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SPECIFICATION FOR TRUCK LOADING ARM

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<div>Owner:</div> <div><div>اداره کل نیرو و منابع طبیعی جمهوری اسلامی ایران</div></div>	<div>Client:</div> <div><div>شرکت پالایش نفت پارس (سهامی عام)</div></div>	<div>GENERAL AUTHORITY OF HORMOZGAN PERSIAN GULF PORT</div> <div>PAYA OIL PRODUCT TERMINAL</div>			<div>Consultant:</div> <div><div>بهین طرح پایدار</div></div>	<div>Supervisor:</div> <div><div>تدبیر ساحل پارس مهندسين مشاور</div></div>
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1. INTRODUCTION

“PAYA oil refinery Co. intends to construct an Oil Product Terminal facilities in Persian Gulf Port in Shahid Rajaei economic zone in Bandar-Abbass.

In this project Behin Tarh Paydar Consultant Co. will be responsible for basic and detail design phases. The purpose of the plant is to prepare required facilities in order to storage base oil and product and in fixed roof storage tank and truck loading and unloading truck road and transfer product to jetty and ship. The plant will be constructed at the allocated site with an approximate area of 8500 m2 at T8b-west.

2. DEFINITIONS

Client: PAYA OIL REFINERY Co.

Consultant: Behin Tarh Paydar Co. Consultant

Project: PAYA oil product terminal in the Persian Gulf port

3. PROPOSE

3.1. Scope

This specification defines the minimum technical requirements for supply fabrication, inspection, testing and packing of Truck Loading/Unloading System.

3.2. Conflicts

In case of any conflict among the mentioned referenced documents in paragraph.2 and this specification, the more stringent requirements shall govern.





Also the Vendor shall reflect any conflicts to the attention of Purchaser for his resolution, and the Vendor shall get the Purchaser's written Approval.

3.3. Deviations

In case of conflict between this specification and relevant data sheets, the later shall govern. In any case, the conflict shall be raised for Purchaser's attention and decision. Unless specific exception/deviation, accompanied by a description of the proposed alternate is declared under the heading “Exception/Deviations” in the Vendor's proposal, and incorporated in contract, it shall be understood that the purchase order is based on equipment which is in compliance with the requirements of this specification and relevant data sheets.

3.4. Equivalent Materials

Where material requirements are specified as “make... or equal”, the Vendor may propose equivalent material which shall fully meet the technical and environmental requirements and such fulfillment shall

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be proved by documentary evidence supplied by the Vendor. However, in these cases, the final selections of materials are subject to purchaser/MC approval.

3.5. Vendor Responsibilities

Compliance with the provisions of this specification does not relieve the Vendor from the responsibilities of furnishing equipment of proper design to meet the guaranteed operation at specified service conditions.

3.6. Language and Units

English language shall be used in all documents and drawings. International System of Units (SI) shall be used, except for pipe sizes, which shall be in inches.

4. CODES AND STANDARDS

The equipment shall be designed, fabricated and tested in accordance with the latest revision of all relevant international codes and standards including but not limited to the following.





- API RP 1004 Bottom Loading and Vapor Recovery for MC-306 & Dot- 406 Tank Motor Vehicles
- ASME Section IX Welding and Brazing Qualification
- B31.3 Process Piping
- B16.5 Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Addenda A

5. AMBIENT CONDITIONS

The equipment's covered by the specification shall be suitable to operate in the ambient conditions specified in POT-150-CV-SPE-5001 " SITE COMDITIONS".

6. SCOPE OF DELIVERIES AND SERVICES





- 6.1. This specification covers the minimum design requirement of supplying the Truck Top Loading Arms. Vendors shall offer the loading arm package completely, including instrument facilities.
For design philosophy, please refer to P&ID attached to MR.
- 6.2. The scope of work shall include the package engineering activities, the material supply, fabrication, any shop test, inspection, painting, marking and delivery.
- 6.3. The vendor shall submit all drawings, manuals and specification for review and approval.
- 6.4. Any detail or layout of foundation or structure for supporting the loading arms shall be specified and announced by vendor.
- 6.5. The Supplier is responsible for the design, selection, manufacture, calibration, testing, commissioning and documentation of all Loading Arms.

