DESFA
Hellenic Gas Transmission System Operator

HELLENIC GAS TRANSMISSION SYSTEM OPERATOR

357-359, MESSOGION AVE.,
15231 ATHENS, GREECE
Tel.: 210 6501258
Fax : 210 6501551

TECHNICAL JOB SPECIFICATION

700/7

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HIGH PRESSURE (HP) TRANSMISSION SYSTEMS

AREA CLASSIFICATION

QUALITY ASSURANCE PAGE

CHANGES LOG

REVISIONS LOG

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CONTENTS

REFERENCE DOCUMENTS

- Job Spec. No. 700/5

- ELOT EN 60079-10
[Electrical apparatus for explosive gas atmospheres - Part 10: Classification of hazardous areas]

1.0 SCOPE

Scope of this Specification is to point out some additional information for determining the sources of hazard for area classification drawings preparation.

Following criteria given below are for area classification determination for plant installation. Where fire and/or explosion hazards may exist.

2.0 GENERAL

The area classification shall be done by checking the existence and location in the plant of any source of hazard, and taking into consideration the characteristics of the substances involved and giving rise to different degree of hazard. General information for area classification are given in the General Electrical Specification **Job Spec. No. 700/5,** which has to be considered also for the selection of the type of equipment and relevant enclosures to be used in classified hazardous locations.

2.1 STANDARDS

The classification of hazardous locations shall be done in accordance with **ELOT EN 60079-10.**

2.2 AREA CLASSIFICATION DRAWINGS

The classification of hazardous locations shall be represented on particular drawing where type and extension of such classified locations shall be shown. The drawings shall be self explanatory, with notes specifying at least:

- type of substances giving rise to the classification,
- equipment to be used in the classified hazardous locations.

3.0 LOCATION OF SOURCES OF HAZARD

The following guide lines have been prepared to give assistance in order to define which items of plant should normally be considered source of hazard, and which should not. The assessment must be always considering the particular circumstances of each individual situation.

Uniformity criteria shall be adopted in the interpretation and application of mentioned standards. In this analysis one has not to assure that the whole plant is a hazardous environment. Certain items, by the nature of safety factors in design and by control and inspection in manufacturing and maintenance are practically free from fail (e.g. the shell of a pressure vessel). On the other hand items as drain cocks, vents and pump glands, are obviously points at which flammable material can be released from a closed system. It is specifically from such points that the hazardous areas and the safety distance should be measured.

Plant items have to be divided into groups, depending on whether they would normally be regarded as hazardous or not. Items have to be regarded as source of hazard if they release gases, vapors or substances which vaporize on release.

3.1 TYPICAL SOURCES OF HAZARD TO BE CONSIDERED FOR AREA CLASSIFICATION

Machines, equipment, or their parts for production and processing of dangerous substances which can be released into the atmosphere in normal and abnormal

operating conditions have to be generally considered as source of hazard. The items listed here below will be particularly taken into account:

- pump glands and shaft glands on rotating or reciprocating shafts of rotary filters, contactors, mixers, and other machines. (In centrifugal, reciprocating and rotary compressors the glands are the main hazard, but other sources of hazard should be regarded as the compressor casing and in some cases, parts of the gland sealing system),

-the drain rims around the pump pad,

-cooling water effluent systems from hydrocarbon service,

-vents of safety valves and rupture disk when non conveyed to flare or gas meter,

-drain connection used in process operation and permitting release of flammable vapour to atmosphere,

-sample points,

-vents to atmosphere,

-motorized valves,

-some types of stream analysers,

-drum and container filling plant

-fixed roof storage tanks, including water draw- off arrangements,

-floating roof storage tanks including water draw-off arrangements.

Whether any particular hazardous area is zone 1 or zone 2, it will depend on whether the hazard can normally be expected to be present or whether it is unlikely to be present as noted in **ELOT EN 60079-10.**

4.0 PROCESS AREA

The above ground exposed parts of the natural gas line valve stations, scrapper stations and mixing station are considered as process areas. In the process area there is usually sufficient combination of sources of hazard that extension of relevant classified locations overlap and produce an unbroken classified environment. The theoretical existence of small pockets of safe locations is not realistic and should be avoided.
ELOT EN 60079-10 shall be used to define the hazardous area.
Pits shall be classified as zone 1 up to the earth surface and they shall generate a zone 2 classification extended horizontally up to a distance of 3 m from the side of the trap and vertically from a ground to an elevation of 3.0 m above the trap cover, as per **ELOT EN 60079-10.**