Directorate of Indigenous
Technical Development (South)
ITD Wing, Naval Research &
Development Institute (NRDI)
at NSSD Area, West Wharf Road
KARACHI

Tel: 021-48508410
Fax: 021-99214765
Email: ditd-s@paknavy.gov.pk

TD/2400/7/OWS/26/2267

21 Oct 26

See on PPRA Website

INVITATION TO TENDER – INDIGENOUS DEVELOPMENT/ MANUFACTURING OF OILY WATER SEPARATOR FOR PN PLATFORM

1. Pakistan Navy is interested in indigenous development of the captioned item. Your firm is being invited to forward technical and budgetary proposal for the manufacturing of said item. In your proposal, third party involvement/ outsourcing must be highlighted with detailed scope of work to be undertaken from the third party. Details of required items to be developed are appended below:

Description of Item	Qty	Specifications
Oily Water Separator for PN Platform	01	Specifications/ technical documentation and drawings are attached at Annex A & B.

2. You are requested to furnish the under mentioned mandatory information (as applicable) in your quotation. Otherwise, the quotation will not be entertained:

a. The firm's Sales Tax Registration Number/ Professional Tax Certificate.
b. Development cost including 18% GST.
c. Terms & Conditions for payments (whether advance payment, required/ not required).
d. Previous experience of developing similar products/ projects.

3. The offer is to be submitted in duplicate as under:

a. Three 'envelopes' containing Commercial Offer (figures as well as in words), Technical Offer and Tender Fee should be enclosed in one cover/ envelope, properly sealed, bearing the address of this office clearly marked **'Quotation for Indigenous Development of Oily Water Separator'**.

b. Technical Offer. The Technical Offer should contain all relevant specifications along with technical literature/ brochure in an envelope and shall be clearly marked as 'TECHNICAL PROPOSAL' without price, tender number and date of opening. Technical proposal is to be made as per the guidelines contained in Annexes A and B to this letter, while including the following:

(1) Methodology of Development.
(2) Warranty period minimum for **12 Months**.
(3) Validity of quotation minimum for **06 Months**.
(4) Mutated copy of earnest money Pay Order/ Demand Draft.
(5) Project plan is to be provided with timelines preferably in MS Project.

format. Same is to be submitted along with Technical Proposal.

(5) Availability/ supportability minimum for 05 years.

c. Feasibility Study. A detailed feasibility study of the Oily Water Separator for PN platform is to be undertaken by your firm and comprehensive report including but not limited to technical drawings, design & dimension is to be submitted along with the technical offer/ proposal against IT. Proposals without feasibility study/ design will not be accepted.

d. Commercial Offer. The Commercial Offer should include price quoted in figures as well as in words. The contents 'Commercial Offer' should be clearly marked on the envelope with tender number and the date of opening. Separate commercial offer for following is required:

e. Tender Fee (non-refundable). Pay Order/ Bank Draft is to be enclosed in a separate envelope clearly marked 'Tender Fee of Indigenous Development of Oily Water Separator in respect of "Directorate of Indigenous Technical Development Registration and Indexation Account (Account No. 4000039556 NBP, Avari Towers Branch, Karachi)" amounting on following rates:

S No	Project Cost	Tender fees
(1)	For total estimated project cost under Rs 0.49 M	Rs. 2,500/-
(2)	For total estimated project cost from Rs 0.5 M upto 0.99 M	Rs. 4,500/-
(3)	For total estimated project cost from Rs 1 M upto 2.49 M	Rs. 7,500/-
(4)	For total estimated project cost from Rs 2.5 M upto 4.99 M	Rs. 15,000/-
(5)	For total estimated project cost Rs 5 M or more	Rs. 23,000/-

f. Cheque, Pay-in-Slip and Cash are not acceptable. Tender fee is non-refundable. Offers submitted without tender fee will not be considered in tendering process.

g. Earnest Money (Refundable): Earnest money in shape of Pay Order/ Demand Draft in favour of 'The Controller of Naval Accounts, 14 Liaquat Barracks, Karachi' must be submitted along with the commercial offer without which no tender will be accepted. The amount of earnest money is given as under:

1) The firms registered with DITD/ PN will submit 2% of the quoted value subject to maximum ceiling of Rs. 0.500 Million.

2) The firms non-registered with DITD/ PN will submit 5% of the quoted value subject to maximum ceiling of Rs. 1.000 Million.

Note: Mutated photocopy of earnest money (price may not be visible) is to be provided in technical offer envelope.

4. Offers are to be dropped (not later than 1100 hours on 25 Nov 2026) in the Tender Box placed at ITD Wing (NRDI) or alternatively be send on mail address as follows:

Directorate of Indigenous Technical Development (South) ITD Wing, Naval Research & Naval Research and Development Institute (NRDI)
at NSSD Area, West Wharf Road
KARACHI
Contact No: 021-48508410

5. Technical offer i.e. without price will be opened on 25 Nov 2026 at 1130 hours and commercial offer will be opened on 25 Nov 2026 at 1130 hours.

6. Firm will be required to develop required items as per specifications mentioned at Annexes A and B. Developing firm is to arrange inspections to be undertaken by ITD Wing & reps of end user during development process.

7. The Development Contract for local development will be awarded after approval of the case by the Competent Financial Authority.

8. Point of contact for subject project in case of any query or further correspondence is Lt Cdr Zubair Khan PN (Tel No: 021-48508881 & 3).

9. **Special Instructions**. Special instructions are as under:

a. Developer is to clearly mention against each clause his reply regarding conformance or otherwise of that clause in 'Developer Remarks' column. The general remarks that 'all technical or contractual clauses are acceptable' will not be considered sufficient for technical scrutiny. The offers not confirming to the given format will be technically knocked out. The developer is to provide relevant details of all items being imported for development of project clearly mentioning the origin of items/ parts.

b. Tender document and its conditions may please be read point by point and understood properly before quoting. All tender conditions should be responded clearly. In case of any deviation due to non-acceptance of tender conditions, the same should be highlighted along with your changed offer/ conditions.

c. Tender may however, be liable to rejection due to non-acceptance of any one or more conditions outlined by Purchaser in this IT.

Yours sincerely,

KABBIR YAHYA KHAN TI(M)
Captain Pakistan Navy
Director

Annexes:

A. Technical Specifications and General Requirements of Oily Water Separator
B. User Requirement Documents (URD).
C. Detail of Components and Technical Diagrams

ANNEX A TO DITD (S) LETTER
TD/2400/7/OWS/26/2267
DATED 21 – 10 – 2026

TECHNICAL SPECIFICATIONS AND GENERAL REQUIREMENTS – INDIGENOUS DEVELOPMENT OF OILY WATER SEPARATOR FOR PN PLATFORM (QTY-01)

S No	Specifications/ Requirements	Manufacturer's Remarks (Complied/ Not Complied)
1.	Development Requirements/ Technical Specifications Detailed user requirement and technical data/ specifications for the indigenous development of Oily Water Separator attached at Annex B.	
2.	Maintainability Requirement Oily Water Separator should contain the following:	
	a. Maintenance support should be assured at least 05 years of life.	
	b. Technical assistance in maintenance/ usage of Oily Water Separator to be provided by the developer (if required).	
	c. Continued spare supportability is to be ensured for sustained operational availability of the Oily Water Separator. Moreover, complete technical drawing with material specification and photo of the Oily Water Separator to be provided.	
	d. Through life supportability (maintenances/ spares support) for satisfactory operation of the Oily Water Separator for at least 10 years is to be ensured by the firm.	
3.	Operating Parameters. Operating parameters Oily Water Separator should be as per Annex B.	
4.	Material Specification. As per attached specifications at Annex B and as per Marine Standard. Material conformation certificate to this affect is also to be provided by the firm. Same will also be confirmed/ verified from PNCTA/ NAIO Lab by PN.	
5.	Design Requirement/ Criteria for Indigenous Development. Design details are to be proposed by the offering firm in technical offer based on information provided at Annex B.	
6.	Documents/ Drawings. Following documentation should be provided by the developer: Moreover, template for the operator, maintenance manuals and IPC will be provided prior finalization of the contract.	
	a. Operation & Maintenance Manual. This should include technical data/ specifications, standards used, working principle, operation, and corrective maintenance guidelines.	

