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

NIOEC SP

NIOEC SPECIFICATION FOR PROCESS DESIGN OF EMERGENCY MEASURES

FIRST EDITION

JULY, 2005

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IN THE NAME OF GOD**FOREWORD**

By their very nature, technical 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 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 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 and Engineering 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 and Engineering 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 and Engineering Director of NIOEC for evaluation and approval.

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NOTES:

- 1) THIS SHEET IS A RECORD OF ALL REVISIONS TO THIS SPECIFICATION.
- 2) WHEN APPROVED EACH REVISION SHALL BE CONSIDERED AS A PART OF THE ORIGINAL DOCUMENT.
- 3) NUMBER OF PAGES EXCLUDES THIS SHEET AND THE COVER SHEET.

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INTRODUCTION

To satisfy the requirements of this NIOEC Specification, Iranian Petroleum Standard IPS-E-PR-470 (Aug 2009) with the modifications as specified herein after shall be strictly followed.

Articles 0 through 2 of this document replace entirely the related articles in the referenced IPS Standard.

1. SCOPE

This NIOEC Specification is intended to cover minimum requirements and guidelines for process engineers to specify proper type of emergency measures for probable emergency situations.

Deviations from this Specification will only be permitted on obtaining written approval from NIOEC.

Resolution on cases not explicitly stipulated in this Specification, or on cases where conflicts may arise among the requirements of the referenced/relevant IPS and the international standards, shall be made through written consent and approval of NIOEC.

2. REFERENCES

The following standards, codes, and specifications, to the extent specified hereinafter, shall constitute a part of this NIOEC Specification. Latest edition of the undated referenced documents and the cited edition of the dated references shall apply. The applicability of changes made to the dated references, after the cited date shall be mutually agreed upon between NIOEC and the vendor/contractor.

API (AMERICAN PETROLEUM INSTITUTE)

API RP 521	"Guide for Pressure-Relieving and Depressuring Systems"
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NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)

No. 30	"Flammable and Combustible Liquid Code"
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IPS (IRANIAN PETROLEUM STANDARDS)

IPS-E-PR-470	"Engineering Standard for Process Design of Emergency Measures"
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NIOEC SP (NIOEC SPECIFICATIONS)

NIOEC-SP-00-10	"NIOEC Specification for Units"
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2.1. Equivalent to IPS Standards

Substitute the following IPS Standards as referred to throughout IPS-E-PR-470 for the relevant NIOEC's Specifications as follows:

<u>IPS Standard</u>	<u>Relevant NIOEC Specification</u>
IPS-E-GN-100	NIOEC-SP-00-10

3. ADDENDUM TO IPS-E-PR-470

This addendum revises the below listed articles of the referenced standard as follows:

3. DEFINITION AND TERMINOLOGY (Modification)**5. UNITS (Modification)**

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

6.1.2.7. (Addition)

A battery limit valve or other Emergency Block Valve in the line may be considered to meet the fuel isolation requirement, provided that its closure would not create other hazards or conflict with other actions that might be necessary during a plant emergency. For example, a fuel gas line might be required to be open as a depressuring route.

6.1.2.8. (Addition)

Means must be provided for stopping the flow of flammable process fluids to fired heater coils. This should consist of an accessible emergency block valves in each stream, located at least 12 m from the fired heater. Block valves for feed pumps, compressors, or control valves, which meet the above requirement, are acceptable for this purpose.

6.1.3.4. (Addition)

The emergency block valves should be equipped with position switches set to trip the compressor when emergency block valves are less than 50% open shutdown system, but the emergency block valves should not be actuated (automatically closed) by the compressor.

6.1.3.5. Equipment with High Fire Potential (Addition)

Equipment with High Fire Potential shall include:

- 1) Pumps with a rated capacity over 45 m/h handling flammable liquids.
- 2) Compressors over 150 kW handling flammable gasses.
- 3) Fired heaters handling flammable liquids in tubes.
- 4) Vessels, heat exchangers, and other equipment containing flammable liquids over 315°C or above their autoignition temperature, whichever is less.
- 5) Certain reactors that operate at high pressures or are capable of producing exothermic or runaway reactions.

6.1.4.1. (Addition)

An emergency block valve should be installed in the pump suction line, when the inventory in a pump suction vessel is over 7.5 m³ of flammable liquid or is over 12 m³ of combustible liquid. In

the case of towers, inventory is calculated at the top of the working level range, with the addition of tray and reboiler holdup if they are draining into the tower sump.

6.1.4.2. (Addition)

Emergency block valve may be installed on the discharge line of high head pumps to prevent back flow.

6.2.1.6. (Addition)

Emergency Block Valve actuating button is located at least 12 m horizontally away from the source of potential leak and such that it can be operated from grade.

