

DOCUMENT TITLE:
DUTY SPECIFICATION FOR INDUSTRIAL EFFLUENT TREATMENT
PACKAGE (CPI SEPARATOR)

2 **CODES AND STANDARDS**

The hereunder Specifications, Codes and Standards are applicable and mandatory for this Project.

Iranian Petroleum Standards (IPS)

- IPS-E-PR-725 Process Design of Plant Waste Water Sewer Systems
- IPS-E-PR-730 Engineering standard for Plant Waste Water and recovery Systems

3 **BASIC DESIGN DATA**

3.1 **Process Description**

P&IDS

WEP-C03-PR-PID-015

- All of oily surface water drainage including : tanks wash down run off , oil wastes, spill and drains from all equipment will be collected in an underground system and flow by gravity to oily water separation package U-209. The oil content of the drain system will be reduced to 10 ppm after treatment.
- Oily water is routed to CPI (Corrugated Plated Interceptor) by gravity. The CPI separator consists of inclined packs of corrugated plates mounted in parallel to each other. The lighter oil globules float up the inclined in to concave upper corrugations where they coalesce in to large masses which moves along the plates, and then to a floating layer at the surface. An oil skimmer is considered to remove oil from surface and sent it to the sludge/oil sump.
- The collected sludge at the bottom of the CPI unit will be transferred to sludge drying bed through CPI sludge transfer pumps .
- Treated wastewater is routed to filter feed sump by gravity. The deoiled water is transferred to cartridge filters by filter feed pumps . At this filter the remained oil will be removed and the treated water will be routed to ditch. Therefore the cartridge filter feed pumps must supply the sufficient pressure.
- The gathered oil in the sludge/oil sump will be transferred to truck with sludge /oil sump pumps .

3.2 DESING CONDITION

Feed stream

Design flow rate	5 m3/hr
Operating temperature	0/50
Operating pressure	Atm
Oil Content	500 PPM



Outlet condition

Oil Content	:	10 ppm
Total Suspended Solids (TSS)	:	Nil

3.3 TECHNICAL DATA FOR MAIN EQUIPMENT

- CPI unit: shall be constructed according to supplier's data and drawings.
- CPI sludge transfer pumps: shall be constructed according to supplier's data and drawings.
- Filter feed sump: shall be constructed according to supplier's data and drawings.
- Cartridge filter feed pumps: shall be constructed according to supplier's data and drawings.
- Sludge/oil sump: shall be constructed according to supplier's data and drawings.
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- Cartridge filter: shall be constructed according to supplier's data and drawings.
- Sludge drying bed: shall be constructed according to supplier's data and drawings.

4 NOISE LEVEL LIMITATION

The sound pressure level (SPL) shall be less or equal to 85 dBA at 1 meter of the equipment.

5 CONTROL AND OPERATING SYSTEM PHILOSOPHY

The unit shall be automatically controlled. It is designed to provide complete safety and normal automatic operation from control room. Also some parameters which are required to be controlled through DCS have been specified on instrumentation diagram. The systems shall be equipped with analogue type electric indicators/ controllers.

6 SCOPE OF WORK

The scope of work shall include the package engineering activities, the material supply as hereinafter listed, fabrication, shop test and inspection, painting, marking, packing, delivery, erection, commissioning and start up according to good engineering practice. The physical

dimensions of the area required for the plant, including maintenance and operation clearance, will be finalized by the supplier during detailed engineering stage. The contractor is required to comply with codes and standards of IPS .

6.1 Electrical

The scopes of supply include all electrical materials, equipment, accessories and 2 years spare parts inside B.L. The battery limit of the electrical equipment is junction boxes for power supply to user, to be installed inside the package area. Exception is made for motors, for which the connection B.L. is the motor terminal box.

The electrical features will be in accordance with Spec WEP-C00-EL-GSP-016.

6.2 Instrumentation

The supply shall include all the necessary instruments, electrical and/or electronic materials, equipment, 2 years spare parts etc., to ensure a good and safe operation considering codes and standards mentioned in the job specification No. WEP-C00-IN-GSP-011.

The instruments battery limits will be considered at junction boxes terminal strip, included in the supply, to transfer the logic and/or analog signals separately, as previously specified to the control room.

The junction box(es) for instrumentation and controls, to be installed inside the package area for those signals connected to the control room.

6.3 Piping

The piping supply (pipes, flanges, valves, fittings and relevant support, etc.) covers all interconnections within the package B.L. the piping will be supplied prefabricated and preassembled to each skid.

Moreover one connection will be provided for each type product, utilities and waste at supply B.L.

The B.L. of piping is the physical limit of package area above defined and above 0.00 plant level. Connections flanges at B.L. will be ANSI code.

Piping shall be accordance with spec. No. WEP-C00-PI-GSP-1001, WEP-C00-PI-GSP-1009~1010, WEP-C00-PI-GSP-1020, WEP-C00-PI-GSP-1018

6.4 Steel Structures

Supply shall include all necessary equipment and piping supporting steel structure and all ladders, walkways and service platforms where necessary.

6.5 Civil Works

The supplier shall prepare all drawings, foundation layout and plot plan in which dimensions and weights have to be indicated. Civil works shall be implemented based on these drawings.

6.6 Painting

The painting system shall be in accordance with Spec. WEP-C00-PI-GSP-1010

6.7 Site Conditions

See Doc. WEP-C00-PR-DCS-001

6.8 Pumps

See spec. No. WEP-C00-MA-GSP-002.

6.9 Engineering

The vendor shall provide but not limited to the following documents:

- PFD, material balance & P& IDs
- Complete equipment data sheets
- Complete valves data sheets
- Instrument data sheets/connection diagram of field instruments and junction boxes, loop and logic diagram, etc.
- Equipment list
- Effluent summary
- Utility summary
- Chemical Summary
- PMS (Piping Material Spec.)
- Piping layout
- Electrical circuit and connection diagrams
- Cable Sch.
- BOM (Bill of Materials)
- List of chemicals (For 2 years operation)
- Operating, maintenance and installation manual
- Recommended organization chart of operation

- Plot layout
- Line lists
- QC/QA plan
- Equipment assembly drawings(Mech. Drawing)
- Civil foundation data
- Spare part list (for 2 years operation)
- List of any consumable materials(for 2 years operation)

6.10 PERFORMANCE AND GUARANTEES

Vendor shall guarantee the following figure

- Mechanical guarantees
- Continues production of unit
- Treated water quality as per item 3.2