Contaminated Land in Ireland – A Consultant’s Perspective

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2ND CONFERENCE ON
THE ADVANCES IN LAND
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8th September 2011

Who are we?

• Based in Dundalk, County Louth (the Wee County)
• Started in 2007

Services

• Due Diligence Site Investigation/Contaminated Land Risk Assessment
• Remediation/Bioremediation of Contaminated Soil & Water
• Waste Licence & Permit Applications
• IPPC Licensing
• Wastewater Treatment Plant Design for Single, Small Community, Commercial & Industrial Development
• Site Suitability Assessment
• Environmental Impact Assessment
• Sludge Management Expertise
• Environmental Monitoring
EXTENT OF CONTAMINATED LAND IN IRELAND

- Historical Sites
  - Old Gas Works 50-80
  - Closed Landfills 265 (OEE figures?)
  - Closed Mine sites 128 (38 with Tailings Ponds, 11 recent/present high risk)
  - Old Fertiliser Plants 4-6
  - Closed Tanneries 10-12

- Current Operational Sites
  - Existing Landfills 76 LA 50 Private
  - Mining/Minerals site in operation ca. 7 (MWD)
  - Chemical Industry 150 -160
  - Petroleum import terminals (IPIA) 22
  - Petrol Stations 900 -1200
  - Tanneries 3
  - Dockyards 14-16
  - Military Sites 1
  - Railways Depots 80-100
  - Scrap yards/dismantlers 180 -200
  - Airports with maintenance 2

- Estimated Total of 2,000-2,500 - Ireland's small scale industry? 1

1. Brogan et al., 1999

MANAGEMENT OF CONTAMINATED LAND

There are 5 ways that contaminated land gets remediated or managed in Ireland:

1. The site is part of a Waste or IPPC regulated facility;
2. The land is part of a redevelopment project (i.e. by planning condition);
3. The land is cleaned up as a result of responsible corporate action (i.e. no enforcement needed);
4. The land is contributing to a local water quality issue (i.e. Section 12 Notice);
5. The land is the subject of a human or animal health issue; and
6. Party found liable under Environmental Liability Regulations.
EXISTING LEGISLATION

1 Background
2 Extent of CL
3 Management of Contaminated Land
4 Existing Legislation
5 Proposed Legislation
6 Site Investigation/Risk Assessment
7 Site Remediation
8 Reality Check
9 Hazardous Waste Management
10 Changes to Legislation & Licensing

CONTAMINATED LAND REGULATION IN IRELAND

- "New Reports" (No law)

Slide 5

EXISTING LEGISLATION

- Waste Management Act 1996-2008 - (CL as a result of Waste Activities)
- Water Pollution Act(s) 1977 & 1990 (CL may result in water pollution)
- EPA Acts 1992-2008 (various powers)
- IPPC licensing regs (handling/historical waste issues on-site)
- Planning and Development Acts (Drives development/LA can condition cleanup)
- Building Control Act 1990 - "avoid danger from substances including contaminants on or in ground covered by a building"....
- Derelict Sites Act - Local Authorities obliged to take all measures to prevent dereliction -often CL-
- Air Pollution Act - dust/VOCs during unlicensed activity or remediation

Slide 6
EXISTING LEGISLATION

- Waste Management (Management Of Waste from the Extractive Industries) Regs. 2009
- Groundwater Directive as implemented by SI 271 of 1992
- Protection of Groundwater Regs. (SI 41 of 1999)

EXISTING LEGISLATION

- There is NO definition for Contaminated Land in Irish Legislation
- 'Land that contains substances which, when present in sufficient quantities or concentrations, are likely to cause harm, directly or indirectly, to man, the environment, or on occasion to other targets' (Harris & Herbert, 1994).
- Land with concentrations of substances above natural background values
- Land which poses a risk to our environment
- What is risk….what's acceptable…who bears it........
EXISTING LEGISLATION

- Brownfield Sites:
  - "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.", US EPA
  - "site with environmental personality!", US National Brownfield Association
- Previously Developed Sites (PDL): UK target 60% of new houses on PDL e.g. Dublin Docklands redevelopment

