



EnviroCare International

**EnviroCare FOG Concentrator
System Budget Proposal**

**To:
BETA Group, Inc.
For:
FOG Concentration
Taunton, MA WWTP**



**EnviroCare/Saracco FOG Concentrator
Model 60-500
Proposal Number 4173P99 Rev.0
Submitted April 16, 2020**

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SCOPE OF SUPPLY

This proposal is for One (1) EnviroCare/Saracco model 60-500 FOG Concentrator as specified herein. The materials of construction for the concentrator tank and the holding tank for this quote will be 304 SS.

A Model 60-500 unit is a 60 GPM Concentrator Tank with a 500 gallon Holding Tank

DESIGN CRITERIA

The materials and equipment covered by this proposal are intended to be standard materials and equipment of proven reliability. Equipment will be designed and constructed in accordance with the best practice of the industry to handle 60 GPM of fats, oils and greases (FOG). The inlet concentration of FOG's is typically up to 2%.

EQUIPMENT

The FOG Concentrator consists of the following components:

CONCENTRATOR TANK

FOG's will first pass through a filter to remove particulate and then will be discharged directly into the Concentrator Tank. After the concentrated material is removed the effluent will discharge to a drain.

The 60 GPM concentrator tank is rectangular, with the approximate dimensions of 4'-1/2" wide by 14'-0" long by 7'-7" height, fabricated from 1/4" steel plate. The concentrator tank will have a capacity of approximately 2000 gallons, which shall equal not less than 20 minutes retention time and will have a separation rate not greater than 2.5 gpm per square foot. Separation area is measured 12 inches below liquid level.

The tank design will include a inlet flow distributor, concentrator compartment, FOG and underflow baffle, mechanically adjustable level control assembly, effluent nozzle, drain/cleanout nozzle, recirculation connection, skimming beach ramp and a surface area skimming mechanism. Piping connections are fabricated with Schedule 40 pipe with 150# flanges.

The manually adjustable weir effluent level control assembly is operated by a hand lever accessible from the service platform (service platform by others). The level control is capable of varying the liquid level ~3".

The skimming mechanism is capable of skimming at a variable rate of 3 to 18 FPM. The mechanism consists of a 1/2 HP motor driving a single roller chain, which in turn drives two strands of 2.609 pitch polymeric chain, carrying flights with neoprene wiper blades on approximately 32" centers. The flights are designed to allow water to flow down the beach ramp and return to the concentrator tank. Polymeric sprockets fitted to carbon steel shafts, which ride in ball bearing take-ups, support the chains. Take-ups have 4" of adjustment. The drive is a SEW-Eurodrive or equal and supplied with 14 gauge drive guard. It consists of a TEFC, 1/2 HP drive suitable for operation with a 480/3/60 Hz power supply. The motor is TEFC and equipped with overload protection.

Concentrator support steel is A36 mild steel painted with PPG Pithane gray paint. Support legs should bear on concrete bases. There should be shims or grout inserted on the bases so that all supports shall carry the operating weight without distortion. Anchor bolts and hardware are provided by the contractor.

ODOR CONTAINMENT COVERS

The Concentrator Tank is covered with multiple 1/4" thick fiberglass reinforced plastic (FRP) covers. The covers are manufactured in sections easily removed or lifted for internal inspection. The FOG concentrator should operate normally with the covers in place. Odor removal duct connections are located on the side of tanks above the liquid level opposite the skimmer drive and overflow weir adjustment lever. Each cover will weight approximately 30 lbs.

HOLDING TANK

The Holding Tank has a maximum outside diameter of approximately 6' and a working capacity of 500 gallons. The concentrator and holding tank overall length is at maximum approximately 18' and the overall height is approximately 12'. The tank is fabricated from 3/16" sheet and will be supplied with all necessary structural steel stiffeners, supports, hinged cover and mounting flanges for level indicators.

