2024 ENVIRONMENT & ENERGY PLAN

Significant Environmental Aspect	Environment & Energy Objective			Environment & Energy Program	PIC	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	-. Implementation of verification of compliance with work safety procedures when audit/inspection, visit for ships -. Carried out the training for hazard prevention, TBM and risk Assessment. -. Use of Special & Critical Checklist -. When dangerous working, ensure safety though 'Permit to Work' system -. Implementation onboard navigation audit by master (within 1 month from the date of joining for each auditee) -. Compliance with crew's minimum rest hours -. Thorough enforcement of Bridge watch instruction -. Improvement of emergency response ability through ship's familiarization with contingency procedures and periodic execution of emergency drill. -. Weather monitoring and cargo management, optimization of machinery /equipment's condition. -. Periodic patrolling and site monitoring when oil transfer work. -. Thorough management of shipboard oil response equipment and waterproofing materials for each ship. -. Periodic sounding for all tanks and check level gauge thoroughly.	SHIP, MT, QAT	
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)**		-. Maintenance of pollution prevention machinery/equipment and management of overdue item in accordance with the PMS. -. Oily bilge separator 15ppm monitoring system calibration plan (TTL : 34 ships). ● CNTR 1T : 11 ships (7 DSME 24K, HHDV, HHPR, HHBN, HHJK) ● CNTR 2T : NIL ● CNTR 3T : 5 ships (HOBD, HOHL, HHFW, HHUN, HHGR) ● TANKER : 14 ships (All tanker fleet) ● LNG/BULK : 4 ships (TFSS, BIDE, B1AT, GHEO) -. Management of minimum holding quantities of spare part in critical item. -. Implementation of safety device function test periodically. -. If the related regulation is changed, information would be provided to ships for the change and supplement equipment if needed. -. Provide technical support and guideline when receiving ship's request.	SHIP, MT	

Air pollution from ship operation	**CII Grade improvement management**	**Proportion of ships of CII grade 'D' or higher (Over 90%)**	CII grade	-. Voyage optimization management. (Through adjustment of Trim, Draft, Speed, Propeller immersion, etc.) -. Implementation of Hull inspection. -. Hull resistance minimize.(UW hull cleaning, Premium AF paint) -. Management of machinery efficiency. (prohibit G/E parallel operation under low load, machinery condition management, etc.) -. Compliance with SEEMP procedure. (using CII CHECK LIST) -. Verify results of machinery maintenance according to PMS in MMS. ※ Target of F.O consumption intensity : 1% improvement of average of last 3 years.	R&D	HMM Compass uses (HMM IT system)
	Minimize fuel consumption and increase energy efficiency	**F.O consumption intensity (0.7716 g/DWT*km)**	g/DWT*km		SHIP, QAT	Last 3 years 2021 : 0.8140 2022 : 0.8307 2023 : 0.6936
		Hull fouling Management (120 ships)		-. 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. ● Hull inspection plan (TTL : 120 ships) ✓ CNTR 1T : 32 ships (16 ships * 2 times) ✓ CNTR 2T : 31 ships (14 ships excluding HHPP,HHBB * 2 times + new ship 3 ships) ✓ CNTR 3T : 32 ships (16 ships * 2 times) ✓ TANKER : 14 ships (All tanker fleet) ✓LNG&BULK T : 11 ships (All LNG, bulk, MPV fleet)	MT, R&D	
	Minimize emission of VOCs	**Related Machinery /Equipment PMS overdue (Case ZERO)**	Overdue item	-. VOCs emission at right time and right place through the maintenance for related machinery/equipment with complying PMS. -. Monitoring PMS overdue history for related machinery/equipment of TANKER through monthly check for PMS maintenance history. -. 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.	TKT	
	Legal operation of Incinerator	**Incinerator procedure (Violation ZERO)**		-. Comply the area prohibiting incineration of garbage. (inside ports, within territorial sea, etc.) -. Note the cautions for plastic, oily rags incineration.	QAT, MT	Refer to 'PE-503, Ch.2.3' Shipboard incinerators
	Compliance with fuel oil sulfur oxide emission regulations	**fuel oil sulfur oxide emission regulations (Violation ZERO)**		-. SCRUBBER operation and use of low-sulfur fuel oil to comply with ship sulfur oxide emission regulations. -. When making voyage plan of the ship, identify Sox emission control area.	QAT, MT	

Marine pollution from ship operation	**Legal management of Garbage**	**Disposal of Garbage (Violation ZERO)**	**Disposal method :** Landing, Incineration, Discharge into sea	-. Arrangement of legal garbage disposal company through local agency. -. For new regulations of garbage disposal locally identified, information and guidance to be provided to ships. -. Thorough implementation separate collection for waste in accordance with the Garbage Management Plan. -. Minimize volume of garbage through compression. -. Review for supply and operation of Plastic compactor/ grinder onboard.	SHIP, MT, QAT	
	Minimize generation of Waste oil	**Waste oil generation ratio (1.87 %)**	Sludge, Oily residues	-. Periodic maintenance of related machinery/equipment (Purifier, Oil pump, etc.) in accordance with the PMS. -. Periodic sounding and record for all waste oil tanks thoroughly. -. Optimal adjustment of the discharge time of the purifier with considering quality of F.O supplied. -. Target of waste oil generation ratio : Value of 1% improvement of average of last 3 years.		Last 3 years 2021 : 1.83% 2022 : 1.92% 2023 : 1.93% *managed by each ships
	Legal management of Ballast water	**Ballast water management regulation/convention (Violation ZERO)**		-. Compliance with the BWMC and local regulations. (Refer to BWMP) -. Thorough records of ballast water treatment and management. (BWRB) -. Compliance with the regional obligation for ballast water report/management.	QAT, MT	71 ships are operating BWTS. (Total 73 ships)
	Legal operation of SCRUBBER	**SCRUBBER wash water discharge regulation (Violation ZERO)**		-. When making voyage plan of the ship, identify local restriction on discharge of SCRUBBER wash water. -. Fuel oil change over or operate SCRUBBER on close loop mode in the area having restrictions on discharge of SCRUBBER wash water.	MT, QAT	58 ships are operating Scrubber. (Total 73 ships)
	Compliance with regional regulations for various incidental discharges from ship operation	**National discharge regulations (Violation ZERO)**	Grey Water, Sewage	-. Comply with Particularly Sensitive Sea Area (PSSA), and local regulations. -. Identify the local regulations through local agency. (Guide the ships about the regulations through Experience Feedback, etc.)	QAT, MT	Refer to PE-MC-503-013 & PE-502, Ch.3

Resources management of office	**Reduce fuel oil consumption for vehicles.**	**Fuel consumption (Gasoline: 23,822ℓ) (Diesel: 272ℓ)**	Gasoline, Diesel	-. Recommend on public transport upon an outdoor service. -. Regularly maintenance of facility and efficient operation.	CAD	
	Reduce the electricity	**Electricity (985 MWh)**	Electricity	-. Prohibit the use of personal air-cond. and heater. -. Turn-off the unnecessary lights during night overtime. -. Regularly maintenance of facility and efficient operation.		