LOCAL GOVERNMENT (WATER POLLUTION) ACTS, 1977 & 1990

- ‘...a person shall not cause or permit polluting matter to enter waters’
- ‘Polluting matter’ - ‘any poisonous and noxious matter and any substance (including an explosive liquid or gas) which would render water poisonous or harmful or detrimental to public health or domestic, commercial or industrial uses’
- Section 12 Enforcement Notice by LA - ‘any person having the custody or control of any polluting matter on premises in its area, where it appears that it is necessary to do so in order to prevent or control pollution of waters.’
EXISTING LEGISLATION
LOCAL GOVERNMENT (WATER POLLUTION) ACTS, 1977 & 1990

- Section 13 - LA may take measures necessary for the purpose of:
  - (a) preventing the entry of polluting matter to any waters, drain....
  - (b) remove polluting matter from any such waters...
  - (c) preventing polluting matter in waters outside its area or any seashore...
  - (d) mitigating or remedying in relation to its area...the effects of any polluting matter in any such waters, ...

- Section 13(2) - Recovery of costs by LA

- Section 14 - Notification of any accidental discharge, spill or deposit of polluting matter which enters, or is likely to enter any waters or a sewer must be made ASAP by person responsible to the LA. Offence to fail to make notification.

EXISTING LEGISLATION
WASTE MANAGEMENT ACT, 1996

- Early drafts of Waste Management Bill had specific provisions on historic land contamination (i.e. something similar to UK EPA Part IIA...what happened?
- Lobbying by Insurance brokers & Property developers
- Earlier drafts were thought to breach constitutional protection against retrospective liability

- Waste Management Act, 1996
  - Enforcement Provisions:
    - 'Authorised person' can inspect and seek information (S5(1))
    - Notices can be issued requiring actions to be taken or ceased
    - Local authority can take steps required by the notice and recover the cost
    - Any person can apply to the court for a range of orders
EXISTING LEGISLATION
WASTE MANAGEMENT ACT, 1996

- Waste Licence is required when soil or groundwater contaminated with hazardous concentrations of pollutants is:
  - treated on site; or
  - when the removal of hazardous contaminated soil from a site requires a linked process such as washing, segregating, mixing or groundwater treatment.
    - Whether soil is hazardous is covered by criteria in 2nd Schedule, Part 3
    - EPA published *Hazardous Waste Classification Tool*

- If non-hazardous soil is being recovered then LA waste permit may be required.

- 7 'Brownfield Remediation Projects' granted waste licences (i.e. fixed) to date.

- No mobile remediation licences in south? NI have 4

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EXISTING LEGISLATION
WASTE MANAGEMENT ACT, 1996

- Section 55 Notice - LAs can serve notice on any person who is holding, recovering or disposing of waste where the local authority considers it necessary to do so in order to prevent environmental pollution caused or likely to be caused by the holding, recovery or disposal of such waste.

- Mulroy Environmental's experience - only seen Section 55 Notices issued on illegal waste deposition sites.
EXISTING LEGISLATION
WASTE MANAGEMENT ACT, 1996 – VAN DE WALL IMPACT

How are the LAs able to use the WMA 1996 to enforce non-historical waste sites (i.e. brownfield sites)?

The Van de Walle ECJ Case C-1/03 in 2004

- Texaco-owned petrol station leased to Van de Walle. Texaco executives and lessor subject to criminal proceedings by Belgian public prosecutor.
- Acquitted but appealed to Brussels court of appeals which referred 2 questions to ECJ.

Questions
1) Whether leaked hydrocarbons and the unexcavated soil contaminated as a result constituted waste under the Waste Framework Directive?
2) Whether Texaco should be regarded as the producer or holder of such waste for the purposes of the WFD?