	b. Illustrated Part Catalogue (IPC). Detailed view of item alongwith identification should be provided for future use.	
	c. Standards. The developer is to provide the copies of all standards (in English) referred to or used for development of the equipment and its accessories.	
	d. Critical Spares List. Firm will provide critical spares parts list for onboard and Depot level at the time of product delivery (if applicable).	
7.	Environmental Condition. Corrosion resistant material is to be used for complete structure. All other equipment should be installed having low maintenance requirement and high reliability. IP rating of the equipment/ parts is to be clearly mentioned (if applicable).	
8.	Feasibility Study. A detailed feasibility study of the Oily Water Separator is to be undertaken by the developer and comprehensive report including but not limited to technical drawings and mechanical design is to be submitted alongwith the technical offer/ proposal against IT. Proposals without feasibility study/ design will not be accepted.	
9.	Delivery Schedule. Developer will deliver all items preferable within 06 months of Contract Effective Date (CED) i.a.w contractual specifications/ requirements. Extension of delivery schedule shall remain the exclusive discretion of DITD (S).	
10.	Stage Inspections. The firm will allow PAC committee/ end user or nominated member by PN to carry out stage inspections to monitor the progress of the work, on 'As & When Required' basis, to verify materials and quality of components being used. Schedule for stage inspections will be formulated at later stages and will form part of the contract.	
11.	Packing Standard. a. The equipment shall be packed as per standard trade packing worthy for transportation by road so as to ensure free from loss or damages on arrival at the ultimate destination. b. A packing note, showing the following details, should be placed on package: (1) Manufacturer Part No. (2) Serial Number of Transportation Container. (3) Full nomenclature/ description. (4) Contract number. (5) Date of packing. (6) Special storage environment/ conditions, if any. c. All stores should be marked with broad arrow pointing upwards, by stamping, painting or tallying. Each individual item	

	of stores must bear the pattern number to facilitate identification.	
12.	Terms & Conditions for Payments. a. Standard payment terms; 90% payment will be made on successful completion of the project and 10% upon completion of warranty period. Or Payment terms be mutually agreed. b. In case the developing firm desires to get advance payment against BG, payment terms will be as under: (1) 20% advance payment against ABG for an equivalent amount valid up to completion of project. (2) 70% payment on delivery/ acceptance. (3) 10% payment upon completion of warranty period c. The developer has the provision to receive 10% final payment on completion of the project against submission of BG for equivalent amount which will be released upon completion of warranty period.	
13.	Warranty/ Guarantee. Warranty/ Guaranty of 01 year after final acceptance of the equipment/ items.	
14.	Validity of Quotation. The validity of quotation should not be less than 06 months.	
15.	Miscellaneous Requirements. The firm will furnish the under mentioned information alongwith the offer: a. The firm's Sales Tax Registration Number. b. National Tax Number. c. Professional Tax Certificate (held/ not held). d. Terms & Conditions for payments (whether advance payment, required/ not required). e. Previous experience of developing similar projects. d. The developer is to provide cost breakdown of financial aspects of the entire project including but not limited to following as part of commercial offer: (1) Cost of complete documentation including operation/ maintenance/ manuals etc. (2) Cost of onboard spares, if any. (3) Cost of maintenance tools/ equipment etc, if any. (4) Any other cost.	

ANNEX B TO DITD (S) LETTER
TD/2400/7/OWS/26/2267
DATED 21 - 10 - 2026

USER REQUIREMENT DOCUMENT (URD) FOR INDIGENOUS DEVELOPMENT OF OILY WATER SEPARATOR FOR PN PLATFORM (QTY-01)