The holding tank support steel is A36 mild steel painted with PPG Pithane gray paint. Support legs should bear on concrete bases. There should be shims or grout inserted on the bases so that all supports shall carry the operating weight without distortion. Anchor bolts and hardware should be provided by the contractor

HOLDING TANK CONTAINMENT COVER

The holding tank is covered with 10 gauge stainless steel lid, hinged for easy access.

HOLDING TANK LEVEL INDICATORS

The Holding Tank level sensing system utilizes measuring techniques to energize and de-energize signal relays when the monitored medium reaches various levels. The level control system consists of four level sensors.

The "High" level sensor should be located just above the heating zone. This device will give an alarm. The "High-High" level sensor is located just above the maximum allowable level for the concentrated FOG tank. This device will activate the "High-High" level alarm light on the control panel, as well as, lock out operation of the skimmer mechanism, ensuring the tank will not continue to fill. The "Low" level sensor located just above the discharge knife gate will permit the concentrated FOG grinder to operate. The "Low-Low" level sensor is located in the transition from the concentrated FOG tank and the reducing elbow at the bottom of the tank, this device should activate the "Low-Low" level alarm light on the supply control panel, as well as, lock out operation of the concentrated FOG grinder, ensuring the grinder cannot operate in a dry state.

HOLDING TANK HEATING SYSTEM

The Holding Tank has factory installed strip heating elements designed to maintain the FOG in the holding tank to a set point of 85-105°F. The system has 2" thick insulation and cladding and a thermocouple that can be used to regulate the temperature of the FOG. **(Interconnecting piping by others)**

HOLDING TANK BLENDER

The Holding Tank is furnished with a blender to promote even heating of the concentrated FOG. The blender consists of a vertical shaft mounted motor driven reducer, shaft, steady bearing located on bottom side of bridge and a single stage 4-blade stainless steel blender impeller. The drive assembly will be mounted on a steel bridge spanning the tank with necessary hardware for mounting to the tank. The impeller will be removable through the tanks hinged cover.

Motors will be 480/3/60 Hz, TEFC

CONCENTRATED FOG PUMP

The factory installed FOG pumping system is mounted directly below the Holding Tank. The pump and drive shall be supported by steel members fixed to the tank support columns (No concrete anchor bolts will be required). The FOG pump is a Netzsch Pump or equal. A knife gate is provided to isolate the FOG Holding Tank from the transfer equipment.

CONCENTRATOR CONTROL PANEL.

A factory installed control panel is attached to the Concentrator Tank. The control panel consists of a NEMA 4X enclosure with panel mounted display devices as described below.

- (1) NEMA 4X
- (1) 3-pole disconnect switch & circuit breaker
- (1) Control power ON-OFF switch
- (1) Indicating light, Control Power "ON"
- (2) Start-Stop push buttons for the motors
- (2) Indicating lights, Motor "RUN"
- (1) Motor starter (FOG pump)
- (1) Skimmer Speed Adjustment
- (1) Control power transformer w/ fused primary and secondary
- (1) Indicating light, Heater Power "ON"
- (2) Indicating lights for Holding Tank level (low/low & high/high)
- (4) Relays for level switches

FACTORY ASSEMBLY AND TESTING

All components will be assembled and tested prior to preparation for shipment. Concentrator tank, holding tank, support structure is assembled and checked for bolt hole alignment and fit. Concentrator drive and collector system will be assembled and furnished power to check system for alignment and operation. Both the Concentrator Tank and the Holding tank will be filled with water to check for leaks. Motors will be connected and operated to assure proper equipment installation. The control panel, if hard wired to the unit, will be powered and used to check drive. If not hard wired, control panel will be bench tested.

EnviroCare will furnish photographs of the assembled unit from all sides plus selected views to guide the installing contractor. The equipment will be disassembled in as few pieces as possible for shipment.

SPARE PARTS

The following **minimum** spare parts are recommended to be provided with the FOG Concentrator and are included with this proposal:

- (2) Two bearing assemblies for skimmer take-ups (not including frame)
- (1) Pair collector chain sprockets
- (1) One replacement skimmer drive chain
- (1) Set replacement neoprene wiper blades

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EQUIPMENT AND SERVICES TO BE SUPPLIED BY OTHERS

- Installation and assembly of all EnviroCare furnished equipment
- Design, supply and installation of interconnecting piping and supports
- Design, supply of hot water recirculation equipment
- Field piping insulation and heat tracing as required
- Field wiring
- Motor starters
- All platforms and ladders
- All items not specifically mentioned in this proposal.

DELIVERY SCHEDULE

SUBMITTAL OF DRAWINGS
FOR APPROVAL:

4-6 WEEKS AFTER RECEIPT OF
ORDER

SHIPMENT:

20 WEEKS AFTER RECEIPT OF
APPROVED DRAWINGS

FIELD SERVICE DAILY RATES

Travel time and work performed.....:\$1,300.00
Saturday and Sunday work.:.....\$1,700.00
Holiday work.....:\$2,100.00
Layover Time (No work.....: \$1,000.00

NOTES:

- Terms of payment on all field service invoices are net cash.
- One day (8 hours) minimum charge.
- Partial work days will be invoiced at full day rates.
- Overtime days will be invoiced at one and one-half daily rates.
- All rates are portal to portal.
- All travel expenses such as airfare, car rental, hotels, meals, etc. will be invoiced at full cost plus 10%.
- The above rates do not include any taxes, licenses, or other fees. Rates are on a Net basis.

PROPOSAL EQUIPMENT PRICE

Prices are for FOG concentrator systems as described in this proposal exclusive of options, local, state or federal taxes.

BUDGET EQUIPMENT PRICE, Ex Works, American Canyon, CA:

Shipping cost to be borne by the purchaser via third party billing

Price for **One 304 SS Model 60-500** FOG concentrator system:..... **US \$250,000.00**

Field service by EnviroCare service technicians are available at the published rates.

PAYMENT SCHEDULE

20% Net 30 days upon receipt of order.

20% Net 30 days upon submittal of drawings and documentation for approval.

60% Net 30 days after notification of readiness of equipment or partial shipment.

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Standard Terms and Conditions of Sale

The following Terms and Conditions form part of each proposal submitted by EnviroCare International, Inc. (hereinafter called "Supplier") for the sale of equipment, construction, start-up, maintenance services and materials to a Client/Customer, (hereinafter called "Purchaser") and any contract by and between the parties, includes as a part thereof,

