

# Classification of Waste Soils

- and other waste regulatory issues

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- Revised Waste Framework Directive 2008 (rWFD) implications for excavated material
- The impact of the exemptions review
- The importance of classifying excavated material
- The waste classification assessment process
- To WAC or not to WAC
- Samples



# Is it waste?



- Waste definition is in the rWFD
- “waste’ means any substance or object which the holder discards or intends or is required to discard“*
- The regulator will consider excavated material to be waste without further evidence to the contrary
  - Some excavated wastes are excluded from the rWFD
  - CL:AIRE CoP – discussed elsewhere
  - rWFD provides the permitting framework including exemptions





- Uncontaminated excavated material is excluded from the provisions of the rWFD - Art. 2(1)(c)
- EA regulatory position statement – regulation of excluded wastes

But what does ‘uncontaminated’ or ‘natural state’ mean?

- The view of the EA?
- Definitely no fixed concentration limits or thresholds to define ‘contaminated’ from a waste perspective
- **It's all about RISK**

# Exemptions for excavated material



- Old regime: Paragraph 9 land reclamation or improvement; Paragraph 19 Waste for construction have gone
  - Closing date for currently registered Para 9 & 19 is 30/09/2011
- Replaced by - **Use of waste U1**
- **Qty now limited to 1000 tonnes over a 3 yr period**
  - Or up to 50,000 tonnes as road sub base
- Cannot get round the limit by applying for exemptions in series
- BUT ... They are free
  
- If you have a currently registered Para 9, or 19 and cannot comply with one of the new exemptions you will need to apply for a permit by the **1 October 2011**.



# Why classify?



- Legal requirement for all waste material leaving the site
- If it is hazardous, there are higher levels of control and bureaucracy
- Hazardous waste producer registration
- Informs the decision making process about re-use or removal from site
- Some sites cannot take hazardous waste
- If the excavated material is hazardous, it cannot be used under an exemption, or a Standard Permit



# Classification process - Overview



Technical Guidance WM2



[www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)  
[www.ni-environment.gov.uk](http://www.ni-environment.gov.uk)  
[www.sepa.org.uk](http://www.sepa.org.uk)

Hazardous waste

Interpretation of the definition and classification of hazardous waste

Use WM2





Find the 6 digit EWC code for the waste

- EWC code for excavated material is:

**17 05 soil (including excavated soil from contaminated sites),  
stones and dredging spoil**

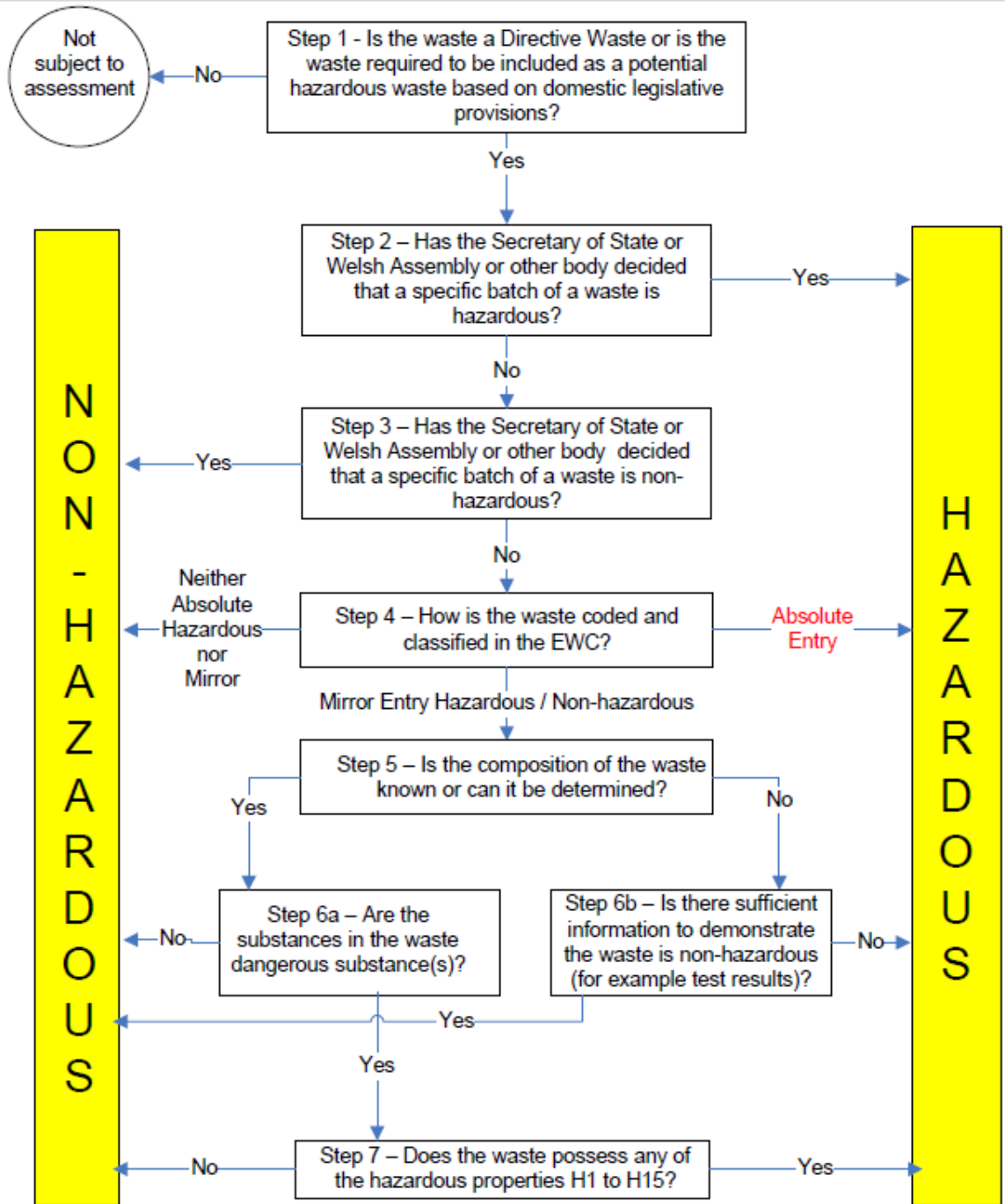
17 05 03\* soil and stones containing dangerous substances