S No	User Requirements/ Specifications	Manufacturer's Remarks (Complied/ Not Complied)
1.	**Introduction**: Oily Water Separator model S1-25(A) which is designed for processing machinery space bilge water and fuel tank ballast. Its nominal capacity is 25 gallons per minute. This unit may be used with salt or brackish water but not with distilled water, and at pitch and roll angles up to 30 degrees. This unit is designed for a marine engine room environment, 50 degree Centigrade ambient temperature.	
2.	**Aim:** To replace existing Oily Water Separator (OWS) with intend to provide a reliable, efficient and durable OWS system for processing of bilge water operations effectively.	
3.	**Requisite Functionalities:** To provide oily water separator that is designed for processing machinery space bilge water and fuel tank ballast. Its nominal capacity must be 25 gallons per minute. OWS should be capable to operate at pitch and roll angles up to 30 degrees.	
4.	**Technical Details**: Detailed description and system requirements for functional replacement of Oily Water separator (OWS) are appended below:	
	Operational Capabilities. Flow rate: 25 GPM (maximum) continuous. Influent suction lift: 25 ft. Vertical (maximum) 15 ft. Vertical (recommended) Effluent discharge head: 56 ft. at 25 GPM. 115 ft. at 18 GPM (maximum) Oil Discharge: 30 ft. Vertical (Maximum, 14 Gallons Per oil discharge cycle (nominal).	
	a. Temperature: This unit is designed for engine room conditions (50 degree C ambient).	
	a. Power input requirement. Single source – 460 volts, 3 phase, 60 hertz, +/- 10% 1.5 KVA maximum. A 115 VAC control circuit transformer within the controller. Power supply must be 15 amp circuit breaker or fuse protected.	
	b. Backflush water: 15 psi/ 20 GPM (maximum) backflush water supply of strained seawater or brackish water.	
	c. The oily water separator model SI-25(A) is designed for processing machinery space bilge water and duel tank ballast. Its nominal capacity is 25 gallons per minutes. This unit may be used with salt or brackish water but not with distilled water, and at pitch and roll angles up to 30 degrees. This unit is designed for a marine engine room environment, 50-degree Centigrade ambient temperature.	
	Equipment Description: The oily water separator consists of the following main components (Annex C): (1) Oily water separator tank (2) Set of P.V.C internal components: Coalescer box	

	assemblies baffle, weir, and support. (3) Progressive cavity pump and marine duty motor. (4) Automatic control panel. (5) Oil/water interface senor. (6) Electric motor actuated ball valves (7) Tankage (8) Pump plate assembly (9) Pump motor (10) Oil water interface sensor (11) Electrical Controls (12) Pipe and valves	
5.	**Acceptance Trials Criteria/ Procedure** Satisfactory Trials of Lube oil filter assembly as per naval standard and requirements mentioned above.	
6.	**Warranty** Satisfactory functioning of system for up to 1 year.	

ANNEX C TO DITD (S)
LETTERTD/2400/7/OWS/26/2267
DATED 21/10/2026

CHAPTER 1

GENERAL INFORMATION

1.1 INTRODUCTION

Regulation 16 of Annex 1 of the International Convention for The Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78) inter alia requires ships above 400 tons gross tonnage to be fitted with oily-water separating equipment or oil filtering systems, approved under the terms of the Specifications contained in resolution A.393(X).

U.S. Coast Guard (D.O.T) sets these same guidelines in 33 CFR parts 151 and 155. By United States Coast Guard definition, the device described in this manual is a "15 ppm oily water separator", in contrast to an "oil filtering system" as described by the IMO Regulations. Herein, this device will be referenced as an "oily water separator". This oily water separator Model S1-25(A) was tested in accordance with the United States Coast Guard requirement 46 CRD Part 162 Engineering Equipment; design and Approval Requirements for Oil Pollution Prevention Equipment" adopted on 13 September, 1979, and it complies with the performance specifications in that it is capable of giving an effluent containing less than 15 ppm of oil.

1.2 MODEL COVERED

The oily water separator model S1-25(A) is designed for processing machinery space bilgewater and fuel tank ballast. Its nominal capacity is 25 gallons per minute. This unit may be used with salt or brackish water but not with distilled water, and at pitch and roll angles up to 30 degrees. This unit is designed for a marine engineroom environment, 50 degree Centrigrade ambient temperature.

1.3 EQUIPMENT DESCRIPTION

The oily water separator consists of the following main components: (Fig. 1-1)

(1) oily water separator tank
(1) Set of P.V.C. internal components: coalescer box assemblies baffle, weir, and support.
(1) Progressive cavity pump and marine duty motor.
(1) Automatic control panel.
(1) Oil/water interface sensor.
(4) Electric motor actuated ball valves

Specifications for these major components are as follows:

TANKAGE: The tank walls are steel plate, continuously welded inside and out. All inner surfaces are sandblasted to white metal and coated with two coats of coal tar epoxy. The exterior is painted with primer and marine enamel.

