

HLL LIFECARE LIMITED  
(A Government of India Enterprise)  
PEROORKADA FACTORY, PEROORKADA  
THIRUVANANTHAPURAM-695005

Email:

Website: [www.lifecarehll.com](http://www.lifecarehll.com)

PH: +91 471 2437270



**TENDER NO: HLL/PFT/REVERSE OSMOSIS /2018-19 dated 29/03/2018**

**AMENDMENT 1**  
**FOR**  
**SUPPLY, ERECTION, INSTALLATION, COMMISSIONING & VALIDATION**  
**OF REVERSE OSMOSIS SYSTEM FOR PROCESS WATER RE-CYCLING HAVING**  
**CAPACITY 100 KL/DAY**

**AT**  
**PEROORKADA FACTORY**



HLL LIFECARE LIMITED, PEROORKADA PLANT, THIRUVANANTHAPURAM

SUPPLY, ERECTION, INSTALLATION, COMMISSIONING & VALIDATION & OF REVERSE OSMOSIS SYSTEM

TENDER NO: HLL/PFT/REVERSE OSMOSIS /2018-19 dated 29/03/2018

Based on Pre-Bid meeting conducted on 04/04/2018, the following amendments has been incorporated in the tender (tender no: HLL/PFT/REVERSE OSMOSIS /2018-19 dated 29/03/2018)

1. The date of submission of bid is extended to 25.04.2018, 15.00 hrs. The bid Opening is extended to 25.04.2018, 15.30 hrs.
2. Aeration mechanism is proposed in the Intermediate tank of capacity 30 KL (existing tank). The size of the tank is 6.1 x 4.1 x 1.5 Meter. Capacity 30 KL approximate.
3. The water parameters mentioned in the tender document is as follows,
  - Page No- 49 – Design Parameter(Considering worst case)
  - Page No- 59- Final treated water quality required.
4. The Ultra filtration system should be equipped with fully automatic PLC (Programmable Logical Control) system. Make of PLC- Fuji/Allenbradley/Mitsubishi.
5. The capacity of the system should be 100 KL per day considering 20 hrs working. Hence the RO permeate would be 5m<sup>3</sup>/hr. Based on this, the bidder shall design pre - treatment &UF. The approximate feed flow for UF would be 8 m<sup>3</sup>/hr and permeate 7.5 m<sup>3</sup>/hr considering 90% recovery.
6. The general specifications mentioned from page 41 onwards is indicative only. Consider the supply of items mentioned in the Annexure - II & Price bid.
7. In place of Sanitization, “**clean in place**” is considered for UF and RO.
8. In page No 25, the clause no 12.6 in the tender document, the AMC(non-comprehensive) is mentioned as 2 years and the same is changed as Five years.
9. While Considering the ACF (Activated Carbon Filter) cost in Annexure I of Bill of Quantity, Iodine value of the carbon should be specified in the price bid.
10. Centrifugal pump of capacity 8 m<sup>3</sup> to be considered for lifting the water from Intermediate tank to the Lamilla clarifier.
11. The pipeline used for RO system should be UPVC schedule 40 of size 1”. RO reject pipe should be SS of Size 1”.



**HLL LIFECARE LIMITED, PEROORKADA PLANT, THIRUVANANTHAPURAM**

**SUPPLY, ERECTION, INSTALLATION, COMMISSIONING & VALIDATION & OF REVERSE OSMOSIS SYSTEM**

**TENDER NO: HLL/PFT/REVERSE OSMOSIS /2018-19 dated 29/03/2018**

12. Chemicals required for validation is under Bidders Scope. The validation period is one month Minimum after Successful installation & commissioning.
13. The test results of water for treatment is shared for reference while designing the system. The test report is attached for reference.
14. The RO membrane proposed is Chemical sanitable instead of hot sanitable membrane.
15. Mechanical flow totalizer is proposed instead of electro-magnetic.
16. The Supply of electrical Main panel for the entire RO system is under Bidders Scope. Bidder has to provide the Electrical load required for the system.
17. Bidder has to provide the Building drawing (General Arrangement drawing) and Electrical lay out required for the system.
18. Amended form of Price bid is attached / enclosed

**TEST REPORT OF INPUT WATER**

SL NO	TEST PARAMETER	TEST METHOD	UNIT	RESULT
01	pH	IS 3025 Part 11:1983 RA 2012	---	8.50
02	Total Dissolved Solids	IS 3025 Part 16:1984 RA 2012	mg/L	77.0
03	Total Hardness (as CaCO <sub>3</sub> )	IS 3025 Part 21:2009 RA 2014	mg/L	28.0
04	Calcium Hardness	IS 3025 Part 40:1991 RA 2014	mg/L	14.0
05	Magnesium Hardness	IS 3025 Part 46:1994 RA 2014	mg/L	14.0
06	P- Alkalinity	IS 3025 Part 23:1986 RA 2014	mg/L	4.02
07	M- Alkalinity	IS 3025 Part 23:1986 RA 2014	mg/L	19.7

**HLL LIFECARE LIMITED, PEROORKADA PLANT, THIRUVANANTHAPURAM****SUPPLY, ERECTION, INSTALLATION, COMMISSIONING & VALIDATION & OF REVERSE OSMOSIS SYSTEM****TENDER NO: HLL/PFT/REVERSE OSMOSIS /2018-19 dated 29/03/2018**

