# THE SEVESO II DIRECTIVE





**Environmental Compliance and Enforcement Network for Accession** 

## HISTORY

- Flixborough (UK), 1974
- Seveso (IT), 1976
- Bhopal (India), 1984
- Basel (Sandoz), Switzerland, 1986
- Mexico City, Mexico, 1986
- Aznallcollar (ES), 1998
- Baia Mare (RO), 2000
- Toulouse (FR), 2001
- Texas City (USA), 2005
- Buncefield (UK), 2006







#### Flixborough Accident, 1974



#### **Seveso**, 1976



### **Bhopal UC plant, 1984**



#### Sandoz Warehouse on the Rhine, 1986



#### Aznallcollar dam break, 1998



#### Baia Mare dam break, 2000



#### **Toulouse accident, 2001**



#### **Texas City accident, 2005**



#### **Buncefield accident, 2006**

## DATABASE ON MAJOR ACCIDENTS (1984 - 2007)

- 603 accidents and near misses reported
- ~ 66% due to management failure
- ~10% caused environmental damage
- ~66 % caused injuries or fatalities





## DATABASE ON MAJOR ACCIDENTS LESSONS LEARNT

- Main cause inadequate management
  - Inadequate design and maintenance
  - Inadequate decisions •
  - Inability to take decisions
  - Cover-up of safety breaches and "Blame game" approach
  - Lack of safety culture "Macho culture", "Do-it-fast"
  - Inadequate assessment of the existing hazards and the • associated risks 13

## DATABASE ON MAJOR ACCIDENTS LESSONS LEARNT

- Main accident risks
  - Abnormal Operations
    - Maintenance operations
    - Start-up or shutdown procedures
    - Unforeseen weather conditions
    - Loading/unloading operations
    - Nightshifts
  - Inadequate Design & Maintenance Decisions
    - Bad Installations Design
    - Inadequate Maintenance & Operation procedures
    - Inadequate Design of Safety Equipment

## HISTORY OF THE ACCIDENT PREVENTION LEGISLATION ON EU LEVEL

- Pre-1982 left to the Member States
  - Different systems
  - Distortion of the competition
  - Increased risk
- 1982 Seveso I
  - Listed Substances + Processes
  - MAPP + SMS not explicitly required
  - Focused on Providing Information to the CA
- 1996 Seveso II
- 2003 Amendment of Seveso II
  - Broader Scope Tailing Ponds
  - Extended requirements for Risk Assessment
- 200? Seveso III

## **SCOPE OF THE DIRECTIVE**

#### ALL ESTABLISHMENTS WHICH STORE

#### DANGEROUS SUBSTANCES ABOVE

#### SPECIFIC THRESHOLDS

Exclusions:

- -Hazards from ionizing radiation
- -Transport outside the establishment
- -Landfills, quarries and mines
- -Offshore exploration
- -Military installations

# **A MAJOR ACCIDENT**

is a major emission, fire or explosion, leading to serious danger to human health and/or the environment, immediate or delayed, inside or outside an establishment, involving one or more dangerous substances

## **AN ESTABLISHMENT**

# is the whole area under the control of the operator

# **AN INSTALLATION**

is a technical unit within an establishment

## HAZARD

# is an intrinsic property of a dangerous substance, with a potential for harm

## **RISK**

# Is the likelihood of a specific effect occurring

## **DANGEROUS SUBSTANCES**

# Named Substances e.g. Sulphur trioxide

or

# Substances with certain generic hazardous properties e.g. Flammability

The Classification is done according the EU Directives on Classification, Packaging and Labeling (67/548/EEC and 99/45/EC)

## **THRESHOLDS**

- Annex I
- Two categories based on quantities stored
  - Lower Tier
  - Upper Tier
- Upper Tier has more responsibilities





# REQUIREMENTS LOWER TIER

- General Obligations
- Notification
- Major Accident Prevention Policy
- Modifications
- Accident Reports
- Cooperation with Authorities





# OBLIGATIONS UPPER TIER

- Lower Tier Obligations and
- Safety Report
- Internal Emergency Plans
- Information to Public



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# GENERAL OBLIGATIONS OF AN OPERATOR

To take all measures necessary to prevent major accidents and to limit their consequences

The operator must be able to "demonstrate" that the hazards are identified and all necessary measures are taken

