**BWTS OPERATION CHECKLIST**

The sequences of events mentioned below have to be followed in a chronological order for putting the BWTS plant into operation.

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| **Vessel:** |  |  | **Date/Time:** |  |
| **Port / Location:** |  |  | | |

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| Following is the sequence of operations to be undertaken for operating the BWTS | | Tick () |
| System should be in ready condition to perform each operation. Required Preparations and pre-condition are as below: | | |
| 1. | The main power must be switch on to the Hi-Ballast system |  |
| 2. | Make sure that all components are normal state |  |
| 3. | Make sure that all interfaced signals between BWTS and AMS are normal |  |
| 4. | All relevant valves including the HiBallast system valves must be set in the correct position for ballasting / de-ballasting /stripping operation as required |  |
| 5. | Select correct mode as per local region, e.g. USCG Mode / IMO Mode |  |
| 6. | Pump Room Blower No.1 must be running |  |
| 7. | BWTS Room blower running |  |
| **For BALLASTING operation following shall be checked & confirmed in the control monitor prior start** | | |
| **1** | **Low Salinity (< I5PSU)** |  |
|  | Check first whether the vessel is located at low salinity region (< I5PSU) or not |  |
|  | The low salinity region shall be predefined at the window in HMI on operation PC. |  |
|  | If the vessel is located in low salinity region, SWFU unit will run on low salinity mode automatically |  |
|  | NOTE: The dedicated seawater tank should be filled with salt water before entering into port where low salinity region is. At low salinity region, pre-charged salt water in dedicated tank will be used as salt water source  Dedicated source tank : APK WBT |  |
| **2.** | **TRO (Total Residual Oxidant)** |  |
|  | Make sure that TRO sensor reagent is enough for whole ballast operation  Reagent Kit replaced within 3 months as per Maintenance manual |  |
| **3.** | **Electrolysis Unit** |  |
|  | Check that the manual valves are correct position in the electrolysis unit  Check that the drain valves are CLOSE |  |
| **4.** | **Seawater Feed Unit** |  |
|  | Check the OPEN status of valves of selected strainer & pump. (Local & Manual) |  |
|  | Check the CLOSE status of valves. (Local & Manual) |  |
| **5.** | **System Ready Status** |  |
|  | Control cabinet ready |  |
|  | Motor control cabinet ready |  |
|  | Filter unit ready |  |
|  | Rectifier ready |  |
|  | No abnormal Alarms on BWTS system |  |
| **6.** | **Ballast System Valve Line-up** |  |
|  | Check ballast system valves Line-up for ballasting |  |
|  | Control mode changed from VRCS to BWTS after lineup checks |  |
| **For DE-BALLASTING operation following shall be checked & confirmed in the control monitor prior start** | | |
| **1.** | **TRO (Total Residual Oxidant)** |  |
|  | Make sure that TRO sensor reagent is enough for whole ballast operation  Reagent Kit replaced within 3 months as per Maintenance manual |  |
| **2.** | **Neutralization Unit** |  |
|  | Check & Confirm the level of-NU tank (Sodium Thiosulphate Chemical). (Remote/Local) |  |
|  | Check & Confirm the CLOSE status of the NU. (Local & Manual) |  |
|  | Select “NU” in injection pump in the setting window |  |
|  | Check and confirm the OPEN status of the NU tank outlet & NU injection pump inlet/outlet valves. (Local & Manual) |  |
| **3.** | **System Ready Status** |  |
|  | Main control cabinet is ready |  |
|  | Junction box is ready (NU) |  |
| **4.** | **Ballast System Valve Line-up** |  |
|  | Check ballast system valves Line-up for De-ballasting |  |
|  | Control mode changed from VRCS to BWTS after lineup checks |  |

**Notes:** The checklist is only applicable only for the ships fitted with Hyundai Hi-Ballast System, HiB-6000ex.

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| **Additional Engineer:** |  |  | **Chief Officer:** |  |
| **Signature:** |  |  | **Signature:** |  |