08	Chlorides (as Cl <sup>-</sup> )		IS 3025 Part 32:1988 RA 2014	mg/L	11.9
09	Sulphate (as SO <sub>4</sub> )		IS 3025 Part 24:1986 RA 2014	mg/L	6.19
10	Dissolved silica (as SiO <sub>2</sub> )		IS 3025 Part 35:1988 RA 2014	mg/L	5.82
11	Ortho Phosphate (as PO <sub>4</sub> )		IS 3025 Part 31:1988 RA 2014	mg/L	< 0.10
12	Total Phosphate (as PO <sub>4</sub> )		IS 3025 Part 31:1988 RA 2014	mg/L	< 0.10
13	Dissolved Iron (as Fe)		IS 3025 Part 53:2003 RA 2014	mg/L	0.26
14	Total Iron (as Fe)		IS 3025 Part 53:2003 RA 2014	mg/L	0.29
15	Sodium (as Na)		IS 3025 Part 45:1993 RA 2009	mg/L	4.68
16	Potassium (as K)		IS 3025 Part 45:1993 RA 2009	mg/L	< 0.20
17	Nitrite (as NO <sub>2</sub> )		IS 3025 Part 34:1988 RA 2014	mg/L	< 0.02
18	Fluoride (as F <sup>-</sup> )		IS 3025 Part 60:2008 RA 2013	mg/L	< 0.10
19	Chemical Oxygen Demand (COD)		IS 3025 Part 58:2006 RA 2012	mg/L	< 10.0
20	Biochemical Oxygen Demand (3 days @ 27°C)		IS 3025 Part 44:1993 RA 2014	mg/L	< 2.00
21	Oil & grease		IS 3025 Part 39:1991 RA 2014	mg/L	2.87
22	Zinc (as Zn)		IS 3025 Part 49:1994 RA 2009	mg/L	< 0.20
23	Alumina (as Al)		IS 3025 Part 55:2003 RA 2014	mg/L	< 0.50



HLL LIFECARE LIMITED, PEROORKADA PLANT, THIRUVANANTHAPURAM

SUPPLY, ERECTION, INSTALLATION, COMMISSIONING & VALIDATION & OF REVERSE OSMOSIS SYSTEM

TENDER NO: HLL/PFT/REVERSE OSMOSIS /2018-19 dated 29/03/2018

## BILL OF QUANTITY

### Annexure- I

Sr. No	Item	Qty	BASIC PRICE (INR)	GST	Total Amount (INR)
<b>A</b>	<b>Supply of Items</b>				
1	PROVIDING AIR DIFFUSION AERATORS WITH BLOWER MECHANISUM FOR THE INTERMEDEATE TANK OF SIZE 6.1 X 4.1 X1.5 METER AND CAPACITY 30 KL APPROXIMATE	1 No.			
2	NaOCI DOSING SYSTEM	1 No.			
3	COAGULATION DOSING SYSTEM	1 No.			
4	POLY ELECTROLITE DOSING SYSTEM	1 No.			
5	CENTRIFUGAL MONO BLOCK FEED PUMP	1 No			
6	LAMELLA CLARIFIER	1 No.			
7	MGF FEED PUMP	1 No.			
8	MULTI GRADE FILTER	1 No.			
9	ACTIVATED CARBON FILTER (Bidder has to furnish the details of Iodine Value)	1 No.			
10	CARTRIDGE FILTER SIZE 20/10 MICRON- (OPTIONAL)	1 No.			
11	UF BLOCK CHEMICAL SANITABLE MEMBRANE WITH SUITABLE CLEAN IN PLACE. THE SYSTEM IS FULLY AUTOMATIC PLC BASED.	1 No.			



HLL LIFECARE LIMITED, PEROORKADA PLANT, THIRUVANANTHAPURAM

SUPPLY, ERECTION, INSTALLATION, COMMISSIONING & VALIDATION & OF REVERSE OSMOSIS SYSTEM

TENDER NO: HLL/PFT/REVERSE OSMOSIS /2018-19 dated 29/03/2018

12	ANTISCALENT DOSING SYSTEM	1 No.			
13	SMBS DOSING SYSTEM	1 No.			
14	RO HIGH PRESSURE PUMP	1 No.			
15	RO BLOCK with following instruments <ul style="list-style-type: none"><li>• Pressure gauge at High Pressure pump inlet and outlet</li><li>• ORP indicator (for chlorine indication) and dump valve at the unit inlet</li><li>• High low level control of the feed water tank with interlock to the pumps</li><li>• Conductivity indicator at RO outlet</li><li>• pH indicator at the unit outlet</li><li>• Flow totaliser/Rota meter at the inlet unit &amp; outlet unit.</li></ul>	1 No.			
15.1	RO System with PLC Auto mode including HMI (optional)	1 set			
15.2	RO System with PLC Manual Mode	1 set			
16	pH Dosing system	1 No			
<b>B</b>	<b>Engineering Installation &amp; Commissioning</b>	1 Set			
<b>C</b>	<b>Annual Maintenance Contract for Five Years (Optional)</b>				
	<b>Grand Total</b>				

**SR.MANAGER (PURCHASE)**