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## **FUNCTIONAL GUARANTEES OF THE PLANT**

### **(To be completed by the Bidder)**

#### **1 General**

This document sets out the functional guarantees required to be provided by the Bidder for assessing the performance of the Works. These guarantees shall be used by the Employer to evaluate Bidder's satisfactory performance during the Tests after Completion, and also throughout the Operation and Maintenance Period.

**The Bidder shall complete the following sections and provide values for the electrical energy usage and chemical usage for the Works covered under the contract, based on the raw sewage flows and characteristics and specified effluent and sludge quality requirements as given in Part - 2 of Volume II A of bid document.**

#### **1.1 Functional Guarantees**

##### **1.1.1 Plant Effluent and Sludge Quality**

The Bidder guarantees that the plant effluent and sludge quality (20% moisture content) requirements specified in Part 2 of Volume II A will be fully and completely met, under either actual or simulated design raw sewage flows, loadings, and characteristics, as demonstrated by the Tests after Completion. The bidder further guarantees that the specified requirements will continue to be fully and completely met throughout the Operation and Maintenance Period.

##### **1.1.2 Electrical Energy Usage per Unit Volume of Raw Sewage**

The Bidder guarantees that electrical energy usage of various components of the Works will not exceed the values listed in the table below, as demonstrated by the Tests after Completion and throughout the Operation and Maintenance Period.

<b>STP Name</b>	Dhalli-II at Ghati Mohanpur Shimla				<b>Total Guaranteed Power Consumption (kWH/day)</b>
<b>STP Capacity (cum/day)</b>	<b>1400</b>				
The consumption of <b>Energy</b> during the Tests after Completion is guaranteed to be:	Not more than: .....kWH/per cubic meter (cum) of plant effluent				

The Guaranteed power consumption for all the units in the STP shall be justified as per Electrical load list provided below. (To be furnished by Bidder for each STP covered in this tender)

(BOD removal of 375 mg/l to be considered while calculating aeration power requirement)

Item No	Equipment Name	Working units (Nos.)	Efficiency of Equipment (%)	B kW for operation	Motor Efficiency (%)	Motor Rating (kW)	Operating hours (h/day)	Total Power Consumption (kWh/day)
1	Mechanical Coarse Screen							
2	Belt Conveyor							
3	Mechanical Fine Screen							
4	Belt Conveyor							
5	Grit Collector							
6	Grit Washing/Classifier Mechanism							
7	Organic Return Pump							

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8	Primary Clarifier mechanism							
9	Anoxic Tank Mixer							
10	Process Air Blower							
11	SBR Decanter							
12	Secondary Clarifier mechanism							
13	Primary Sludge Pumps							
14	RAS Pump							
15	Pump Thickener Feed/WAS							
16	Flash Mixer							
17	Flocculator							
18	Clarifier Mechanism							
19	Filter Feed Pumps							
20	Backwash Pumps							
21	Air Scour Blowers							
22	Ultra Filtration Unit							
23	Gravity Sludge Thickener							
24	Digester Feed Sludge Pumps							

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25	Sludge Digester mixers							
26	Sludge Digester Accessories							
27	Gas Holder Accessories							
28	Flaring System							
29	Pump Dewatering unit Feed							
30	Dewatering Unit							
31	Pump Filtrate transfer							
32	Agitator PE preparation							
33	Pump PE dosing							
34	Agitator Coagulant preparation							
35	Pump Coagulant dosing							
36	Pump Chlorine Booster							
37	NaOH recirculating Pumps							
38	Air Blower in Chlorination system							
39	Service Water pumps							
40	Drain Pumps							
41	Lighting / Misc Load							

42	Auto valves/ Sluice gates							
43	EOT crane for blowers/pumps/equipments							
44	Other Miscellaneous Load							
45	Other Items which are not mentioned above but required,							
	<b>Total</b>							

**Note:** Bidder shall furnish details in above table and write “NIL” wherever not applicable.

## 1.2 Chemical Usage per Unit Volume of Plant Effluent

### 1.2.1 Chlorine Usage per Unit Volume of Plant Effluent

STP Name	Dhali-II at Ghati Mohanpur Shimla	Total Guaranteed Chlorine Consumption for all STPs in the Contract (Kg/day)
STP Capacity (cum/day)	1400	
The consumption of <b>Chlorine</b> during the Tests after Completion is guaranteed to be:	Not more than: .....kg per cubic meter (cum) of plant effluent	

### 1.2.2 Dewatering Polymer Usage per Unit Volume of Plant Effluent for Biological Sludge

STP Name	Dhali-II at Ghati Mohanpur Shimla	Total Guaranteed Polymer Consumption for all STPs in the Contract (Kg/day)
STP Capacity (cum/day)	1400	

The consumption of dewatering <b>Polymer (polyelectrolyte)</b> during the Tests after Completion is guaranteed to be:	Not more than: .....kg per cubic meter (cum) of plant effluent	
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### 1.2.3 Dewatering Polymer Usage per Unit Volume of Plant Effluent for Chemical Sludge (if Required)

<b>STP Name</b>	Dhali-II at Ghati Mohanpur Shimla		<b>Total Guaranteed Polymer Consumption for all STPs in the Contract (Kg/day)</b>
<b>STP Capacity (cum/day)</b>	<b>1400</b>		
The consumption of dewatering <b>Polymer (polyelectrolyte)</b> during the Tests after Completion is guaranteed to be:	Not more than: .....kg per cubic meter (cum) of plant effluent		

### 1.2.4 Coagulant Usage per Unit Volume of Plant Effluent (if required)

<b>STP Name</b>	Dhali-II at Ghati Mohanpur Shimla		<b>Total Guaranteed Coagulant Consumption for all STPs in the Contract (Kg/day)</b>
<b>STP Capacity (cum/day)</b>	<b>1400</b>		
The consumption of <b>Coagulant</b> during the Tests after Completion is guaranteed to be:	Not more than: .....kg per cubic meter (cum) of plant effluent		