

The WAC Decision: experience of a Flemish landfill operator



- Lecturer: Alain Konings
- Date: 14/05/2009
- Location: Brussels

*Indaver, leading the field in
sustainable waste management*



Content

- Who is Indaver
- Indaver's treatment & transfer stations in the Benelux
- Landfill category 1 and 2
- WAC, translated to Flemish situation
- Remarks
- Concerns
- Conclusion

Solid company

Shareholders

- 75 % Delta (multi-utility group - 1,5 miljard Euro turnover / year)
- 16% VMH (Flemish Environmental Holding)
- 9% industrial shareholders
(BASF, Bayer, Borealis, Janssen Pharmaceutica, Solvay, Tessenderlo Chemicals)

- Annual turnover 301 million Euro
- 1,400 employees



Stable, profitable and cost efficient international player in a constantly changing European waste market

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Strong values

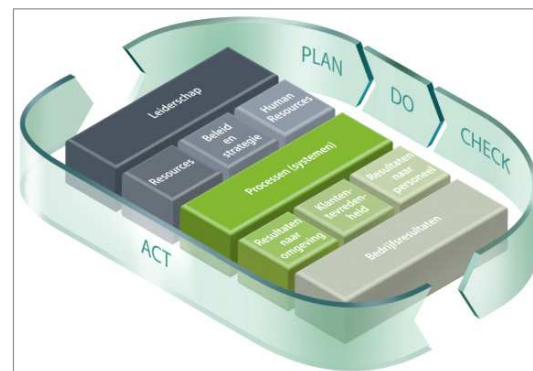
Mission

“Indaver, leading the field in sustainable waste management”

Values

The 5 core values that are of intrinsic importance to Indaver are:

- Demonstrating concern for people, safety and the environment
- Building relationships based on mutual trust
- