Flash Fire Risk Assessment for the Upstream Oil and Gas Industry

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1 Scope

1.1 General

This recommended practice (RP) provides guidance for the upstream oil and gas industry on hazard identification and risk assessment exercises to assess and mitigate the risk of human injury caused by exposure to a flash fire.

The scope of this document is limited to personnel exposed to the risk of hydrocarbon based flash fires in the upstream Exploration and Production sector of the oil and gas industry. In general, this group includes oil and gas production, drilling, well bore (well servicing) operations, and gas processing prior to interstate pipeline transportation.

1.2 Conditions of Applicability

This RP focuses on flash fires that result from the unexpected ignition of hydrocarbon vapors. Emergency preparedness (e.g. firefighting, hazmat response) for exposure to fire event greater than a flash fire is excluded from this RP and is addressed by NFPA and other standards organizations.

Arc flash, as discussed in NFPA 70E and its other related standards, are outside the scope of this document.

Maintenance, care, and limitation of various fire resistant clothing (FRC) materials are outside the scope of this document. These items are addressed by the manufacturer and clothing-related standards.

2 Terms, Definitions, Acronyms, and Abbreviations

2.1 Terms and Definitions

For the purposes of this document, the following definitions apply.

2.1.1
Class I, Division 1 location
A location in which ignitable concentrations of flammable gases or vapors are expected to exist under normal operating conditions or in which faulty operation of equipment or processes might simultaneously release flammable gases or vapors and also cause failure of electrical equipment.

2.1.2
Class I, Division 2 location
A location in which flammable gases or vapors may be present but normally are confined within closed systems; are prevented from accumulating by adequate ventilation; or the location is adjacent to a Division 1 location from which ignitable concentrations might occasionally be communicated.

2.1.3
Class I location
A location in which flammable gases or vapors are, or may be, present in the air in quantities sufficient to produce explosive or ignitable mixtures.

2.1.4
fire
A rapid oxidation process, which is a chemical reaction resulting in the evolution of light and heat in varying intensities.