# ROLE OF THE COMPETENT AUTHORITIES

- Administrative, executive and enforcement responsibilities
- Review of Documentation
- Inspection
- Prohibition of Activity if
  - Serious deficiencies are present
  - Documentation inadequate
- Preparation and Testing of External Emergency Plans
- Identification of possible Domino effects
- Implementation of Land-use Policies



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## **DOMINO EFFECT**

# An accident on one Seveso site could affect neighboring Seveso sites

If requested by the CA the operators must exchange information and cooperate in the area of risk management, emergency response and public information



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# MAPP

## Major Accident Prevention Policy

Designed to guarantee a high level of protection for Man and the Environment by appropriate Means, Structures and Safety Management Systems

#### MAPP consists of

- Policy Statement
- Safety Management System

#### MAPP

### THE SAFETY MANAGEMENT SYSTEM

- Organisation and Personnel
- Identification and Evaluation of Hazards
- Operational Control
- Emergency Planning
- Performance Monitoring
- Audit and Review

Lower Tier - MAPP is a separate document Upper Tier - MAPP is part of Safety Report

# SAFETY REPORT

#### must contain

- Major Accident Prevention Policy
- Safety Management System
- Identification of Hazards
- Analysis and Assessment of Risk
- Adequate Prevention/Limitation Measures
- Internal Emergency Plans
- Information for Land-use Planning

#### **Applies to Upper Tier Sites**

# INTERNAL EMERGENCY PLAN OBJECTIVES

- Controlling incidents to minimise effects
- Implementing protection measures
- Communicating information to the Public and the Authorities
- Providing for clean-up and restoration of the environment





# **EXTERNAL EMERGENCY PLAN**

- To be prepared by the Local or National Designated Authority
- The Operator must provide relevant information requested by the Authority
- Details of the Plan to be communicated by the Authority to the Operator in order to ensure Compatibility of Internal & External EP



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## **PUBLIC INFORMATION**

- Information must be made available to the Public without request to include
  - The Safety Report
  - An explanation of site activities
  - Nature and quantity of dangerous substances
  - Nature of hazard posed
  - How the population will be alerted to an accident

#### **Applies to Upper Tier Sites**

# **IF A MAJOR ACCIDENT OCCURS**

## The CA must be informed of

- Circumstances of the accident
- Dangerous substances involved
- Data available for assessing the effects of the accident
- Emergency actions undertaken





## **LEARNING FROM EXPERIENCE**

The Directive requires that Member States and the Commission will exchange information and experience such as

- Analysing the causes of accidents
- Lessons learned
- Measures necessary to prevent recurrence

Member States must report data on major accidents to the Commission

# CORRELATION WITH OTHER EU LEGISLATION

•CLP Directives

•Definition of Hazardous Substances & Preparations

•REACH

Chemical Safety reports

•New Studies on Chemicals – New Classification possible

•GHS

•New Classification Rules – Downstream Effect

•Labour safety

•Complementary to each other

# CORRELATION WITH OTHER EU LEGISLATION

#### **IPPC Directive - Different scope**



# CORRELATION WITH OTHER EU LEGISLATION

### **IPPC** Directive

#### Synergies

- •Use of management systems
- Use of less hazardous materials at the site
- •Reduction in the volume of hazardous material stored at the site

#### Differences

- •Seveso protection of human health and environment from the negatife effects of major accidents through prevention of major accidents using SMS
- •IPPC protecting environment and human health on a long term basis by preventing and minimising pollution through use of BAT and EMS

#### Potential Conflicts

- •Safety over Environment ?
- Siting of establishments
- Technical measures

CORRELATION WITH OTHER MULTILATERAL ENVIRONMENT AND CHEMICAL AGREEMENTS •UNECE Convention

•Seveso II Directive based on some of the Requirements of the Convention

•SMS

•EP

•Public Information and Participation

Additional Requirements

Notification to Parties

•Access to Justice for residents of affected Parties



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### OTHER ACCIDENT PREVENTION AND CHEMICAL MANAGEMENT INITIATIVES

#### •SAICM

- •Goal Chemical Safety throughout their Lifecycle
- Stipulates Safe Technologies
- •Welcomes Public Information and Participation as well as International Cooperation
- •Provides Platform for Knowledge Transfer and Capacity Building

#### •IFCS

- •Facilitattion of international cooperation
- •Promotion of national chemicals management
- Identification of gaps in scientific understanding
- •Promotion of Information Exchange and Technical Cooperation,
- Advice to Governments on chemical safety

#### •OECD

- •Extensive Programme on Chemical Safety
- •Guiding Principles on several Topics
- •Wide ranging Cooperation