1. Duration of Proposal – The proposal is valid for 90 days from the issue date (or as stated in the proposal.)
2. Terms of Payment – Payment terms shall be net 30 days from date of shipment or declaration of readiness (or as stated in the proposal).
3. Liability – Supplier's liability shall be limited to the amount of the contract price. Supplier shall indemnify and hold harmless Purchaser against all losses, liabilities, claims or demands arising out of bodily injury or damage to property arising out of the performance of this contract, but only to the extent that the aforementioned is attributable to the negligence of the Supplier. Supplier shall only be liable for those activities under our direct control.
4. Consequential Damages -In no event shall the Supplier be liable for Incidental or Consequential Damages, however caused.
5. Differing Conditions– In the event activities or operations at the site by parties other than the Supplier interfere with the execution of the work; an equitable adjustment shall be made to the Contract Price and schedule.
6. Force Majeure - In the event of delays or damages due to conditions beyond the Supplier's reasonable control, including, but not limited to, Acts of God, Acts of the Purchaser or Purchaser's customer, etc., including fire, strikes, floods, war and civil uprising and delays in transportation and Supplier's inability to obtain necessary labor, materials or manufacturing facilities. In the event of such delays, the Contract dates shall be extended by an equitable period of time and the Supplier shall be entitled to an equitable adjustment in the Contract price.
7. Warranty – Supplier warrants to Purchaser that the work provided under this Contract is free from defects in material, workmanship and design, under normal use and service for a period of eighteen (18) months after shipment or twelve (12) months after initial operation or use, whichever occurs first. Supplier's warranty obligations are, at Supplier's sole option, to repair or replace any work which is shown to Supplier's satisfaction to have been defective as to material, workmanship or design, provided that: written notice of such defect is given to Supplier within thirty calendar days of discovery, and the equipment/work has been used and operated in accordance with the Supplier's operating and maintenance instructions. In any event, Supplier's warranty obligation is limited to 25 (twenty-five) percent of the total contract value.
8. Cancellation – Purchaser's cancellation of the contract is subject to a cancellation charge of 10% of the total price of the contract, plus Supplier's actual expenses and expenses to which the Supplier has committed for fulfillment of the contract before notice of cancellation is received.
9. Contract Interpretation – If any of the provisions of these Standard Conditions of Sale (including statements made in the proposal) conflict with any provisions in the Purchaser's documents, the former shall govern unless Supplier expressly agrees to the contrary in writing. Any contract resulting from this proposal shall be construed, and the legal regulations of Supplier and Purchaser shall be determined, in accordance with the laws of the State of California, USA.
10. Acceptance – This Proposal is subject to acceptance by Purchaser within ninety (90) days and shall constitute a binding agreement with the Supplier only when thereafter approved by Supplier and signed by an authorized officer.
11. Delivery – Title to all materials shall pass to the Purchaser at point of Manufacture per EXW or FCA (per ICC Incoterms) and risk of loss will thereafter be borne by Purchaser.
12. Escalation – Pricing may be adjusted to reflect changes in material cost per the United States Bureau of Labor Statistics, Producer Price Indexes.
13. Service and Maintenance Manuals – Price includes one (1) paper and one (1) electronic Service and Maintenance Manuals.

END OF PROPOSAL

EQUIPMENT DATA

OPERATING PARAMETERS

SKIMMING AREA 30 FT SQ. (1.33 GPM/FT SQ.)
 RETENTION TIME 45 MINUTES
 SKIMMING SPEED 3-9 FPM
 BLENDER SPEED 84 RPM (CCW)
 SCUM PUMP SPEED 41 TO 328 RPM

EQUIPMENT CAPACITY

DECANT TANK 1800 GALLONS
 HOLDING TANK 67 CUBIC FT (500 GAL)
 SCUM PUMP 1.6 TO 13 GPM @ 60 PSI

DECANT TANK

ONE (1) 6"-150# RFWN FLG (OVERFLOW/DRAIN)
 ONE (1) 4"-150# RFSO FLG (DRAIN)
 TWO (2) 4"-150# RFSO FLG (SCUM INLET)

