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NATIONAL IRANIAN OIL REFINING & DISTRIBUTION COMPANY
NATIONAL IRANIAN OIL ENGINEERING
& CONSTRUCTION COMPANY

NIOEC SP

NIOEC SPECIFICATION FOR STEAM JET EJECTORS

FIRST EDITION

JULY, 2005

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IN THE NAME OF GOD**FOREWORD**

By their very nature, technical standard specifications are continuously subject to modifications and revisions. To strengthen their merit and usefulness, continuous improvements, addendum, deletion of disparate information and consequently provision of updated revisions are to be made in order to ascertain that such standard specifications meet the current requirements, inclusive of Iranian Petroleum Standards (IPS) and the recognized and acceptable national and international standards, as well as the optimal codes and practices based on the accumulated in-house know-how and plant knowledge and experiences.

However, in reality, due to several reasons, not to mention the complexity of the matter, the ultimate goal of continuous direct embedment of the required changes on the relevant standard specifications may be far reaching. Therefore, in the interim periods between the officially issued revisions, the required changes will appear in other documents related to the engineering and design work of the on going projects.

In response to the initiative of the Design Division of the Engineering and Construction Directorate, and considering that the task of the execution of several important and mega projects for the realization of the new oil refineries, pipelines and oil terminals as well as improvements of the existing facilities, has been assigned to NIOEC, it was decided to update the NIOEC Specifications and to issue new official revisions.

The Design Division of the Engineering and Construction Directorate was itself entrusted to carry out this important task, and as such by forming several special technical committees, working in close co-operation and cohesion and sharing their expertise and knowledge, the updated and revised NIOEC Specifications were successfully prepared and complied.

These Specifications are intended to be used for Oil Refineries, Distribution Depots, Oil Terminals, Pipelines and Pump Stations within NIOEC's projects, and have been proven to be of high value for such purposes. It must however be appreciated that these Specifications represent the minimum requirements and should in no way be interpreted as a restriction on the use of better procedures, engineering and design practices or materials.

We encourage and highly appreciate the users and other clear sighted and experts to send their comments on the Specifications to the Design Deputy of the Engineering and Construction Director of NIOEC for evaluation and consideration.

S. R. KASAEIZADEH



EXECUTIVE DIRECTOR

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NOTES:

- 1) THIS SHEET IS A RECORD OF ALL REVISIONS TO THIS SPECIFICATION.
- 2) REMARKS RELATED TO EACH REVISION SHOW A BRIEF DESCRIPTION. THESE REMARKS SHALL BE INTERPRETED IN CONJUNCTION WITH THE REVISED TEXT MARKED BY REVISION NUMBERS.
- 3) WHEN APPROVED EACH REVISION SHALL BE CONSIDERED AS A PART OF THE ORIGINAL DOCUMENT.
- 4) NUMBER OF PAGES EXCLUDES THIS SHEET AND THE COVER SHEET.

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0	JULY, 2005	S. GHASSEMI	M.R.FARZAM	M.R.FARZAM	M.A.A.SAJEDI
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1. SCOPE

- 1.1** This Specification covers the minimum requirements for mechanical and process design, shop fabrication, drawings, materials supply, spare parts, inspection and testing of steam jet ejectors to be installed outdoor as a part of oil plant.
- 1.2** The Vendor shall have the full responsibility for design, material selection equipment construction and for the satisfactory performance of the supplied equipment.

2. REFERENCES

Throughout this Specification the following dated and undated standards/ codes are referred to. These referenced documents shall, to the extent specified herein, form a part of this Specification.

For undated references, the latest edition of the referenced document (including any supplements and amendments) applies. For dated references, the edition cited applies.

The applicability of changes in dated references that occur after the cited date, shall mutually be agreed upon by NIOEC and the Vendor/Contractor. When Vendor uses any other codes and standards listed below, he shall receive Purchaser's approval.

