ShaPoLi, etc., and expansion of alternative fuel use. <input type="checkbox"/> Verify the results of machinery maintenance according to PMS in MMS. ※ Target of F.O consumption intensity : 1% improvement of average of last 3 years	SHIP, QAT	과년도 3개년 2022: 0.8307 2023: 0.6936 2024: 0.7217
	Minimize hull resistance for energy efficiency	Hull fouling management (102 ships)	Hull inspection	<input type="checkbox"/> Hull fouling management ■ Minimizing hull resistance increase caused by biofouling on hull through Hull inspection. ■ Hull cleaning/Propeller cleaning will be implemented with hull inspection. [CNTR fleet] Considering delays in dry-dock and schedule, to be implemented at least once a year per ship. ① CNTR Team1 : 18 ships ② CNTR Team2 : 17 ships ③ CNTR Team3 : 20 ships ④ CNTR Team 4 : 14 ships [TANKER / LNGC / BULK / MPV fleet] : To be implemented annually after dry-dock for each ship. ① TANKER Team : 14 ships ② LNG&BULK Team : 19 ships ■ Based on the results of the hull inspection, hull cleaning will be carried out if necessary.	MT, R&D	
	Minimize emission of VOCs	Related machinery / equipment PMS Overdue (Case ZERO)	Overdue item	<input type="checkbox"/> VOCs emission at right time and right place through the maintenance for related machinery/equipment with complying PMS. <input type="checkbox"/> Monitoring PMS overdue history for related machinery/equipment of TANKER through monthly check for PMS maintenance history. <input type="checkbox"/> According to VOC management plan, optimal control of VOC related to cargo operation has been carried out through complying emission minimizing procedure and recording for VOCs.	TANKER	
	Legal operation of incinerator	Incinerator procedure (Violation ZERO)	Violation case	<input type="checkbox"/> Comply the area prohibiting incineration of garbage. (inside ports, within territorial sea, etc.) <input type="checkbox"/> Note the cautions for plastic, oily rags incineration	QAT, MT	Refer to PE-503, Ch.2.3

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	Compliance with fuel oil sulfur oxide emission regulations	F.O sulfur oxide emission regulation (Violation ZERO)	Violation case	<input type="checkbox"/> SCRUBBER operation and use of low-sulfur fuel oil to comply with ship sulfur oxide emission regulations. <input type="checkbox"/> When making voyage plan of the ship, identify SOx emission control area.	QAT, MT	Refer to I29 SOx scrubber operation guidance
	Compliance with fuel oil nitrogen oxide emission regulations	F.O nitrogen oxide emission regulation (Violation ZERO)	Violation case	<input type="checkbox"/> Operation of SCR(Selective Catalytic Reduction) to comply with sulfur oxide emission regulations for vessels. <input type="checkbox"/> Compliance with the company's procedures related to the operation of SCR. <input type="checkbox"/> Identify and prepare for nitrogen oxide emission control areas when planning voyages.	QAT, MT	Refer to PE-503 App.9
선박 운항으로 인한 해양오염	Legal management of garbage and waste minimization	Disposal of garbage regulation (Violation ZERO)	Violation case : Illegal unloading, Incineration, and marine discharge	<input type="checkbox"/> Arrangement of legal garbage disposal company through local agency. <input type="checkbox"/> For new regulations of garbage disposal locally identified, information and guidance to be provided to ships. <input type="checkbox"/> Thorough implementation separate collection for waste in accordance with the Garbage Management Plan. <input type="checkbox"/> Minimize volume of garbage through compression <ul style="list-style-type: none"> <li>■ Reduce packaging materials for ship supplies and remove packaging within the port before delivering them to shore prior to departure.</li> <li>■ Actively engage in waste recycling activities (separate waste collection and purchase of recycled products)</li> <li>■ Use products that minimize waste generation and are less toxic.</li> <li>■ Review the potential for reuse and observe the improvement point before disposing of products.</li> <li>■ Prioritize the purchase of reusable and recyclable products.</li> </ul> <input type="checkbox"/> supply and operation of Plastic compactor/ grinder onboard	SHIP, QAT, MT	Refer to PE-502 APP.5 / PLASTIC COMPACTOR installed on 87 ships

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	Minimize generation of waste oil	Waste oil generation ratio (1.90 %)	Total amount of sludge and oily residues generated	<input type="checkbox"/> Periodic maintenance of related machinery/equipment (Purifier, Oil pump, etc.) in accordance with the PMS. <input type="checkbox"/> Periodic sounding and record for all waste oil tanks thoroughly. <input type="checkbox"/> Optimal adjustment of the discharge time of the purifier with considering quality of F.O supplied. <input type="checkbox"/> Improve W.O generation rates by using fuel additives when acquiring poor quality F.O. <input type="checkbox"/> Provide feed-back when selecting suppliers for the procurement team. <input type="checkbox"/> Target of waste oil generation ratio : Value of 1% improvement of average of last 3 years.		(Performance) 2022 : 1.92% 2023 : 1.93% 2024 : 1.92%
	Legal management of ballast water	평형수 관리규정 (위반 ZERO)	Violation case	<input type="checkbox"/> Compliance with the BWMC and local regulations. (Refer to BWMP) <input type="checkbox"/> Thorough records of ballast water treatment and management. (BWRB) <input type="checkbox"/> Compliance with the regional obligation for ballast water report/management.	QAT, MT	Operation of 100 BWMS / PE-503, Ch.3 참고
	Legal operation of SCRUBBER	SCRUBBER wash-water discharge regulations (Violation ZERO)	Violation case	<input type="checkbox"/> Update information on areas where regulations on the discharge of SCRUBBER wash-water are enforced. <input type="checkbox"/> Switch to M.O or operate in close loop mode in area where SCRUBBER wash-water discharge regulations are enforced.	MT, QAT	Operation of 82 SCRUBBER
	Compliance with regulations for the discharge of by-products generated during operations	Country-specific discharge regulation (Violation ZERO)	Grey water, Sewage, VOC, etc	<input type="checkbox"/> Comply with Particularly Sensitive Sea Area (PSSA), and local regulations. <input type="checkbox"/> Compliance with MARPOL ANNEX I, II, IV, VI regulations <input type="checkbox"/> Identify the local regulations through local agency. (Guide the ships about the regulations through Experience Feedback, etc.) <input type="checkbox"/> Identify new regulations or changes, update relevant procedures to keep them current.	QAT, MT	Refer to PE-MC-502/503 & PE-502, Ch.3 PE-503
Resources management of office	Reduce fuel consumption for vehicles	Fuel consumption (Gasoline : 23,103ℓ) (Diesel : 1,393ℓ)	Gasoline, Diesel	<input type="checkbox"/> Recommend on public transport upon an outdoor service. <input type="checkbox"/> Regularly maintenance of facility and efficient operation.	CAD	
	Reduce the electricity	4,289,796 MWh	Electricity	<input type="checkbox"/> Prohibit the use of personal air-cond. and heater. <input type="checkbox"/> Turn-off the unnecessary lights during night overtime. <input type="checkbox"/> Regularly maintenance of facility and efficient operation.		