17 05 04 soil and stones other than those mentioned in 17 05 03

Excavated material **must** be analysed to determine

- Whether it is hazardous or not; and if so,
- Which hazardous properties it possesses.





# Hazardous properties & thresholds



- There are now 15 main hazardous waste properties (H1 to H15)
  - Sensitising (H13) is new, but unlikely to affect the classification of excavated material
- A waste possesses a hazard when the thresholds or criteria are met
- Thresholds and criteria for all hazards are provided in WM2
- Hazardous Waste Thresholds are normally much higher than the CL risk values
- BUT - don't assume that if CL values are met, that hazardous waste thresholds won't be
  - **Be careful with zinc, TPH!**

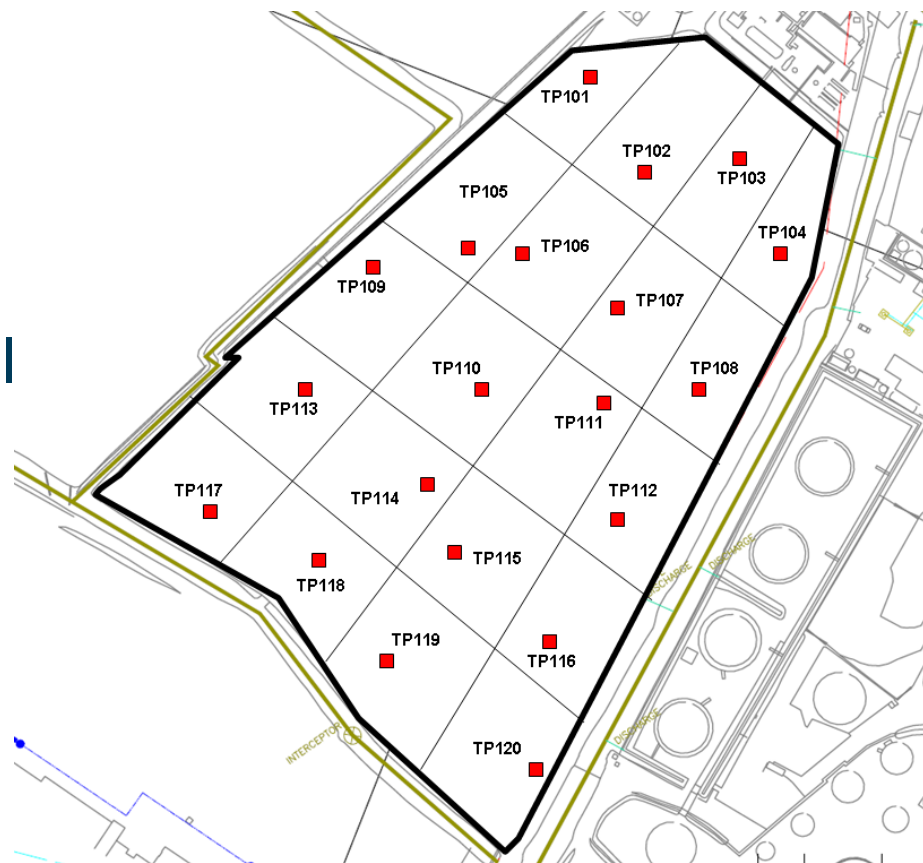
# Relevant hazardous properties



- Some hazardous properties can be sensibly screened out
  - Use site history, known or likely contamination
- Focus on the likely hazards with the lowest thresholds and/or those which require **cumulative total** of substances,
  - **Ecotoxicity**, Carcinogenicity, **Toxicity**, Toxic for reproduction
- Care with ecotoxicity
  - **Very complex additivity rules**
  - Some substances have specific thresholds which are below the general thresholds
    - Benzo(a)anthracene and Dibenzo(a,h)anthracene, both have a specific ecotoxic threshold of 25 mg/kg
- Carcinogenicity
  - For hydrocarbon concentration assessment, use the EA 'Oily waste guide' HWR08, (SEPA SWAN04 is different)

# Waste classification analysis

- Use the solid soil results (mg/kg) from the CL investigation
- Generally, TPH, PAH (individual) and heavy metal suite suffice
- Be aware of site specific contamination issues
- Note - leachable results are irrelevant for waste classification





# Interpretation of analysis



ROYAL HASKONING



- Thresholds are based on the concentration of **substances**
- Analysis usually provides the concentration of the cation (or anion)
- Need to identify a 'worst-case' substance
  - This means applying a conversion factor
  - The EA does not have a list of recommended worst case substances – it is the responsibility of the producer to justify use of appropriate substances

Sample Identity	A	B	C	D	E
Depth (m)					
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID
Sampled Date	09.09.09	09.09.09	09.09.09	09.09.09	09.09.09
Sample Received Date	11.09.09	11.09.09	11.09.09	11.09.09	11.09.09