ASME (AMERICAN SOCIETY OF MECHANICAL ENGINEERS)

PVBC (Pressure Vessel and Boiler Code), Section VIII Division 1

ANSI/ASME B1.20.1 "PIPE THREADS, GENERAL PURPOSE (INCH)"

ASME B16.5 "Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24"

ASME B31.1 "Process Piping"

ASME B31.3 "Power Piping"

ASME PTC 24 "Ejectors, (Performance Test Codes)"

ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

NIOEC-SP (NIOEC SPECIFICATIONS)

[NIOEC-SP-00-10](#) "NIOEC Specification for Units"

[NIOEC-SP-00-11](#) "NIOEC Specification for Site Conditions"

[NIOEC-SP-40-03](#) "NIOEC Specification for Spare Parts Requirement"

[NIOEC-SP-41-03](#) "NIOEC Specification for Pressure Vessels"

[NIOEC-SP-47-10](#) "NIOEC Specification for Noise Level Measurement"

[NIOEC-SP-80-02](#) "NIOEC Specification for Painting"

HEI (HEAT EXCHANGER INSTITUTE)

"Standards for Steam Jet Vacuum Systems", 5th Edition, 2000

"Standards for Direct Contact Barometric and Low Level Condensers"

"Standards for Steam Surface Condensers"

3. UNITS

International system of units (SI) shall be used in accordance with [NIOEC-SP-00-10](#), unless otherwise specified.

4. DEFINITIONS & TERMINOLOGY

Employer	:	National Iranian Oil Engineering and Construction Company (NIOEC).
Contractor	:	The person, firm, company or consortium whose tender has been accepted by the Employer or legal successors in title to such person.
Inspector	:	The Employer's representative appointed by the Employer from time to time to inspect execution of works.
Purchaser	:	“National Iranian Oil Engineering & Construction Company”. When quoted in this specification as part of a direct purchase order by NIOEC and “Contractor” where this specification is part of contract documents.
Vendor	:	The manufacturer's from which the equipment is to be purchased.

5. EJECTOR PARTS, NOMENCLATURE

5.1 Figure 1 shows the basic ejector stage assembly nomenclature. This pictorial is illustrative for the purpose of indicating part names and typical ejector geometries.

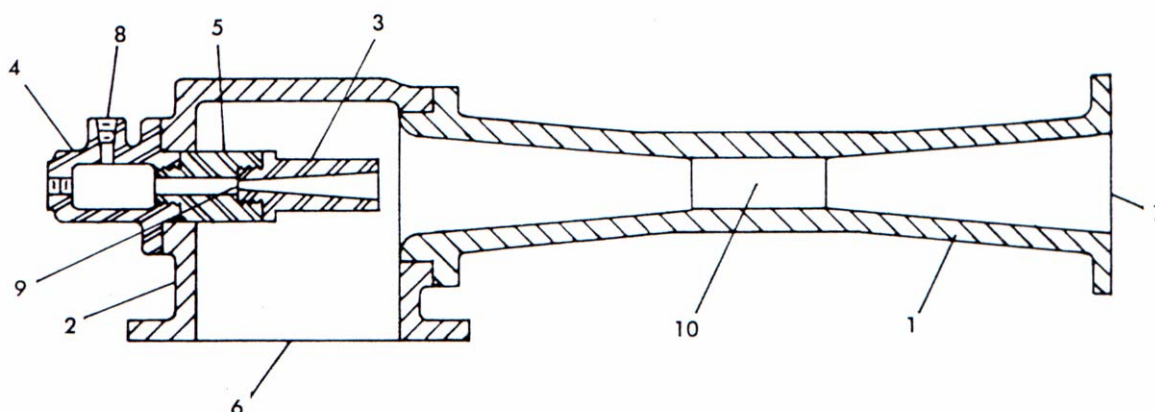


Figure 1. Typical steam jet ejector stage assembly

1. Diffuser	6. Suction
2. Suction Chamber	7. Discharge
3. Steam Nozzle	8. Steam Inlet
4. Steam Chest	9. Nozzle Throat
5. Extension	10. Diffuser Throat

6. GENERAL CRITERIA

6.1 Technical Specification

6.1.1 The main characteristics and the process requirements of the ejectors are specified in the dedicated Data sheets. A sample blanked data-sheet is presented in appendix A.