Base Load Power Hub (BLPH)

WATER TREATMENT PACKAGE

UTILITIES, CHEMICALS, CONSUMABLES, LUBRICANTS CONSUMPTION LIST

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3	Revision / Change Log	X	X	X	X	X			
4	1) Utilities, 2) Chemicals, 3) Consumables, 4) Lubricants	X	X	X	X	X			

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Revision / Change Log

Rev.	Description
00	ISSUE FOR REVIEW (IFR)
01	ISSUE FOR REVIEW (IFR)
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HOLDS LIST

No.	Description
1.	
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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	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.

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 47 @23°C	0.05 @10°C 0.04 @23°C	discontinuous 2 days/week	12	2% w/w solution, density 1.02 g/cm^3, pH 13.7 NOTE 1	31.5 @10°C 25.5 @23°C	63 @10°C 51 @23°C
Salt for Softner 4	N.A.	N.A.	discontinuous tank refilling every 6 months		NaCl solid salt tablets	50 kg	100 kg

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%.
Caustic soda solution dosage shall be between 1% and 5% and shall be evaluated at site according to North Sea sea water composition. 4

3) CONSUMABLES	TYPE	QUANTITY INSTALLED	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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