Batch	1	1	1	1	1
Sample Number(s)	1-3	4-6	7-9	10-12	13-15
Boron Water Soluble	12	<3.5	<3.5	<3.5	<3.5
Arsenic	7	7	<3	<3	<3
Barium	550	140	470	220	290
Beryllium	7.8	<0.4	<0.4	<0.4	<0.4
Cadmium	0.8	0.4	<0.2	<0.2	1.5
Chromium	49	23	11	11	38
Copper	460	1100	11	12	1800
Lead	1000	480	16	12	230
Mercury	<0.4	<0.4	<0.4	<0.4	<0.4
Nickel	100	24	13	10	37
Selenium	<3	<3	<3	<3	<3
Vanadium	110	36	20	21	74
Zinc	570	600	37	52	1300

# Tools of the trade?



- I have developed my own tool to calculate whether properties thresholds are met
  - **The tool is free – all you have to do is pay for me!**
- There are bespoke and off-the-shelf software packages available
- The EA won't do it for you – it is the producer's responsibility - but they will help if needed

# Where's the risk?



There is one important principle when classifying waste:

- it's all about the potential **hazard**
- The risk posed by the waste is not relevant to the assessment
  - **forget everything about risk,**
  - **move away from the risk-based thinking**





- **Do you need to landfill?** That is the question!
- **A WAC test is not a waste classification test**
  - It will NOT tell you if a waste is hazardous or not
  - WAC tests are only used to determine whether waste is suitable for landfill
  - **Waste classification must be carried out before a WAC test**
- **WAC test only for inert or hazardous excavated material which is going to landfill**



# A cautionary note on samples



- Question for you...
- **Has anyone in the audience commissioned analysis for waste classification or hazardous WAC?**
- **How many of you used a hazardous waste consignment note or transfer note when you sent the samples to the lab?**
- **How many are wondering why I am asking?**



# A sample of waste is waste – apparently!



## **EA Position Statement - a sample of waste is waste. This means:**

- The courier taking the waste sample to the lab **must** be a registered waste carrier
- Waste transfer notes or Haz waste Consignment notes must be used
- The lab must hold a permit or D5 exemption to receive waste samples
- Precautionary principle when sending for waste classification
- WAC samples are always waste, so consign Haz WAC samples
- **BUT ... A sample taken to determine whether something is suitable for use is not waste**



# ■ Thank you

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