EXISTING LEGISLATION
WASTE MANAGEMENT ACT, 1996 – VAN DE WALL IMPACT

The Van de Walle Case C-1/03 in 2004 reached 5 significant conclusions:
1) That hydrocarbons accidentally spilt on or into ground are waste;
2) That the materials which become contaminated by this spilt material are waste;
3) That the holder of the waste is required to recover or dispose of the spilt or contaminated material in accordance with WFD;
4) Suppliers of hydrocarbons may be liable to costs of clean-up unless they can show negligence on the part of the holder (this was a unique aspect of the case and turns on the formal ties between petrol suppliers and the franchise holders); and
5) That the contaminate material did not have to be disturbed to become a waste.
EXISTING LEGISLATION
WASTE MANAGEMENT ACT, 1996 – VAN DE WALL IMPACT

The classification of contaminated land as waste under WFD has a number of significant implications:

1) If I want to sell on my contaminated land I am transferring waste. Only an appropriate person can buy as defined under the WMA 1996 – A conveyancing nightmare?
2) If I am the owner/occupier of a contaminated site I am subject to Section 32 of the WMA 1996... A person shall not hold, transport, recover or dispose of waste in a manner that causes or is likely to cause environmental pollution.
3) Section 32(3) of WMA 1996 requires the holder of the waste to immediately notify the LA whether any loss, spillage, accident or other development concerning waste which causes or is likely to cause environmental pollution;
4) LA’s could issue Section 55 Notices on all contaminated sites requiring the management of the waste; and
5) LA and state-owned contaminated land may be subject to these provisions.

CONCLUSION:
We ended up with contaminated land legislation by accident more than design!

EXISTING LEGISLATION
WASTE MANAGEMENT ACT, 1996 – VAN DE WALL IMPACT

- Van de Walle Case C-1/03 in 2004 means that those responsible are holders or former holders of waste and are financially liable.
- Legally robust but impractical judgement that has serious practical issues for all member states.
- Why is it impractical?
  - Any manipulation of contaminated soil other than 'dig & dump' required licence or permit
  - This is consistent with EPA's position on contaminated land damaged by Silvermines Lead Mine i.e. soil mixed with waste (i.e. tailings) is waste with overlying grass and underlying subsoil not waste.
EXISTING LEGISLATION
WASTE DIRECTIVE 2008/98/EC

- Into force on 12/12/2008
- Old Directives repealed 12/12/2010
- Old Directive and all associated case law is still in force
- However new directive would probably trump the old in court

Article 2: Exclusions
‘Land (in situ) including unexcavated contaminated soil and buildings permanently connected with land’
- Appears to repeal Van de Walle
- Mentions soil but not water (or other liquid wastes)
- ‘unexcavated’ - no definition

Article 5: By-products
Never was a waste e.g. cut and fill balance (project curtilage)

Article 6: End of Waste
Waste transformed into product e.g. mixed C & D waste crushed to generate an engineering grade fill

Article 11: Recycling
By 2020 re-use of non-hazardous C&D waste to be 70% by weight:
- Implications for precautionary ’Dig & Dump’
- Will force developers to re-use materials that are low grade (non-
  hazardous)
- Increase in effort to sort/segregate/test
EXISTING LEGISLATION
ENVIRONMENTAL LIABILITY DIRECTIVE 2004/35/EC

- EU environmental liability framework for the prevention and remediation of environmental damage.

  Environmental damage
  “damage to protected species and natural habitats, water damage and land damage”

- Land Damage
  - Land contamination
  - Significant adverse risk to human health
  - Presence of substances/preparations/organisms (GMOs)
  - Except: if caused by armed conflict, nuclear risk, national defence, diffuse pollution etc.

- Based on ‘Polluter pays principle’

Who does it apply to?

- 2 Classes
  - Schedule 3 – Operator of Occupational Activities
    IPPC, Waste licence, all statutory permitted activities, GMOs, etc
    When these operations have caused land damage or they are causing an imminent threat of such damage they are strictly liable to prevent or remedy the damage.
  - Schedule 4 – Non-Annex III Activities
    Liable for actual or imminent damage to habitat and species only where it is negligent or at fault. However, fault based liability does not apply to land damage situations.

