



---

# Directive 2006/21/EC on the Management of Waste from the Extractive Industry

Institute of Geologists of Ireland

12 May 2010

Ben Dhonau

Technical Adviser

[Ben.Dhonau@dcenr.gov.ie](mailto:Ben.Dhonau@dcenr.gov.ie)

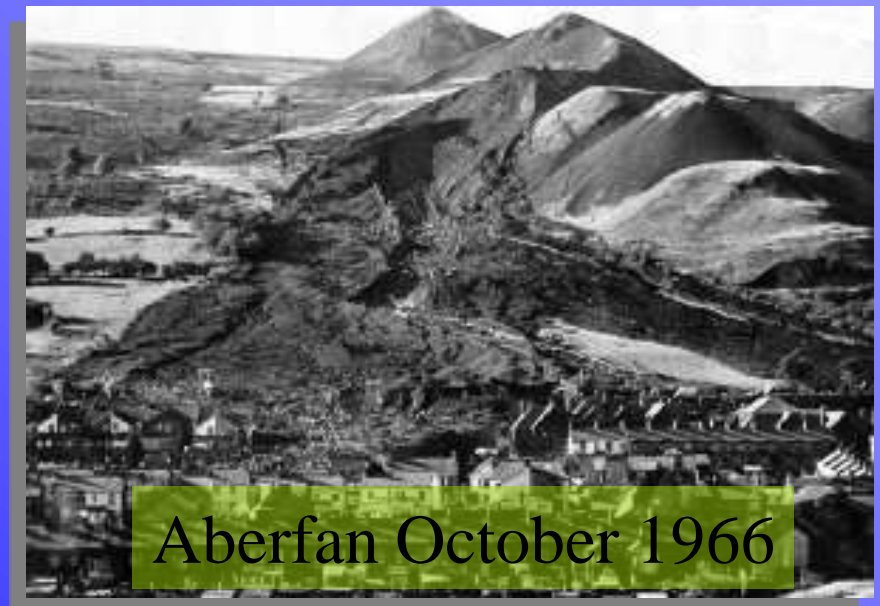
[Ben.Dhonau@gmail.com](mailto:Ben.Dhonau@gmail.com)

# Contents

- Background
- The Directive
- Commission Decisions
- Implementation
- Documentation



# Genesis



# Development of the Directive

- Los Frailes: 25 April 1998
- Proposed Directive published: 2 June 2003
  - 3 Commission Working Papers
  - Expert Working Group
  - Joint Commission, Member State and Industry discussion via Raw Materials Supply Group
  - Conferences, seminars, workshops
- Directive Published: 15 March 2006

# Process of agreeing the Directive



# What is the Directive about?

- Management of waste \*
  - from the extractive industries\*
  - directly resulting from on-shore \* prospecting \*, extraction, treatment \* and storage of mineral resources \* Articles 1 and 2
  - excludes radioactive properties (recital 10)

\* defined terms

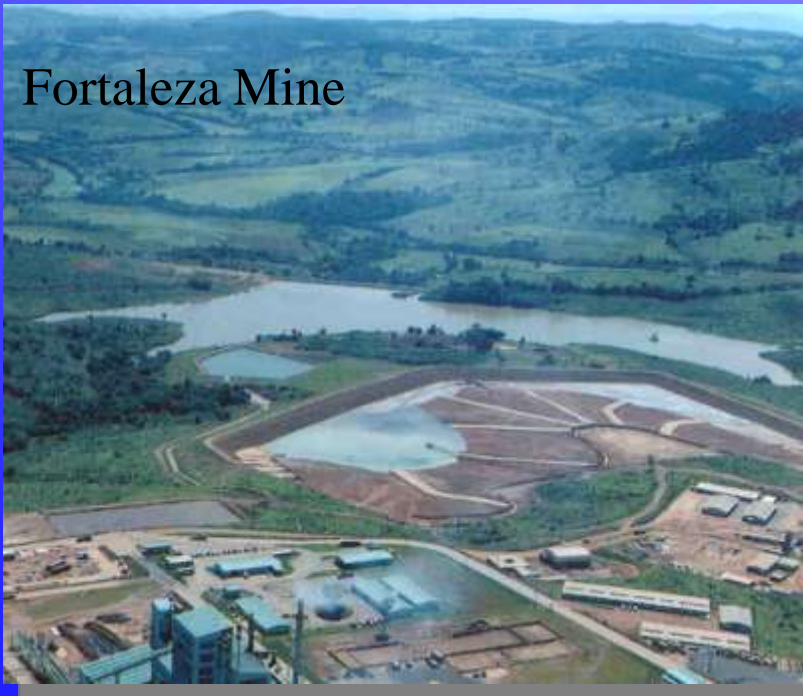
- Extractive waste is not subject to Waste Directive or its daughters including the Landfill Directive but other wastes are.

