

1. Record Nr.	UNINA9911006671603321
Autore	Nolan Dennis P
Titolo	Handbook of fire and explosion protection engineering principles for oil, gas, chemical, and related facilities / / by Dennis P. Nolan
Pubbl/distr/stampa	Westwood, N.J., : Noyes Publications, c1996
ISBN	1-282-73768-6 9786612737688 0-08-094631-3 9786612002687 1-282-00268-6 9786612253171 1-59124-084-0
Edizione	[1st ed.]
Descrizione fisica	1 online resource (312 p.)
Disciplina	660.2804 660/.2804 20
Soggetti	Chemical plants - Fires and fire prevention Petroleum refineries - Fires and fire prevention Explosions
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Handbook of Fire and Explosion Protection Engineering Principles for Oil, Gas, Chemical, and Related Facilities; Copyright Page; Contents; CHAPTER 1 INTRODUCTION; Historical Background; Legal Influences; Hazards and Their Prevention; Systems Approach; Fire Protection Engineering Role; Risk Management and Insurance; Senior Management Responsibility and Accountability; CHAPTER 2 OVERVIEW OF OIL AND GAS FACILITIES; Exploration; Production; Enhanced Oil Recovery (EOR); Secondary Recovery; Tertiary Recovery; Transportation; Refining; Typical Refinery Process Flow; Marketing CHAPTER 3 PHILOSOPHY OF PROTECTION PRINCIPALSGeneral Philosophy; Worst Case Conditions; Independent Layers of Protection (ILP); Design Principles; Accountability and Auditability; CHAPTER 4 PHYSICAL PROPERTIES OF HYDROCARBONS; General; Characteristics of Hydrocarbons; Lower Explosive Limit (LEL)/Upper Explosive Limit (UEL);

Flash Point (FP); Autoignition Temperature (AIT); Vapor Density; Vapor Pressure; Specific Gravity; Flammable; Combustible; Heat of Combustion; Description of Some Common Hydrocarbons; CHAPTER 5 CHARACTERISTICS OF HYDROCARBON RELEASES, FIRES AND EXPLOSIONS  
Hydrocarbon Releases Gaseous Releases; Mists or Spray Releases; Liquid Releases; Nature and Chemistry of Hydrocarbon Combustion; Hydrocarbon Fires; Nature of Hydrocarbon Explosions; Semi-confined Explosion Overpressures; Vapor Cloud Explosion Overpressures; Boiling Liquid Expanding Vapor Explosions (BLEVE); Smoke and Combustion Gases; Mathematical Consequence Modeling; Methods of Flame Extinguishment; Selection of Fire Control and Suppression Methods; Terminology of Hydrocarbon Explosions and Fires; CHAPTER 6 HISTORICAL SURVEY OF FIRE AND EXPLOSIONS IN THE HYDROCARBON INDUSTRIES  
Relevancy of Incidents Offshore Oil Production and Exploration (USA); Summary; CHAPTER 7 RISK ANALYSIS; Safety Flow Chart; Risk Identification and Evaluation; Risk Acceptance Criteria; Relevant and Accurate Data Resources; CHAPTER 8 SEGREGATION, SEPARATION AND ARRANGEMENT; Segregation; Separation; Manned Facilities and Locations; Storage Facilities-Tanks; Process Units; Flares; Critical Utilities and Support Systems; Fire Zones; Arrangement; Facility Access and Egress; CHAPTER 9 GRADING, CONTAINMENT, AND DRAINAGE SYSTEMS; Drainage Systems; Surface Drainage; Spill Containment CHAPTER 10 PROCESS CONTROL Human Observation; Instrumentation and Automation; Electronic Process Control; Process System Instrumentation and Alarms; Transfer and Storage Controls; Burner Management Systems; CHAPTER 11 EMERGENCY SHUTDOWN; Definition and Objective; Design Philosophy; Activation Mechanisms; Levels of Shutdown; Reliability and Fail Safe Logic; ESD/DCS Interfaces; Activation Points; Activation Hardware Features; Isolation Valve Requirements; Emergency Isolation Valves (EIV); Subsea Isolation Valves (SSIV); Protection Requirements; System Interactions CHAPTER 12 DEPRESSURIZATION, BLOWDOWN AND VENTING

---

## Sommario/riassunto

The security and economic stability of many nations and multinational oil companies are highly dependent on the safe and uninterrupted operation of their oil, gas and chemical facilities. One of the most critical impacts that can occur to these operations are fires and explosions from accidental or political incidents. This publication is intended as a general engineering handbook and reference guideline for those personnel involved with fire and explosion protection aspects of critical hydrocarbon facilities. Design guidelines and specifications of major, small and independent oil companies a

---