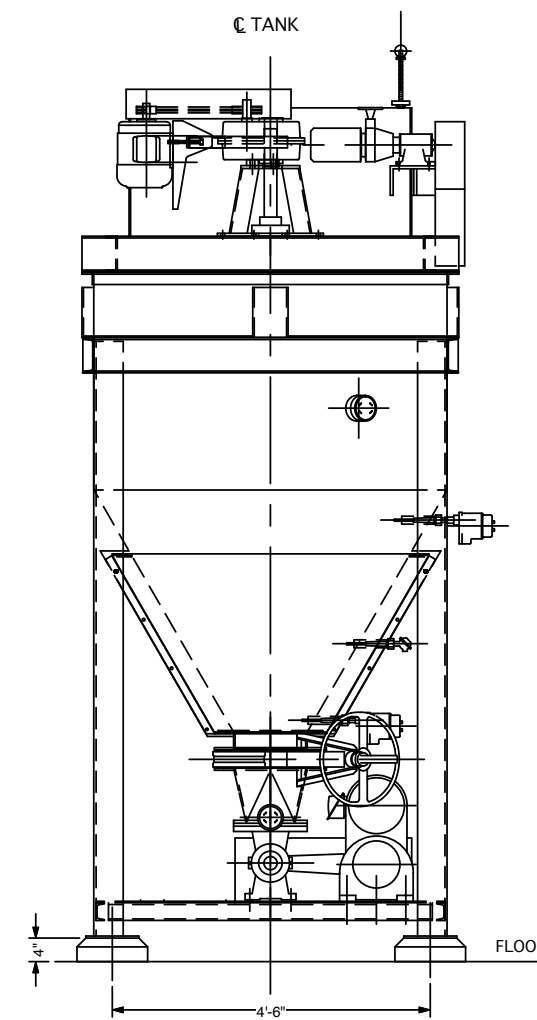
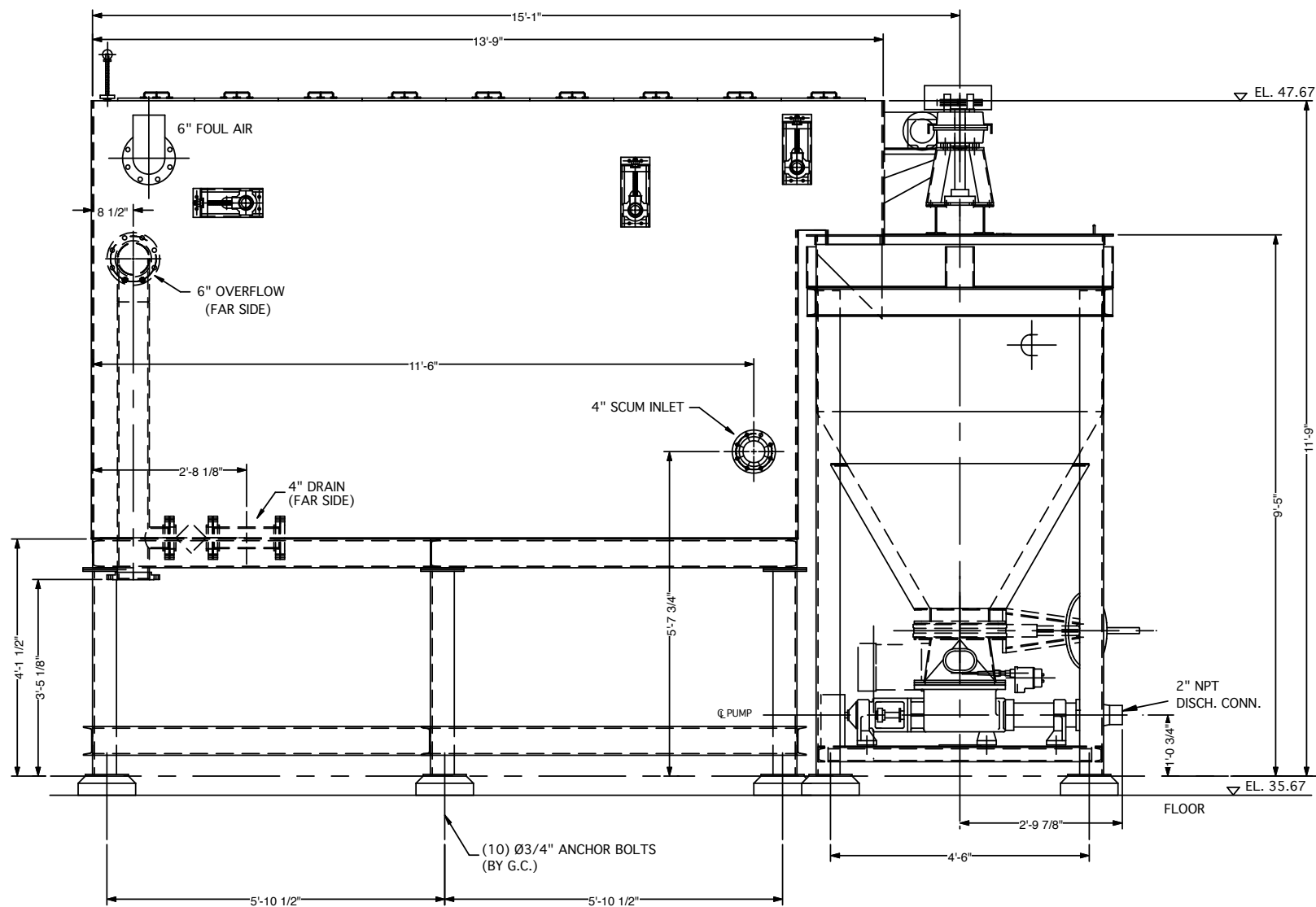
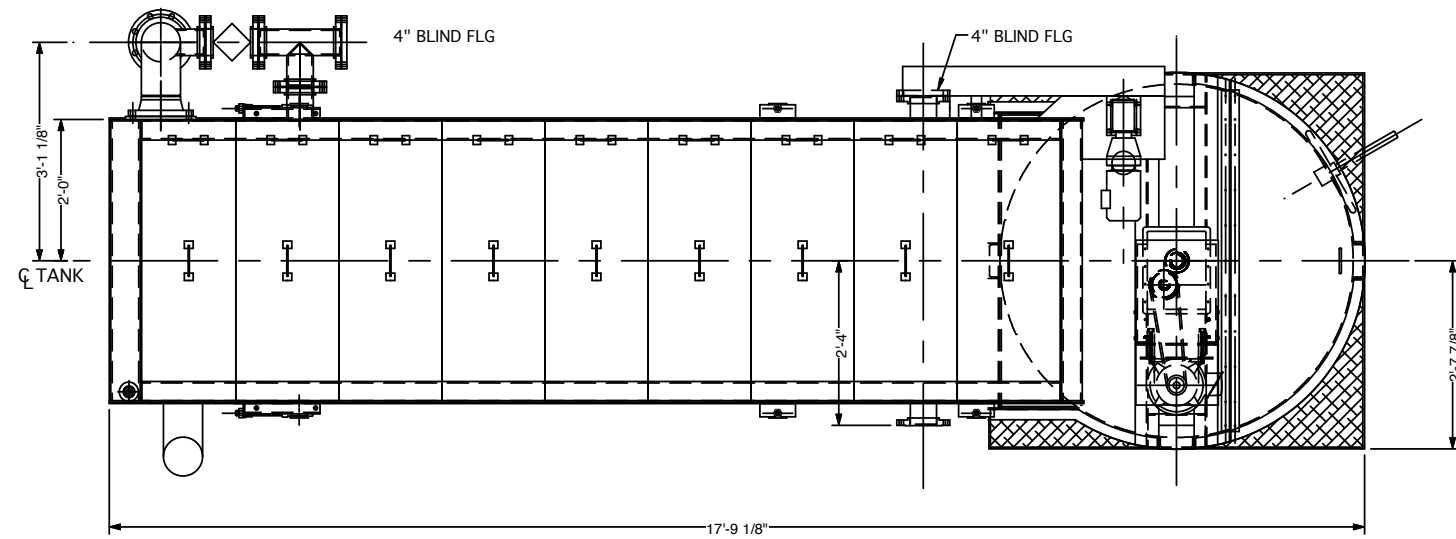
HOLDING TANK

NOZZLE SCHEDULE

ONE (1) 12"-150# DRILLING (DISCHARGE)
 TWO (2) 3/4" NPT CPLG (LSHH & LSH)
 ONE (1) 1/2" NPT CPLG (THERMOCOUPLE)
 ONE (1) 1" NPT CPLG (LEVEL SENSOR - LSL)
 W/ 1x3/4" HEX BUSHING

PUMP INLET TRANSITION

TWO (2) 1" NPT HALF CPLG (1 W/ 1X3/4" HX. BUSH. & LEVEL SENSOR - LSL, 1 W/ 1" PIPE PLUG)
 ONE (1) 4"X6" HANDHOLE



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