

Hazardous Waste Forum: Capacity Sub-Group

Quantifying Hazardous Waste Capacity Needs

An assessment of future capacity needs has been undertaken. The approach was as follows:

Determining Currently Landfilled Special Waste Requiring Alternative Treatment Capacity

The special wastes currently landfilled have been quantified using information from EA, SEPA and EHS. This data indicates that approximately 2.5 million tonnes of special waste is landfilled in the UK. In addition the quantity of special waste sent for high temperature incineration was determined (approximately 100,000 tonnes) to consider the potential impacts of co-incineration.

Assessing the Alternative Treatment Routes for Currently Landfilled Special Waste

The most likely alternative treatment routes for special wastes that are currently landfilled was then assessed by EWC codes (6-digit code), to provide a capacity by treatment route (to 4-digit code level). The treatment routes considered were:

- Stabilisation/Solidification
- Physico-chemical treatment
- Solvent recovery
- Bioremediation
- WW treatment works
- HTI
- Co-incineration: use as cement kiln fuel/raw material
- Landfill (i.e. special waste landfill capacity or separate cell in non-hazardous landfill)

However minimisation and its effect on quantities currently treated/landfilled has not been considered.

Wastes were allocated to the different treatment routes by drawing together information from:

- EA R&D Technical Report P1-484/TR – Hazardous Waste Management Market Pressures and Opportunities: Background Paper;
- The Agencies: Guidance on the Waste Treatment Requirements of Article 6(a) of the Landfill Directive;
- EC Waste Acceptance Criteria
- Information gathered by ESA from its members; and
- Information supplied by the BCA on the wastes that could be utilised by cement companies either as a fuel or as a raw material substitute. A paper has been produced, but as this could be a critical treatment option further clarification on waste types and quantities is to be sought.
- Professional judgement and discussion with the industry

The output is a best estimate of the capacity required by each treatment route for special wastes that are currently landfilled and incinerated. Key assumptions in the best estimate are:

- Certain waste streams can be landfilled (either hazardous waste landfill or separate cell in non-hazardous waste landfill) without treatment, with the estimated based on waste type (approximately 750,000 tonnes);
- Stabilisation/solidification will increase the weight of waste by a factor of 2;
- All stabilised/solidified waste remains hazardous;

- Physico-chemical treatment will produce a residue requiring landfill equivalent to 75% of the waste input by weight;
- Changes to the SFP will transfer some wastes from HTI to Co-incineration (estimated based on waste types).

Sensitivity analyses have been carried out and take account of the following scenarios:

1. No waste is sent directly to landfill without treatment, therefore increasing stabilisation/ solidification capacity and residual landfill.
2. Stabilisation/solidification increases the weight of waste by a factor of 3, as opposed to 2.
3. Only 50% of stabilised/solidified waste remains hazardous.
4. An alternative allocation of the treatment route for contaminated soils (one third stabilised/solidified: two thirds bioremediation as opposed to two thirds stabilised/solidified: one third bioremediation as in the best estimate).
5. No changes to the SFP, with waste transferred from landfill allocated to HTI or co-incineration based on waste stream.
6. All existing waste sent to HTI transferred to co-incineration, with waste transferred from landfill allocated to HTI or co-incineration based on waste stream.

The resulting capacities needs for special waste currently landfilled and incinerated are summarised in Figure 1, it should be noted that some scenarios have implications for more than one treatment method.

Impact of the Change in Definition from Special to Hazardous

The impact of the change in definition from special to hazardous has been assessed by considering the hazardous properties that different waste types may possess (detailed assumptions set out in spreadsheet). The estimated figures have then been used to determine the capacity needs and the same sensitivity analyses have been used for comparison. The capacities needs for hazardous waste landfilled and incinerated are summarised in Figure 2

In addition the spreadsheet used to determine the capacities has been designed to allow Forum members to vary the assumptions.

The "Available Capacity Estimate 2004" is derived from information gathered by Defra as summarised in the table below.

