SECTION 444249 - OIL-WATER SEPARATOR

1. GENERAL
   * + 1. RELATED WORK SPECIFIED ELSEWHERE
          1. Earthwork: Section 310000.

Eedit 2 paragraphs below to suit project.

* + - * 1. Cast-In-Place Concrete: Section 033001.
        2. Electrical Work: Division 26.
      1. REFERENCES
         1. Concrete Tank:

ASTM Standard C913 for Precast Water and Wastewater Structures.

ACI-318-89 Building Code Requirements For Reinforced Structural Concrete.

ACI-350R-89 Environmental Engineering Concrete Structures.

ASTM Standard C890 Minimum Structural Design Loading of Precast Concrete Water and Wastewater Structures.

AASHTO Vehicle Loads at Grade.

* + - * 1. Fiberglass Tank:

API Manual on Disposal of Refinery Wastes.

API Bulletin No. 1630 (1st Edition).

API Bulletin No. 421.

Tank manufactured per ASTM D-4021.

Tank manufactured per U.L. 1316.

NFPA 30 - Flammable and Combustible Liquids Code.

* + - * 1. Steel Tank:

Tank manufactured per U.L. 58.

Corrosion control system in strict conformance with Sti-P3 Specifications with a 30 year warranty. Tank manufacturer shall be a licensee of the Steel Tank Institute.

NFPA 30.

* + - * 1. Standards: The oil water separator shall be designed in accordance with Stokes Law and the American Petroleum Institute Manual on Disposal of Refinery Wastes, Volume on Liquid Wastes as stated in Chapter 5, Oil Water Separator Process Design and API Bulletin No. 1630 First Edition, Waste Water Handling and Treatment Manual for Petroleum Marketing Facilities.
      1. SYSTEM DESCRIPTION
         1. The separator system shall be designed to perform as specified for variable, intermittent and continuous flows up to and including 100 gpm and containing 1000 ppm oil and grease with a specific gravity range of 0.68 and 0.9.
         2. The unit shall incorporate a parallel plate coalescer enabling the removal of fine and widely dispersed oil and grease droplets by means of buoyant displacement to the underside of the plates where they undergo subsequent detachment in the form of globules rising to an upper self-contained holding and storage zone.
      2. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Waiver of Submittals: The “Waiver of Certain Submittal Requirements” in Section 013300, does not apply to this Section.
         5. Product Data: Catalog cuts with dimensions, specifications, installation instructions. Include one copy of operation and maintenance instructions for informational purposes.
         6. Performance: Defined by influent and effluent characteristics.
         7. Factory Test: Test certification for the tank.
         8. Accessory Sensors and Alarms: Schematic wiring diagrams and bill of materials for each component of each sensor/alarm system.
         9. Contract Closeout Submittals: Provide two additional copies of operation and maintenance instructions to the Director’s Representative.
      3. WARRANTY
         1. Manufacturer’s Warranty: The tank manufacturer shall warrant the oil/water separator tank for a period of 30 years against leakage due to internal corrosion, external corrosion, and structural failure.

1. PRODUCTS
   * + 1. MANUFACTURERS
          1. Concrete Tank: Oldcastle/Spancrete North, Inc., 123 County Route 101, P.O. Box 534, South Bethlehem, NY 12161, (518) 767-9390.
          2. Fiberglass Tank: Fluid Containment, Inc., Route 20, Box 1380, Conroe, TX 77301-4124, (409) 756-7731.
          3. Steel Tank:

Highland Tank and Manufacturing Co., One Highland Road, Stoystown, PA 15563, (814) 893-5701.

McTighe Industries, Inc., 2100 North Kimball Street, P.O. Box 928, Mitchell, SD 57301, (605) 996-1162.

* + - 1. TANK MATERIAL OPTION
         1. The oil/water separator tank may be fabricated from concrete, fiberglass, or steel at the Contractor’s option.
      2. SEPARATOR TANK
         1. Type: Heavy duty underground single wall tank with product level monitoring system.

Flanged inlet and outlet connections, including isolation spools for metal tanks.

Internal inlet velocity head diffusion baffle or tee.

Sediment chamber.

Sludge baffle.

Oil water separation chamber containing a parallel corrugated plate coalescer and a removable “Petroscreen” polypropylene coalescer designed to intercept oil droplets > 20 microns in size and to produce an effluent quality of 10 ppm or less of free oil and grease.

Ddelete subparagraph below if effluent chamber is not required.

Internal effluent downpipe for discharge of treated water to effluent pumpout chamber.

Fittings for vents.

Four inch diameter oil pump out and sampling pipe.

Two inch diameter sensor pipe.

Two 24 inch diameter manways, with extensions (if required), covers, gaskets, and bolts.

Lifting lugs for installation.

Electronic intrinsically safe oil level monitors and sensors to actuate visual and audible alarm.