Consideration should also be given to locating the actuating button in the control room.



IRANIAN PETROLEUM STANDARDS

استانداردهای نفت ایران

IPS

IPS-E-PR-470 (1)

ENGINEERING STANDARD
FOR
PROCESS DESIGN OF EMERGENCY MEASURES

FIRST REVISION
AUGUST 2009

استاندارد مهندسی
برای
طراحی فرآیندی اقدامات حالت اضطراری

ویرایش اول
مرداد ۱۳۸۸

پیش گفتار

FOREWORD

The Iranian Petroleum Standards (IPS) reflect the views of the Iranian Ministry of Petroleum and are intended for use in the oil and gas production facilities, oil refineries, chemical and petrochemical plants, gas handling and processing installations and other such facilities.

IPS is based on internationally acceptable standards and includes selections from the items stipulated in the referenced standards. They are also supplemented by additional requirements and/or modifications based on the experience acquired by the Iranian Petroleum Industry and the local market availability. The options which are not specified in the text of the standards are itemized in data sheet/s, so that, the user can select his appropriate preferences therein.

The IPS standards are therefore expected to be sufficiently flexible so that the users can adapt these standards to their requirements. However, they may not cover every requirement of each project. For such cases, an addendum to IPS Standard shall be prepared by the user which elaborates the particular requirements of the user. This addendum together with the relevant IPS shall form the job specification for the specific project or work.

The IPS is reviewed and up-dated approximately every five years. Each standards are subject to amendment or withdrawal, if required, thus the latest edition of IPS shall be applicable

The users of IPS are therefore requested to send their views and comments, including any addendum prepared for particular cases to the following address. These comments and recommendations will be reviewed by the relevant technical committee and in case of approval will be incorporated in the next revision of the standard.

Standards and Research department
No.19, Street14, North kheradmand

Karimkhan Avenue, Tehran, Iran .

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استانداردهای نفت ایران (IPS) منعکس کننده دیدگاههای وزارت نفت ایران است و برای استفاده در تأسیسات تولید نفت و گاز، پالایشگاههای نفت، واحدهای شیمیایی و پتروشیمی، تأسیسات انتقال و فراورش گاز و سایر تأسیسات مشابه تهیه شده است.

استانداردهای نفت، براساس استانداردهای قابل قبول بین‌المللی تهیه شده و شامل گزیده هائی از استانداردهای مرجع می‌باشد. همچنین براساس تجربیات صنعت نفت کشور و قابلیت تأمین کالا از بازار داخلی و نیز برحسب نیاز، مواردی بطور تکمیلی و یا اصلاحی در این استاندارد لحاظ شده است. مواردی از گزینه‌های فنی که در متن استانداردها آورده نشده است در داده برگ‌ها بصورت شماره گذاری شده برای استفاده مناسب کاربران آورده شده است.

استانداردهای نفت، بشکلی کاملاً انعطاف پذیر تدوین شده است تا کاربران بتوانند نیازهای خود را با آنها منطبق نمایند. با این حال ممکن است تمام نیازمندی‌های پروژه ها را پوشش ندهند. در این گونه موارد باید الحاقیه‌ای که نیازهای خاص آنها را تأمین می‌نماید تهیه و پیوست نمایند. این الحاقیه همراه با استاندارد مربوطه، مشخصات فنی آن پروژه و یا کار خاص را تشکیل خواهند داد.

استانداردهای نفت تقریباً هر پنج سال یکبار مورد بررسی قرار گرفته و روزآمد می‌گردند. در این بررسی‌ها ممکن است استانداردی حذف و یا الحاقیه‌ای به آن اضافه شود و بنابراین همواره آخرین ویرایش آنها ملاک عمل می باشد.

از کاربران استاندارد، درخواست می‌شود نقطه نظرها و پیشنهادات اصلاحی و یا هرگونه الحاقیه‌ای که برای موارد خاص تهیه نموده‌اند، به نشانی زیر ارسال نمایند. نظرات و پیشنهادات دریافتی در کمیته‌های فنی مربوطه بررسی و در صورت تصویب در تجدید نظرهای بعدی استاندارد منعکس خواهد شد.

ایران، تهران، خیابان کریمخان زند، خردمند شمالی، کوچه چهاردهم، شماره ۱۹

اداره تحقیقات و استانداردها

کدپستی: ۱۵۸۵۸۸۶۸۵۱

تلفن: ۶۰ - ۸۸۸۱۰۴۵۹ و ۶۶۱۵۳۰۵۵

دورنگار: ۸۸۸۱۰۴۶۲

Standards@nioc.org

پست الکترونیکی: