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

NIOEC SP

NIOEC SPECIFICATION
FOR
DRAFTING

FIRST EDITION

JANUARY, 2006

THIS SPECIFICATION IS THE PROPERTY OF NATIONAL IRANIAN OIL ENGINEERING & CONSTRUCTION EMPLOYER. IT IS CONFIDENTIAL AND ALL RIGHTS RESERVED TO THE OWNER. NEITHER WHOLE NOR ANY PART OF THIS DOCUMENT MAY BE DISCLOSED TO ANY THIRD PARTY, REPRODUCED, STORED IN ANY RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN CONSENT OF THE NATIONAL IRANIAN OIL ENGINEERING & CONSTRUCTION COMPANY

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

REVISION INDEX

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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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Documents

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1. SCOPE

This NIOEC Specification covers drafting design practices for technical drawing and prescribes the standards of line conventions and lettering, Job Specification block format, drawing sheet size and format, multi and sectional view scales, etc. to be used in refinery/ oil plant, distribution depots, pump stations and pipelines for preparing drawings, unless otherwise specified in the specific drafting requirements for PFD and P&I D as outlined in [NIOEC-SP-00-52](#) and [NIOEC-SP-00-55](#) respectively.

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.

IPS (IRANIAN PETROLEUM STANDARD)

IPS-E-GN-120 "Engineering Standard for Drafting"

NIOEC-SP (NIOEC SPECIFICATIONS)

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

[NIOEC-SP-00-52](#) "NIOEC Specification for Process Flow Diagram"

[NIOEC-SP-00-55](#) "NIOEC Specification for Piping & Instrumentation Diagram"

[NIOEC-SP-00-62](#) "NIOEC Specification for Numbering System"

3. UNITS

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

4. DEFINITION & THERMINOLOGY

Drawings: Original drawings prepared by the National Iranian Oil Engineering & Construction Employer (NIOEC) or on their behalf, by a consultant and bearing and Engineering drawing number.

Maker's drawings: Prints & drawings received from outside sources.

Prints: Prints of: Drawings

Reproducible copies: Tracing prints of drawings, microfilms, stat files, etc.

5. DRAWING SPECIFICATION

5.1. Drawing Sheet Size

5.1.1 Selection and designation of sizes

The original drawing should be made on the smallest sheet permitting the necessary clarity and resolution.

The choice of sizes of the original drawing and its reproductions shall be made from the series shown in Sub-Clauses 5.1.2.

Drawing sheets may be used with their longer sides positioned either horizontally or vertically.

5.1.2 Sizes series

The drafting techniques, drawing sizes, preparation, and when applicable the micro filming, of technical drawings shall be in accordance to the following instructions or Employer policy as instructed by the user. Drawings should be on the main A series sized sheets. The basic format of each type of document produced by the Designer shall be submitted for review by the Employer prior to large scale application. The following order of preference shall apply:

A4	297	mm × 210	mm
A3	420	mm × 297	mm
A2	594	mm × 420	mm
A1	841	mm × 594	mm
A0	1189	mm × 841	mm

Drawing size A0 may be used for process drawings on special cases. Special attention shall be paid by the Designer to ensure a consistent drawing and documentation package, particularly for those documents which are associated with equipment package unit, It is not acceptable to deviate from an agreed format and standards, and it is the Designer's responsibility to ensure rigid adherence to such procedures.

Copies of drawings issued for comments or information shall have a size of A3. Consideration should be given to reducing by copying to A4 size (where readable) before dispatch. Drafting techniques should then take into account clear readability of the reduced format.

Where it is anticipated that computer printouts will be employed, the dot matrix printers shall not be used for drawing preparation purpose.

5.1.3 Exceptional elongated sizes

Exceptional elongated sizes are obtained by extending the shorter sides of a format of the A series to lengths that are multiples of the shorter side of the chosen basic format.

5.2. Scale

Process drawings should not be drafted to scale. However, their size should be compatible with that of equipment drawings.

Scale for piping plans shall be 1:33 1/3 (or 1:30 if approved by Employer).

The general plot plan should be prepared to one of the following scales: 1:500, 1:1000, 1:2000.

5.3. Drawing Materials

5.3.1 Drawings shall generally be prepared on standard pre-printed polyester film or tracing paper, and etc.