# Base Load Power Hub (BLPH)

## WATER TREATMENT PACKAGE

## UTILITIES, CHEMICALS, CONSUMABLES, LUBRICANTS CONSUMPTION LIST

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Table of Contents


| SH. | DESCRIPTION | REVISIONS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 00 | 01 | 02 | 03 | | | | |
| 1 | Cover | X | X | X | X | | | | |
| 2 | Table of Contents | X | X | X | X | | | | |
| 3 | Revision / Change Log | X | X | X | X | | | | |
| 4 | 1) Utilities, 2) Chemicals, 3) Consumables, 4) Lubricants | X | X | X | X | | | | |



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## Revision / Change Log

| Rev. | Description |
|---|---|
| 00 | ISSUE FOR REVIEW (IFR) |
| 01 | ISSUE FOR REVIEW (IFR) |
| 02 | ACCEPTED FOR CONSTRUCTION (AFC) |
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## HOLDS LIST

| No. | Description |
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| 2. | |
| 3. | |
| 4. | |



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| CROSSWIND | HOLLANDSE KUST NOORD WIND PARK Project<br>Contract No. CW-I-WP4-2023-05 | ROSETTI MARINO |
|---|---|---|
| Document Title: | UTILITIES, CHEMICALS, CONSUMABLES, LUBRICANTS CONSUMPTION LIST | Sh. 4 of 4<br>Date: 22/10/2024<br>Rev. 03 |

| 1) UTILITIES | AVERAGE CONSUMPTION | | | PEAK CONSUMPTION | | | PRESSURE | | TEMPERATURE | | POWER SUPPLY | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $m^3/h$ | kg/h | kW | $m^3/h$ | kg/h | kW | min (barg) | max (barg) | min (°C) | max (°C) | Volt (V) | Freq. (Hz) |
| Cooling water | N.A. | | | N.A. | | | | | N.A. | | | |
| Demi water 3 | N.A. | | | N.A. | | | atm | atm | ambient | ambient | | |
| Instrument and service air | N.A. | | | N.A. | | | N.A. | N.A. | | | | |
| Nitrogen | N.A. | | | N.A. | | | | | | | | |
| Absorbed power | | | Note 1 | | | Note 1 | | | | | 400 | 50 |

Note 1: refer to Electric Load List document n.1724000448-EL-LIS-00018.

3

| 2) CHEMICALS | DOSAGE | FLOWRATE | FREQUENCY OF DOSAGE | | TYPE OF CHEMICAL | CONSUMPTION | |
|---|---|---|---|---|---|---|---|
| | mg/l | l/h | type | h | | liters/6 months | liters/year |
| Biocide on pump caisson B50013A/B | 50 | 0.85 | discontinuous shock | 20 min every 4 days | non-oxidising (DBNPA), 100% commercial product, density 1.16 $g/cm^3$, pH 2.5-4 | 13 | 26 |
| Biocide on sea water lift pumps P50001A/B | 50 | 0.85 | discontinuous shock | 20 min every 4 days | non-oxidising (DBNPA), 100% commercial product, density 1.16 $g/cm^3$, pH 2.5-4 | 13 | 26 |
| Biocide on container inlet | 2 | 0.03 | discontinuous 2 days/week | 12 | non-oxidising (DBNPA), 100% commercial product, density 1.16 $g/cm^3$, pH 2.5-4 | 21 | 42 |
| Biocide on WWT | 25 | 0.33 | discontinuous shock | 1/week | non-oxidising (DBNPA), 100% commercial product, density 1.16 $g/cm^3$, pH 2.5-4 | 8 | 16 |
| Antiscalant | 5 | 0.01 | discontinuous 2 days/week | 12 | 100% commercial product, density 1.3 $g/cm^3$, pH 7.5 | 6 | 12 |
| Caustic soda | 58 @10°C<br>47 @23°C | 0.05 @10°C<br>0.04 @23°C | discontinuous 2 days/week | 12 | 2% w/w solution, density 1.02 $g/cm^3$, pH 13.7<br>NOTE 1 | 31.5 @10°C<br>25.5 @23°C | 63 @10°C<br>51 @23°C |

NOTE 1: to prepare Caustic soda 2% solution with demi water. Caustic soda solution shall be prepared offshore adding 10 l of demi water to 1 l caustic soda 20%.
For one year of operation: 60 l demi water and 6 l caustic soda 20%. For six months of operation: 30 l demi water and 3 l caustic soda 20%.

3

| 3) CONSUMABLES | TYPE | QUANTITY INSTALLED | 3 CONSUMPTION | CONSUMPTION |
|---|---|---|---|---|
| | | | replacement quantity/six months | replacement quantity/year |
| Cartridges 20 micron | spiral wound, PP | 2 | 2 | 4 |
| Cartridges 5 micron | spiral wound, PP | 2 | 2 | 4 |
| UV lamp | low pressure Hg lamp, 40 W | 1 | N.A. | 1 |
| SWRO membranes | diameter 4", lengh 40" Polyamide Thin-Film Composite LG SW 4040 R | 12 | 12 | 24 |

| 4) LUBRICANTS | TYPE | CONSUMPTION |
|---|---|---|
| | | kg/year |
| Backwash pumps | N.A. NOTE 2 | N.A. |
| Booster pumps | N.A. NOTE 2 | N.A. |
| High pressure pumps | N.A. NOTE 1 | N.A |
| Fresh water pumps | N.A. NOTE 3 | N.A. |
| Caustic soda dosing pumps | N.A. | N.A. |
| Antiscalant dosing pumps | N.A. | N.A. |
| Biocide on sea water dosing pumps | N.A. | N.A. |
| Biocide on container inlet dosing pumps | N.A. | N.A. |
| Biocide on WWT dosing pumps | N.A. | N.A. |

NOTE 1: pump housing contains no bearings requiring lubrication as the only lubricating medium is water. Motor bearing replacement interval is 40000 working hours.
NOTE 2: pumps have no bearing, motors have bearing "greased for life".
NOTE 3: pumps have no bearing, motors bearing estimated replacement interval is 18000 working hours.

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