# What is Waste?

- Waste has same meaning as in Waste Directive
- Clarified by ECJ decisions
  - Palin Granit  
Leftover stone resulting from stone quarrying which is stored for an indefinite length of time to await possible use is waste
  - Avesta Polarit  
A residue lawfully used for the necessary filling of mine galleries e.g. backfilling for support, is not waste.  
Must be sufficient guarantees as to the identification and actual use of the substances to be used for that purpose

# Extractive Industries

- Establishments extracting mineral resources for commercial purposes (Article 3.6)





# Mineral Resources

- Include coal, oil and gas, metal ores, peat, industrial minerals, stone, sand and gravel but not water (Article 3.5)



# Treatment

- Includes
  - mechanical, physical, biological, thermal or chemical processes to extract minerals
  - size change, classification, separation and leaching
  - reprocessing of previously discarded waste,
- Excludes
  - smelting
  - thermal manufacturing (other than the burning of limestone)
  - metallurgical processes
- Can include treatment of minerals from elsewhere, including imports  
(Article 3.8)

# Waste Categories

- Unpolluted soil – soil not deemed to be polluted under national law (Art 3.4)
- Inert Waste
  - Defined in Art 3.5
  - Clarified by Commission decision 2009/359/EC

# Inert Waste

- Commission Decision 2009/359/EC sets out the following criteria for waste to be inert:
  - Will not undergo significant change likely to cause any adverse environmental effect or harm human health
  - Less than 0.1% sulphide or less than 1% sulphide and a neutralising potential greater than 3
  - No risk of self combustion and will not burn
  - Content of potentially harmful substances (various metals listed) must be low, not exceeding
    - national standards for uncontaminated sites or
    - national background levels

# Waste Categories (Continued)

- Hazardous waste (Art 3.2)
  - As defined in the Waste Directive
  - Hazardous wastes in the European Waste Catalogue
    - acid-generating tailings from processing of sulphide ore
    - other tailings containing dangerous substances
    - other wastes containing dangerous substances from physical and chemical processing of metalliferous minerals
- Non-hazardous non-inert waste
  - Any wastes not in other categories

# Aims of the Directive

- Set minimum requirements to prevent or reduce adverse effects on
  - environment
  - human healthcaused by waste from the extractive industry through BAT and taking account of specifics of the operation and its location  
(Articles 1 and 4.3)
- Special concerns
  - Soil, water, and air pollution; fauna and flora
  - Stability of waste disposal facilities and prevention of major accidents(Articles 1, 4.1 and 4.2)

# Risk-based approach

- More hazard – more control
- All wastes - disposed of without risk to people or the environment as far as possible (Art 4.1)
- Non-hazardous waste from mineral exploration and peat extraction (Art 3, 1<sup>st</sup> para)
- Inert waste (Art 3, 2<sup>nd</sup> para)
- Non-hazardous non-inert wastes (Art 3, 3<sup>rd</sup> para)
- Hazardous wastes
- Any sort of waste storage facility that might cause a serious accident if it fails – Category A facilities

Low



High

# Waste facilities (Art 3.15)

- Key concept
- Any area (including related containment structures) designated for deposit or storage of extractive waste for longer than
  - Any period in a Category A waste facility
  - Any period in a facility for expected hazardous waste
  - Six months for facilities for hazardous waste generated unexpectedly
  - One year for facilities for non-hazardous non-inert waste
  - Three years for facilities for
    - unpolluted soil,
    - non-hazardous prospecting waste,
    - waste from the extraction, treatment and storage of peat
    - inert waste



# Waste facilities (Continued)

- Excavation voids excluded if waste is placed for rehabilitation and construction purposes
- Long-term deposit in an undesignated area would be uncontrolled deposition and breach Art 4.1



# Category A Facilities

- Failure or incorrect operation could result in major accident, i.e. one presenting serious danger to human health and/or the environment, immediately or over time, on- or off-site (Annex 3)
- Either physical or chemical hazard sufficient
- Decision criteria in Annex 3 are supplemented by Commission Decision 2009/337/EC
- Must be people other than workers at risk (Decision Art 4)
- Environmental damage must be long term and difficult to remediate (Decision Art 4)
- Operator will have to justify assertion that a facility is not in Category A (Art 5.3a)

# Requirements for Category A and Hazardous Waste facilities

- Waste Management Plan (Art 5)
- Major Accident Plan for Category A facilities unless covered by the Seveso Directive (Art 6)
- A Permit (Art 7)
- Proper construction and management of the facility (Art 11)
- Environmental protection measures (Art 13)
- Closure and aftercare procedures (Art 12)
- Financial Guarantee for closure costs (Art 14)

# Waste Management Plans

- Objectives
  - minimising waste production by considering (Art 5.2)
    - waste management at design phase
    - changes in waste after deposition
    - backfilling if possible
    - replacing or reusing topsoil
  - encouraging waste recovery (Art 5.2b)
  - ensuring long term physically and chemically safe disposal with minimal monitoring and management (Art 5.2c)

# Contents of Management Plans

- Must include (Art 5.3)
  - proposed classification (Category A or not)
  - waste characterisation following Annex 2 and Commission Decision 2009/360/EC
  - quantities of waste produced
  - description of the operation
  - potential impacts and mitigation
  - control and monitoring procedures
  - closure plan and financial guarantee (if required)
  - measures to prevent water pollution
  - base line study
- Sufficient detail for competent authority to assess ability to meet objectives
- Reviewed every 5 years or if substantial changes
- Can be part of plan required under other legislation (Art 4.5)

# Major Accident Plans (Art 6)

- Cut down version of Seveso Directive requirements
- Requires plans for response to major accidents by both operator and competent authority
- Public participation mandatory in development of external response plan by competent authority



# Permits for Waste Facilities

- Mandatory for Category A or hazardous waste facilities (Art 7.1)
- May be combined with other permits (Art 7.1)
- Applicants must show compliance
  - with this Directive
  - with Regional Waste Management plans (Art 7.3)
- Public participation required (Art 8)
- Review and update when necessary (Art 7.4)

# Requirements for Grant of Permit

- Competent authority must be satisfied that the facility
  - will be managed by a competent person and staff will be trained (Art 11.1)
  - is suitably
    - located taking into account geology, hydrology etc. (Art 11.2a)
    - designed to prevent pollution
  - will be suitably constructed, operated and maintained to ensure physical stability and prevent pollution, i.e. Arts 11 and 13 will be complied with
  - will be monitored and action taken if needed
  - will be properly closed and rehabilitated



# Contents of Permits

- Details are for Competent Authorities, but need to cover:
  - Approval of Waste Management Plan
  - Ensuring that conditions met at grant of permit continue to be met e.g. prevention of pollution, physical stability (Art 11 and Art 13)
  - Financial Guarantee (if required) (Art 14)
  - Prompt reporting of events possibly causing instability or pollution and taking suitable action (Art 11.3)

# Environmental Protection Measures

- Art 13 sets out some conditions that Competent Authorities must ensure operators can and do meet
- Concentrates on the Water Framework Directive
  - Specific mention of
    - waste disposal into waters (other than a purpose built facility)
    - waste placed in excavation voids which will be flooded
  - specific requirements for leachates
  - quantitative, reducing cyanide limits in ponds
- Adequate measures required re dust and gas emissions

# Closure and aftercare

- Closure Plans required (Art 5.3.f)
- Article 12
  - Responsibility for long-term aftercare placed on operator unless assumed by competent authority
  - Otherwise mainly procedural

Navan Mine Rehabilitation



# Financial guarantees (Art 14)

- Must be in place before waste disposal starts
- Member States have wide discretion as to mechanisms and procedures
  - “financial guarantee or equivalent”
  - “in accordance with procedures to be decided by the Member States”
- Adequate to meet all obligations under Permits
- Available to ensure rehabilitation at any time
- Amount must
  - Take account of environmental impacts
  - Assume rehabilitation carried out by a third party
  - be periodically adjusted to take account of changing requirements
- Commission Decision (2009/335/EC) sets out guidelines

# Excavation Voids (Art 10)

- Not defined but meant to include underground and surface workings
- Three situations
  - Avesta Polarit type residues not waste
  - Pure waste disposal not a special category
  - Waste when subsequently used for rehabilitation or construction
    - Measures required to
      - ensure stability
      - prevent pollution
      - monitor waste and void