Tank: 29" x 29" x 44" tall, 1/4" thick, HRS M1020
Top and Bottom: 3/8" thick, HRS M1020
Stiffeners on top and internal flange: 1/4" x 1", HRS M1020
Stiffeners around tank: 1/4" x 1 1/2" x 1 1/2" angle, ASTM A-36.
Stiffeners and foundation on bottom: 1/4" x 1 1/2" x 2" angle, ASTM A-36.
Pump plate assembly: 1/4" thick, HRS M1020.
Assembled envelope dimensions: 44.75" x 33.5" x 50" tall.
Approximate weight: dry 1200 lbs.; wet 2425 lbs.

BAFFLE, WEIR AND COALESCER BOXES: The system internals are constructed entirely of type II PVC plastic for maximum corrosion resistance. No internal fasteners are used to hold these parts in place. The system internals are designed to seal themselves in place by compression of the tank top fasteners. The coalescer boxes are filled with polypropylene granules (raw form). These boxes can be removed from the separator. (Figure 1.2)

PUMP: The discharge pump is an electric motor driven, positive displacement pump. It is the only pump on the S1-OWS and is used for effluent discharge and bilge suction. It is operated at 1200 rpm.

PUMP CONSTRUCTION: A Ramoy model 367 pump is used, which has a cast iron housing, a 416 stainless steel rotor, a BUNA-N stator and a carbon-ceramic rotary seal. Moyno Products Model 3670

PUMP PERFORMANCE: At 1200 rpm, 2 hp, this pump can draw a maximum suction lift of 25 feet and meet a discharge head of 115 feet (maximum). It will meet a discharge head of 56 feet at 25 gpm.

PUMP MOTOR: 2 hp, 1200 rpm, TEFC 460 VAC, 3 phase 60 hertz., meets IEEE45 and U.S.C.G. (50 degree C Amb.) requirements of Section III, sub part 111.25 and 159.69.

OIL WATER INTERFACE SENSOR: A dielectric type interface sensor is used to determine the amount of accumulated oil and to activate the automatic oil discharge circuitry. It is a solid state package, which provides normally open and normally closed relay contacts.

Two teflon insulated brass probe assemblies are mounted on the tank top through two 1/4" NPT fittings. The probe connections are protected by a 2" IPS junction box welded to the tank top.

These probes are factory set at the proper length. They are tip-sensitive to give precise interface detection.

ELECTRICAL CONTROLS: All electrical controls are enclosed in a 16" x 16" x 8" NEMA 12 enclosure with a baked enamel finish. The inner panel/cabinet is completely assembled and wired with all wires marked and neatly bundled and components identified. All appropriate safety features (safety interlock, thermal overloads, and fuses) are included on the inner panel. The displays and switches necessary for system operation are on the outer panel.

PIPE AND VALVES: Bronze ball valves with motor actuators are used for automatic valving. ASTM B62 with teflon seats and seals.

All system piping is brass with standard N.P.T. threads. Red brass pipe is ASTM B43. The fittings are cast bronze ANSI B16.15.

Bronze gate and ball valves (with teflon seats) are used for isolation, flow control and as drains. ASTM B145/ASTM B62.

A bronze pressure relief valve, set at 15 psi, is provided as a system safety precaution. ASTM B62.

A bronze petcock is used for effluent sampling. ASTM B62.

Piping interfaces consist of an oily water inlet (from bilge), effluent discharge, oil discharge, a backflush inlet, and a drain.

1.4 STORAGE INFORMATION

The oily water separator should be stored in a protected area, to reduce any unnecessary exposure to weather before installation. For post installation storage, the unit should be backflushed and drained prior to lay-up.

1.5 EQUIPMENT ITEMS NOT FURNISHED

This oily water separator requires no special tools or test equipment.

Items required for the installation of this unit but not furnished are:

(1) Backflush water pressure reducing valve (15 psi) with a 20 mesh strainer and pressure gauge.

(1) Simplex basket strainer with a 20 mesh monel basket.

(1) 15 ppm alarm (bilge alarm) or 15/100 ppm bilge monitor.

(1) Automatic effluent recirculate valve and interlocked effluent stop valve (when 15 ppm effluent occurs).

1.6 REFERENCE DATA

TABLE 1-1 REFERENCE DATA

PRINCIPLE: 15 ppm oil water separation is accomplished via enhanced gravity and two permanent coalescer beds. Oils with a specific gravity up to 0.98 can be processed at rated capacity.

NOTE
THIS OILY WATER SEPARATOR CAN NOT CONSISTENTLY SEPARATE PHYSICAL OR CHEMICAL EMULSIONS, DOWN TO 15 PPM.