	Estimated Capacity in 2004	Capacity Currently Utilised	Available Capacity Estimate 2004
Stabilisation/ Solidification	575,000	100,000	475,000
Physico-chemical	1,500,000	1,200,000	300,000
Solvent recovery	-	-	Unknown
Bio-remediation	-	-	Unknown
WWT	-	-	Unknown
HTI	110,000	N/a	110,000
Co-incineration	400,000	100,000	300,000
Landfill	400,000	-	400,000

Figure 1

Total Capacity Required for Special Waste Currently Landfilled and Incinerated

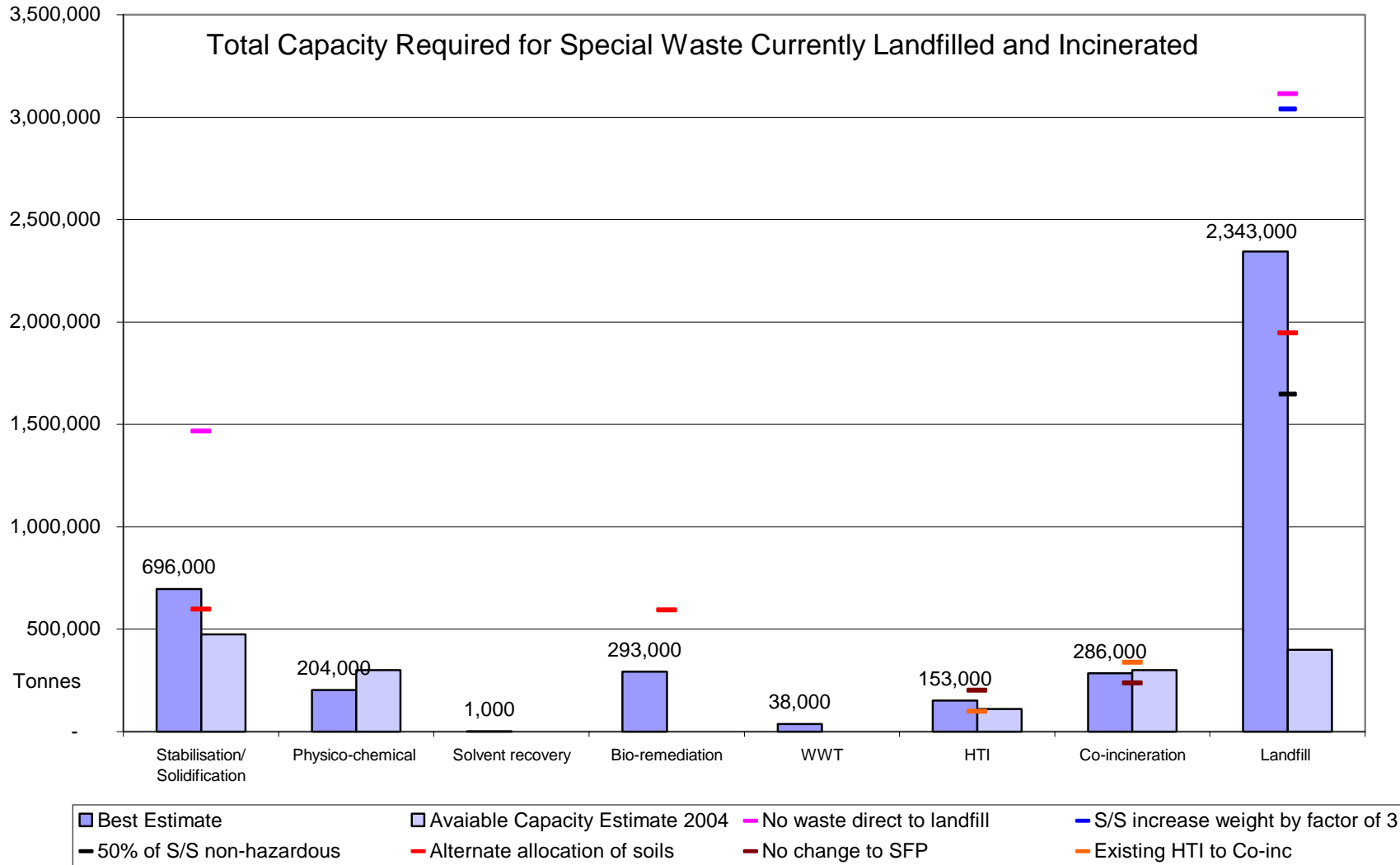


Figure 2