# Non-hazardous, non-inert waste

- Following not obligatory if a Category A facility not involved:
  - Prompt notification of adverse events during operation (Art 11.3) or post-closure (Art 12.6)
  - Post-closure monitoring (Art 12.5)
  - Cyanide limits (Art 13.6)
  - Financial guarantees (Art 14)
  - Transboundary notifications (Art 16)
- Waste Management Plans and Permits required

# Inert waste and unpolluted soil

- Following do not apply if wastes are not deposited in a Category A facility
  - Permitting (Art 7)
  - Management of the facility by a competent person (Art 11.1)
  - Notification of adverse events (11.3)
  - Post-closure requirements (Art 12)
  - Cyanide limits (Art 13.6);
  - Financial guarantees (Art 14);
  - Transboundary notifications (Art 16)
- Waste management plan still required and subject to approval
  - Plan will have to show compliance
    - with requirements for proper construction and management of the facility,
    - prevention of pollution
    - include a closure plan

# Non-hazardous waste: exploration and peat extraction

- Reductions in requirements for inert waste and other non-hazardous waste apply
- Competent Authorities have discretion to reduce the requirements of the Directive further, provided general obligations under Art 4 are met
- Does not apply to
  - oil and gas exploration
  - evaporites except gypsum and anhydrite



# Environmental Liability

- Directive 2004/35/CE on environmental liability with regard to the prevention and remedying of environmental damage amended to include management of extractive waste

# Timescales

- Member States must ensure that extractive waste is generally managed properly from 1 May 2006
- Facilities operating or permitted on 1 May 2008 must comply with the provisions of the Directive by 1 May 2012
  - except for financial guarantee (1 May 2014)
  - cyanide limits (dates specified in Art 13.6)
- New facilities from date of transposition

# Inventory of closed facilities

- Member States must prepare an inventory by 1 May 2012 of closed sites that are causing or may cause serious negative environmental impacts, or pose a threat to human health
- Much work already done in Ireland



Silvermines area



# Implementation in Ireland

- Transposed by S.I. No. 566 of 2009 Waste Management (Management of Waste from the Extractive Industries) Regulations 2009
- Mainly transliteration of the Directive
- Member State obligations transferred to Competent Authorities
- Licences dovetailed with existing licensing systems
- Guidance documents to be produced by EPA

# Competent Authorities (1)

- EPA
  - Category A facilities
  - Other facilities subject to licensing by the EPA under the 1992 Act including classification of such facilities
  - Guidance to assist local authorities
- Minister for Communications, Energy and Natural Resources
  - Prospecting under the Minerals Development Acts for petroleum and minerals
    - For minerals will be incorporated into PL system
    - Guidance note for minerals PL holders in preparation
    - Waste Management Plan likely to be required

# Competent Authorities (2)

- Local Authorities
  - Classification of other facilities with EPA assistance if requested
  - Permitting non-hazardous non-inert facilities
  - Approval of Waste Management Plans and monitoring implementation if no licence required
  - Preparation of external emergency response plans
  - Register of extractive industries in its area

# Licences

- Extractive Waste Licence in effect combined with IPPC or waste licence for facilities already subject to licensing by EPA
- Extractive Waste Licence from EPA for any other Category A facilities
- Waste Facility Permit from Local Authority under 2007 Waste Management Regulations for non-hazardous non- inert facilities
- Prospecting Licence for minerals exploration from Minister for Communications, Energy and Natural Resources

# Timescales

- Licence for Category A Facility from 31 December 2009
- Existing IPPCL or Waste Licences deemed to be Extractive Waste Licences but must be reviewed to ensure compliance
- Risk assessment for facility classification submitted to Local Authority by 30 September 2010
- Waste Facility Permit from 1 January 2011



# Documentation (1)

- The Extractive Industry Waste Directive (2006/21/EC)
- ECJ Palin Granit Decision
- ECJ Avesta Polarit Decision
- Commission Decisions
  - Definition of Inert Waste
  - Classification of Waste Facilities
  - Characterisation of Waste
  - Guidance on Financial Guarantees
  - Transmission of Information

# Documentation (2)

- SI 566/2009 transposing the Directive
- EMD Presentation at seminar 15 April 2010 re mineral exploration waste
- Reference Document on Best Available Techniques for Management of Tailings and Waste-Rock in Mining Activities - published by EU Joint Research Centre Jan 2009