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- 6.6. Special tools for maintenance shall be provided by vendor. List of required tools shall be delivered in the bid stage.
- 6.7. All material certificates shall be submitted by vendor.
- 6.8. Installation / Mounting accessories detail / material shall be specified by vendor.
- 6.9. Exclusion : The following are excluded from vendor's scope of supply:
- All civil works are not included
 - Main piping (from tanks up to main feed header of loading arm) is not included

7. GENERAL REQUIREMENTS

- 7.1. All pipes and flanges shall be per ASME B31.3 & ASME B16.5. All material shall be per ASTM/ASME.
- 7.2. The vendor shall specify min. and max. Reach of the loading arms.
- 7.3. Following instrument items shall be provided for loading arm if needed :
- 1- LIMIT SWITCH (XS): Limit switch shall be Exd IIA T3, 24 VDC, IP-55.
 - 2- SET-STOP VALVE:
Set-stop valve shall be plug type, hydraulic actuator, and valve material & rating shall be based on Piping Material Specification.
Size of set –stop valve shall be selected by vendor based on process information.
 - 3- SOLENOID VALVE:
Solenoid valve shall be, 1", Exd IIA T3, IP55, Body material AISI 316 S.S., 24 VDC.
 - 4- PRESSURE GAUGE
 - Pressure gauge case sizes shall generally be 150 mm .
 - Pressure elements shall normally be AISI 316 stainless steel , except where the process requires another material.
 - Cases for gauges in the process area and in process service shall be solid front, 304 stainless steel with screwed ring.
 - The following control philosophy shall be considered as minimum requirements :
 1. After trucks located in loading arm area , truck shall be properly earthed and flexible connection hoses shall be connected to truck's nozzle.
 2. Limit switch will send a command when truck earth and coupler are connected completely.
 3. Green lamp is indicated in local panel & in control system when truck is properly earthed and coupler connect successfully.
- 7.4. Each loading arm shall be equipped with proper joints so that to able to have 6 degree freedom. The key component to any loading arm is swivel joint. The loading arms incorporate a dual raceway design





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using hardened precision balls to retain the male within the swivel body. The primary product seal is in O ring held within control tolerance seal faces on the sleeve and body.

- 7.5. Precise machining and polishing of the seal faces ensure that wear is kept to a minimum.
- 7.6. Easy lubrication is provided for all swivel joints via a standard grease fitting and over pressure relief valve. The base swivel joint has ANSI 300 raised inlet flange.
- 7.7. ERC (Emergency Release Coupling) shall be supplied for rapid and dry disconnection of truck and loading arm in emergency situations.
- 7.8. In case of offering the packages completely, the vendor shall consider the supports or skid for equipments, where required.
- 7.9. Welding shall be carried out in accordance with ASME code section IX.
- 7.10. 100% X-Ray radiographic examination is mandatory for pressure welding on piping.
- 7.11. Inspection and Tests: The inspections shall cover as minimum welding examination, dimensional check, painting examination, boxing examination and documents examination.
- 7.12. Piping shall be tested hydrostatically before painting at 1.5 times the design pressure. The piping shall be tested separately none assembled on the equipment.
- 7.13. These tests shall be demonstrated that the equipment is well installed that the control logic is complying with specifications requirements.
- 7.14. The arrangement of swivel joint shall preferably be suitable for changing of seal without dismantling the complete joint.
- 7.15. A locking arrangement shall be provided for locking the arms in parked position. The locking arrangement can be either manual or electrically operated device.

8. BASIC CHARACTERISTICS

Content	HEAVY/LIGHT OIL
Loading Arm Type	Top
Top Loading Arm Spec.	4"
Loading Rate (m3/hr)	55
Inlet Pressure (barg)	1
Design pressure (bar)	5
Test pressure (bar)	7.5
Design Temperature (oC)	90
Density (kg/m3)	0.75-0.95
Viscosity (Cp)	MAX 500 cSt
Flange Specification	-

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9. OTHER REQUIREMENTS

The vendor proposal shall be included following items:

- Packing, Marking and delivery
- Any test and inspection, if required
- Guaranty condition
- Installation Procedure
- Schematic Drawings
- Validity of Quotation
- Recommended Spare Part List
- Operating manual / catalogs.