Temporal Liability

- Operator can not be made liable for:
  - An event, incident or emission that took place before 30th April, 2007; and
  - Damage that takes place subsequent to this date but caused by an emission, event or incident that took place and finished before 30th April, 2007.
PROPOSED LEGISLATION
SOILS DIRECTIVE 2006

- RIP or resurrection?
- What would it have meant?
  - Address issues such as the definition of 'soil' and a 'contaminated site'
  - Inventory of all contaminated sites
  - Risk assess using S-P-T and 'fit for use' approach and determine associated liability
  - Drawing up of a detailed identification procedure
  - Drawing up of soil qualitative standards (i.e. GACs)
  - Adoption of a National Remediation Strategy
  - Establishment of a Soil Status report (e.g. Land Condition Record/SiLC)
  - Development of a mechanism for funding the remediation of 'orphan sites'
  - Giving priority to the rehabilitation of brownfield sites and the use of soil saving construction techniques.

Why did it fail?
- Inventory - blighting of sites? Property devaluation?
- UK & NI have Part IIA - no need?

SITE INVESTIGATION/
RISK ASSESSMENT IN IRELAND

- Good news for British Consultants - process is identical to UK - Irish EPA have taken guidance from UK EA
- Source-Pathway-Target
- Conceptual Site Model
- Suitability for end-use
- SI Standards:
  - BS5930:1999 Code of practice for Site Investigations
  - BS10175:2001 Investigation of Potentially Contaminated Sites
- RA Guidance:
  - CLR II: Model Procedures for the Management of Land Contamination
  - EPA Code of Practice Environmental Risk Assessment for Unregulated Waste Disposal Sites in April 2007
- EPA have recognised however that there is a legal gap and a guidance gap with regard to non-historic waste brownfields
- EPA initiated workshops with Ireland's contaminated land consultants/experts to determine how to best proceed.
- Main outcome of process was promotion of CLR!!
SITE INVESTIGATION/RISK ASSESSMENT IN IRELAND

- UK DEFRA Contaminated Land Exposure Assessment (CLEA Model Updates 2008)
- Dutch Target and Intervention Values (Ministry of Housing VROM 1997-2000)
- Risk Based Corrective Assessment (RBCA) Model (Site Specific DQRAs)
- RISC-HUMAN (Site Specific DQRAs)
- Tolerable Daily Intake – World Health Organisation
- Other National Standards

- Dutch standards are widely used by Irish LAs & consultants
  - Overly conservative as derived for Dutch soils which are predominantly sandy
  - Discussion on deriving our own standards but…
    - Tailor for our soils (clay dominated)
    - Background concentrations
    - Toxicological modelling
    - Public consultation
    - Time…...and costs incurred.
- Likely will persist with other standards with caution

SITE REMEDATION
BREAK THE S-P-T CHAIN

SOURCE
- Remove - Dig & dump but where does it go?
- No Hazardous Waste landfills but...
  - 1 * Hazardous Waste Treatment (Bioremediation) Facility - accepts hydrocarbon contaminated soil with Mineral Oil>500mg/kg
  - 1 * Hazardous Waste Transfer Station - accepts & exports hydrocarbon contaminated soil with Mineral Oil>500mg/kg
  - 1 * Non-Hazardous Waste Landfill which can accept hydrocarbon contamination with Mineral Oil>500mg/kg & Total 17 PAH>100mg/kg
  - 1 * Non-Hazardous Waste Landfill which can accept hydrocarbon contamination with TPH>1,000mg/kg (also only landfill which accepts asbestos C&D waste)
  - 1 * Inert Waste Landfill which can accept only C&D. No hydrocarbon contamination.

- Cost of disposal of Hazardous Waste/hydrocarbon contaminated soil:
  - Celtic Tiger price - €65-€125 depending on contaminants
  - Today's Recession price - €45 becoming cheaper.
- No need for future MNA
- Excavation does not require licence but maybe planning permission and acceptable Waste Management Plan
SITE REMEDIATION
BREAK THE S-P-T CHAIN

• SOURCE
  ▪ Treat soil on-site – requires a waste licence e.g. windrow, ex-situ soil biopiling, washing, etc
  ▪ Removing hydrocarbons from groundwater (e.g. pump & treat, etc) may require just a LA Discharge Licence.

• PATHWAY
  ▪ Isolate the hazard – vapour cut-off walls, PRBs, capping, LF gas venting.
  ▪ Dust suppression – landscaping/capping
  ▪ Immobilise – lime stabilisation…however, getting into waste licence activity

• TARGET
  ▪ Remove the target if plume has fled the site and source removal is too late e.g. public water supply wells
  ▪ Last solution to off-site vapour intrusion of petrol into residences – buy residence.

REALITY CHECK

• DRIVERS
  ▪ Brownfield Developers need reasons not to go for a greenfield site…that reason has to be a financial one!
  ▪ Most Irish LAs lack expertise in contaminated land unlike UK LAs where there is often a dedicated Contaminated Land Officer…consultant telling the regulator what questions she/he should be asking.
  ▪ Often Irish LAs request the assistance of the EPA or hire external consultant/expert…this takes correspondence and…time
  ▪ Following SI and RA, if dig & dump solution too expensive and on-site remediation is option (i.e. enough space & time), Pre-waste Licence Application Process needs to be initiated. Applying for a Waste Licence for Mobile Plant is prohibitive on 2 fronts:
    ▪ Republic - Cost €16k (i.e. €10k application fee + €6k surrender fee) – as yet no applicants since WMA 1996
    ▪ Northern Ireland – Cost €6.9k Total– currently 4 mobile licences
  ▪ Time to acquire licence – no fixed time for process
  ▪ Proof is in the pudding – In 15 years, only 7 (Fixed) Waste Licences were issued to soil remediation projects & no mobile licences
  ▪ Ultimately developers may get cold feet. Hiring specialist remediation contractors and long lead in-time, project management issues, etc.
  ▪ Waste licence application process is statutory process which involves public & newspaper notice with public consultation…scare potential home buyers away. Public perception of brownfield redevelopment
REALITY CHECK

- **DRIVERS**
  - Contaminated soil (i.e. Hazardous waste) disposal is too expensive in Ireland.
  - In most petrol retail remediation projects dig & dump is the only solution – built up areas, no space, etc.
  - Contractors are afraid to dig in brownfield site…if it’s contaminated it’s a waste & an offence to bury it!

HAZARDOUS WASTE MANAGEMENT

- Sustainability of exporting soil to another nation?
- Passing our problems on……………can we not solve our own waste problems?
- Treated material is a resource – used as granular fill in Belgium & Germany

Figure 1. Contaminated soil treated domestically and exported from Ireland to a hazardous waste facility (National Hazardous Waste Management Plan, 2008-2012)
HAZARDOUS WASTE MANAGEMENT

- What does Ireland need?
  - Hazardous waste landfill and/or larger soil treatment facility for contaminated soils; and/or
  - Hazardous waste incinerator.

- Why don’t we have a Hazardous Waste Landfill?
  - Identification of suitable location with low groundwater vulnerability;
  - Extensive public opposition;
  - Political interference - NIMBI TDs;
  - Protracted Planning process:
    - Planning application to LA
    - Appeal to ABP (Planning Board)
    - Oral Hearing
    - Application for Judicial Review

- Solution:
  - Prioritise national need and transfer the requirement for a National Hazardous Landfill to the Strategic Infrastructural Development List i.e. transfer planning responsibility from LA to ABP (Planning Board)

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CHANGES TO LEGISLATION & WASTE LICENSING?

- Adopt key areas of Soil Framework Directive in new Contaminated Land Regulations - shore up legal lacuna
- EPA to take responsibility for non-historic waste brownfield sites
  - Second a qualified EPA staff member to work as a Contaminated Land Officer (CLO) for a number of LAs (e.g. regional waste region - 2-3 LAs)
  - CLO to draw up Contaminated Land register of non-historic waste for each county
  - CLO to assess SI/RA reports, Remedial Plans, etc
  - CLO to process waste licence applications
- EPA review costs for both fixed soil remediation waste licences and mobile licence applications
- EPA provide fixed timescale for waste licence applications for both fixed soil remediation waste licences and mobile licence applications

- WHY? ……DEVELOPERS DON’T LIKE IF’S & UNKNOWNS!
- GIVE THEM REASONABLY ACCURATE NUMBERS & TIMELINES!
THANK YOU!