CAPACITY:
- Flow rate: 25 gpm (maximum) continuous.
- Influent suction lift: 25 ft. vertical (maximum)
  15 ft. vertical (recommended)
- Effluent discharge head: 56 ft. at 25 gpm.
  115 ft. at 18 gpm (maximum)
- Oil Discharge: 30 ft. vertical (maximum), 14 gallons per oil discharge cycle (nominal).

TEMPERATURE: This unit is designed for engineroom conditions (50 degrees C ambient).

INPUT POWER: Single source - 460 Volt, 3 phase, 60 hertz, +/- 10%, 1.5 KVA maximum. A 115 VAC control circuit transformer within the controller. Power supply must be 15 amp. circuit breaker or fuse protected.

BACKFLUSH WATER: 15 psi/20 gpm (maximum) backflush water supply of strained seawater or brackish water.

S1-O.W.S. MAJOR COMPONENTS

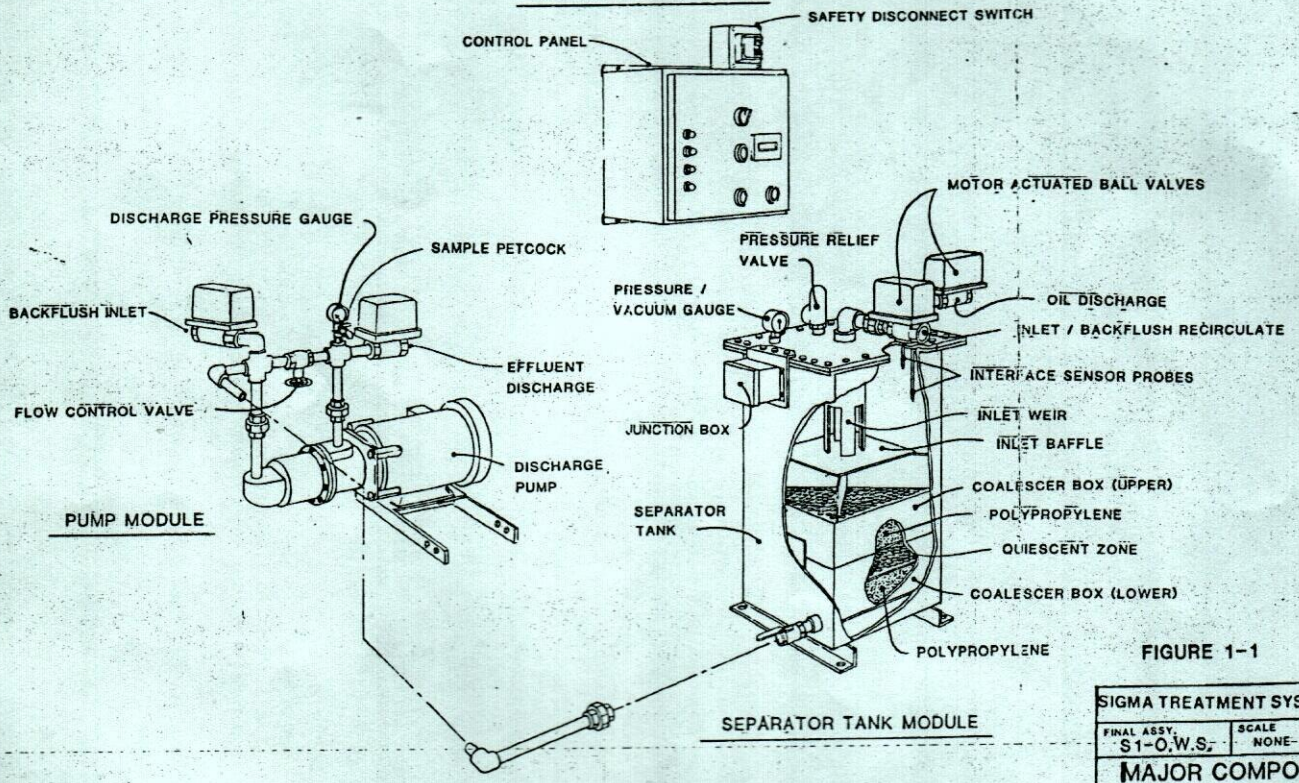


FIGURE 1-1

1-5

SIGMA TREATMENT SYSTEMS, INC.	
FINAL ASSY. S1-O.W.S.	SCALE NONE — 2:13
MAJOR COMPONENTS	
28.OCT.82	S1-O.W.S.

