



Hydro Turbine Engineering Division

Annexure-A to PI No. 240294142
Contract: Vishnugad Pipalkoti HEP

Specification for Waste Water Clarification Unit (Oil separator / Hydrocarbon Separator)

Application:

Waste Water Clarification Unit (WWCU) is required for installation below the floor level in an underground pit in hydro power station. The Waste Water Clarification Unit (WWCU) shall remove oil from effluent water coming to WWCU under gravity through a network of gullies. The clean water shall then flow from WWCU to a drainage pit by gravity from where it will be pumped out in the tailrace.

Design parameters:

Each WWCU UNIT to be supplied as per following specification-	
Rated flow	30 liters per sec (108 cum/hr)-min.
Standard of conformation	Relevant Indian / International Standard.
Residue allowed	5 mg / liter (maximum)

Constructional features:

1. WWCU shall have coalescing filter, sludge trap, automatic closing valve to prevent any discharge of retained hydrocarbons when retention capacity is reached and provision for monitoring the oil level. All the internal components shall be of austenitic stainless steel.
2. The external body shall be made of Recyclable Polyethylene and protected from corrosion both from inside and outside by polyurethane coating and it should preferably be suitable for installation in an underground pit of size 6000L x 2700W x 2500H. If this is not possible, supplier to take care that the sizing of external body is done in such a way that the pit required is only slightly bigger than the size mentioned above. This is because of the space limitation in the powerhouse.

Scope of supply:

1. Foundation details for fixing the WWCU on the floor of underground pit to be furnished. Foundation items shall be supplied along with the WWCU.
2. Matching flanges and hard wares shall be supplied for the inlet port for effluent water, outlet port for clean water, and outlet port for sludge and outlet port for separated oil.
3. Recommended spares, if any, shall be included in the offer.
4. The size & level of embedded pipe below invert level for effluent water leading to WWCU and embedded pipe required for connection to clean water port of

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WWCU shall be fixed on the levels specified in the drawing for WWCU (to be furnished by vendor)

5. The erection of the equipment at site, its testing at site shall be in the scope of the vendor. In the offer, it should be mentioned as to what testing shall be done at vendor's works and at site. Test certificates and inspection report shall be furnished to BHEL. Inspection at vendor's works shall be by third party.
6. Complete arrangement shall be provided for removing/pumping the separated oil from below to the floor level. If pump/motor sets are offered, starters shall be supplied along with the electric motor suitable for 50Hz and 415 V AC.
7. Access ladder and manhole shall be provided for ingress and egress to WWCU.
8. All components shall be easily accessible and removable for easy maintenance.
9. Suitable lifting provision to be provided.

Documents required along with offer:

1. Vendor shall furnish along with the offer complete general arrangement drg, bearing item nos., quantity of items, material of items, testing details etc.
2. 3 sets of relevant colored catalogues to be furnished along with the offer.
3. Complete Data Sheet is to be furnished along with the offer.

Note: Without above-mentioned documents, offer shall not be considered.

Documents to be furnished after PO:

1. 8 sets of O & M manuals shall be furnished in the event of order.
2. Vendor shall furnish 3 sets of the finalized complete general arrangement drawing, bearing item no., quantity of items, material of items, testing details etc. Dimension of underground pit required for the WWCU shall be mentioned in the drawing.
3. 2 copies of test certificates and inspection report.

Note: Vendor shall start the manufacturing, only after the drawing is approved by BHEL.

Guarantee Clause:

The equipment shall be guaranteed for trouble free operation and good workmanship for a period of 24 months from date of dispatch or 18 months from commissioning of equipment. The vendor shall undertake to replace all the items free of cost, if found defective during guarantee period.

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