



Specification For Metal Aboveground Oil-Water Separators
Project: _____

I. GENERAL REQUIREMENTS

A. Applications

The Separator shall remove free oil from oil-in-water mixtures of freshwater and oil originating from hydroelectric operations. The influent oil-in-water mixture will flow by gravity to the unit which will not be located in an area with a corrosive atmosphere.

B. Influent Characteristics

Oil-Water Separator shall be designed for a maximum flow rate of _____ US gallons per minute (GPM) or _____ liters per second (LPS). The normal/minimum operating temperature of the influent oil-in-water mixture will be _____ F/ _____ degree C. The maximum specific gravity of the oil at operating temperature will be _____, and the maximum concentration will be _____ milligrams per liter (mg/l).

C. Performance

The effluent oil and grease concentration from the Oil-Water Separator shall not exceed the following under the influent conditions specified:

Daily Maximum: _____ mg/l

II. REQUIRED VENDOR SUBMITTALS

A. Outline Drawings

Provide outline drawings for Separator that show principal dimensions and dimensional location of all fittings.

B. Verification

Provide computer prediction or design calculation that operation of the Oil-Water

Separator will be in conformance with effluent requirements when operating at influent conditions shown in I (B) above. Calculation shall include a detailed recapitulation of:

1. influent conditions
2. total surface area provided
3. pressure drop across internals
4. percent capture of oil
5. oil collection rate.

C. Operating Instructions

Vendor shall provide a complete set of installation, operation and maintenance instructions in electronic format for the separator that contain clear and concise descriptions of installation, operation and maintenance procedures and replacement

parts list including part numbers, quantities, and descriptions as necessary to adequately define any parts that might require replacement.

III. REQUIREMENTS AND MATERIALS

A. Requirements

Provide shop fabricated and assembled Oil-Water Separator which is comprised of a tank containing an inlet compartment, multiple angle plate oil coalescing compartment, and outlet compartment.

1. Inlet compartment shall provide a uniform oily wastewater loading across inlet face of oil coalescing compartment under laminar flow conditions. Inlet compartment to be provided with an inlet nozzle with non-clogging flow distributor and energy dissipating device.
2. Separator manufacturer shall provide an integral Oil Holding Tank compartment with a minimum capacity of _____ US gallons or _____ liters with _____ inch nozzle for oil removal.
3. Separator manufacturer shall provide a total (emergency) oil holding capacity of at least _____ US gallons or _____ liters
4. Oil coalescing compartment shall be equipped with: easily removable and reinstallable, multiple angle coalescing plates arranged to optimize separation of free oil from water and oil retention baffle (oil dam). Baffle shall be positioned to prevent discharge of free oil that has been separated from the water in the inlet and oil coalescing compartments. Plates shall be pure polypropylene with no admixtures such as calcium carbonate or other materials.
5. Separator shall be provided with an adjustable water overflow weir to allow for adjustment of the differential elevation between oil overflow weir and operating water level.
6. Installation contractor shall follow equipment manufacturer's recommendations for inlet and outlet pipe invert elevations as well as provide for access, etc., per manufacturer's installation and operating instructions.
7. Unit shall be a Mohr Separations Research, Inc. Model MSR _____ or approved equal.

B. Structural

Provide structural steel vessel designed to withstand static and dynamic hydraulic loadings while empty as well as during operating conditions. Provide adequate support for additional loadings from vessel appurtenances including internal supports, multiple angle coalescing plates, equipment transportation and handling operations. Vessel and appurtenances shall be designed to withstand rapid lowering and braking during handling.

1. Vessel shall have no penetrations except for piping. All piping must be seal welded into tank wall. No brackets or guides shall be bolted through tank walls.
2. Vessel shall be equipped with removable top covers arranged so as to provide easy access to interior for in-place plate pack cleaning or removal of plate packs. Covers shall be constructed so that each piece can be handled by two

men and shall be designed for a minimum of 100 pounds per square foot live load.

3. Inspection covers shall be provided over oil tank and outlet weir and inlet compartment.

C. Oil Coalescing Compartment

Provide removable multiple angle oil coalescing plate packs per the following:

1. MSR Multiple angle plates arranged in nominal ____ 8 mm spacing or nominal ____ 16 mm spacing and shall be installed for coalescing and removal of oil. Provide ____ stacks of ____ minimum water height.
2. Packs shall be designed for operation in a laminar flow regime and to provide a maximum effluent of ____ mg/l under the design conditions as shown on the calculation sheet.
3. All plate surfaces must be sloped 45 degrees to allow oil droplets to migrate upward on the undersides of the plates toward the weep holes for removal. The 45 degree slope allows oil droplets to agglomerate into larger droplets.
4. All plate surfaces have a solid removal path with 45 degree slopes and solid removal holes. The solid removal path is the top sides of the plates. The plate surfaces must be designed to allow in-situ cleaning. The plate packs shall be able to be cleaned in place using a cleaning wand.
3. Packs and all other internals shall be designed and supported to withstand loads associated with transportation and operation of unit.

D. Materials of Construction

1. Coalescing plates shall be of injection-molded polypropylene construction
2. Tank exterior and all internals to be _____ or better, _____ thick or thicker.
3. Exterior stiffeners if required by the drawings must be installed vertically for maximum strength. Stiffeners to be stitch welded to shell to minimize distortion, _____ stitches on _____ centers or closer.
4. Cover plates to be _____, _____ or thicker _____ minimum thickness with stiffeners provided on underside if required by the drawings to allow for live load noted above and avoid trip hazards.
5. Gaskets for adjustable weirs Buna-N.

E. Testing

1. Separator shall be constructed in an approved shop, using certified weld procedures, by welders certified in those procedures.
2. Separator shall be leak tested for one hour in each independent compartment and no leakage is allowed.
3. Weld certifications, material test reports, and leak test reports shall be submitted if requested.