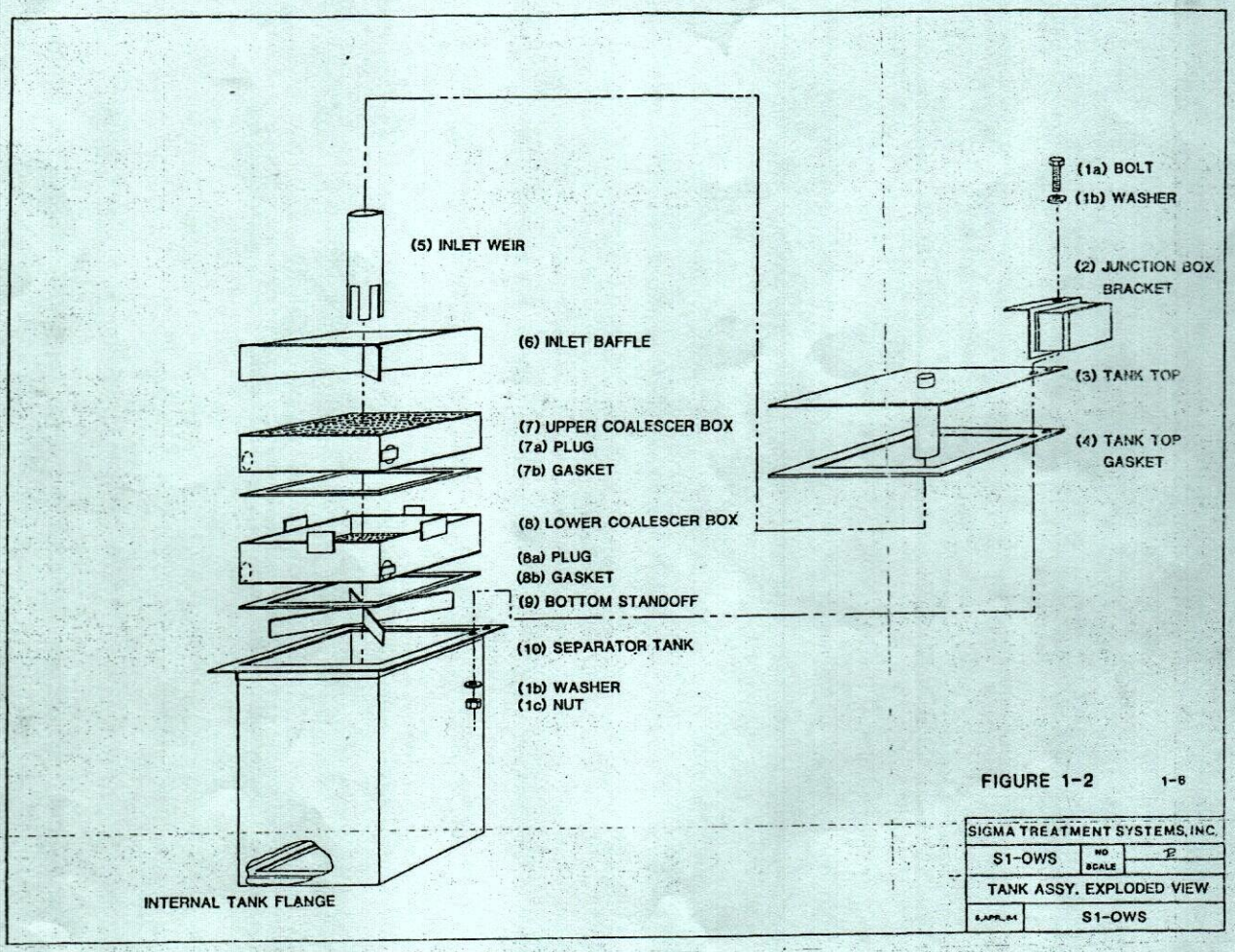


FIGURE 1-2 1-6

SIGMA TREATMENT SYSTEMS, INC.		
S1-OWS	NO SCALE	P
TANK ASSY. EXPLODED VIEW		
6 APR 84	S1-OWS	