Metal tanks coated inside and out per manufacturer’s recommendations. Concrete tanks coated inside with heavy coat of “Resist-All” sealant produced by Sealing Systems, Inc., 23230 W. Thomess Blvd., Lorretto, MN 55357, (612) 478-2057.

Insert number of gallons below in paragraph below. Wword processing person delete underline before adding numbers.

* + - * 1. Capacity: \_\_\_\_\_\_\_\_ gallons.
        2. Loading Conditions:

Internal Load: Five pounds per square inch (PSIG) above ground air test. Contractor shall test prior to installation with a soap solution applied to weld seams in search of leaks.

Surface Loads: Withstand surface H-20 axle loads when properly installed.

Tank shall support accessory equipment when installed according to tank manufacturer’s recommendations and limitations.

Edit article below to suit project.

* + - 1. MISCELLANEOUS MATERIALS
         1. Galvanized Pipe (For Vents). 3 inch - Schedule 40.
         2. Steel Retaining Riser (For Manways): Size and length to be determined by tank manufacturer and site conditions.
         3. Concrete Pad With Tank Hold-Down Device: Comply with manufacturer’s recommendations.

Straps with neoprene liners and turnbuckles.

Anchors.

Separating Pads: Made of inert dielectric material.

* + - 1. ACCESSORIES
         1. Interface and Level Sensor: Intrinsically safe oil level controls to activate high level alarm at a predetermined oil level.
         2. Alarm panel to monitor oil level sensors and activate a visual and audible alarm:

Audible alarm and alarm light.

Audible alarm shall be equipped with a silence switch.

Annunciator light shall remain lit until off-normal condition has been corrected.

Alarm shall have nameplate identification.

Separate alarm light for high oil level (red) and caution oil level (yellow).

Self-test button.

Phenolic plastic nameplate identification for each light, switch, etc.

Phenolic plastic nameplate identification for the alarm panel as follows, “Oil/Water Separator - Oil Level”.

Include article below if pumping is required from oil/water separator.

* + - 1. EFFLUENT PUMPOUT SYSTEM
         1. Constructed as an internal integral component of the oil/water separator tank.

Edit paragraph below for adequacy of pump size.

* + - * 1. Equipment:

Duplex, submersible, explosion-proof pumps capable of pumping a minimum of 10 GPM @ 16 feet TDH, 3/4 HP, 115V, 60 Hz.

Acceptable Pump: 3000 Series, Model US-RC (AA05) manufactured by R.I. Corcoran Co., New Lenox, IL 60451, (815) 485-2156.

Duplex motor control panel provided by the pump manufacturer to assure compatibility with pump operation:

NEMA 4 enclosure.

Equipped with hand-off-automatic pushbutton control, running lights, alternator, and high level alarm light.

Phenolic plastic nameplate identification as follows:

“Oil/Water Separator - Pump Control Panel”.

Nameplates identifying each switch and each light.

Intrinsically safe water level sensing system for automatic pump control and alarm light.

Remote-mounted audible alarm and alarm light.

Audible alarm shall be equipped with a silence switch.

Annunciator light shall remain lit until off-normal condition has been corrected.

Provide sufficient signal and power cable to reach motor control panel at the designated location via safety switches without intermediate splices.

Add article below for access to underground oil/water separators installed under concrete slabs at grade. Sshow details on drawing.

* + - 1. ACCESS HATCH COVERS
         1. Provide aluminum hatch covers suitable for H-20 wheel loading for access to tank manways.

Size recommended by the oil/water separator manufacturer.

Cover shall lay flat without any protrusions rising above the frame.

Acceptable Door: Type JD-2, double leaf, aluminum access door with automatic hold-open arm, torsion bar counter balances and removable key wrench, all as manufactured by Bilco Company, New Haven, CT 06505, (203) 934-6363.

1. EXECUTION
   * + 1. INSTALLATION
          1. Perform tests in accordance with manufacturer’s printed recommendations.

Air test steel separator tanks above ground at 5 psig while a soap solution is applied to the weld seams to detect leaks.

* + - * 1. Repair damaged coating with manufacturer’s touch-up kit.
        2. Excavate and install tank in accordance with manufacturer’s recommendations.
        3. Extend tank vents as indicated on contract drawings.
        4. Backfill in accordance with manufacturer’s printed recommendations.
        5. Fill separator tank with clean water ballast. After ballasting is complete, check elevations for proper tolerances.
        6. Field locate the control panel with alarm where indicated and as directed.
        7. Provide electric service to the control panel(s) and make necessary electrical interconnection of panel(s), pumps, oil and water level sensors, and alarm.

Electric work shall conform to the National Electrical Code (NEC).

* + - 1. CLEANING INFLUENT/EFFLUENT LINES
         1. Flush existing lines connected to the oil/water separator and dispose of the effluent in accordance with NYS Department of Conservation Regulations.

END OF SECTION 444249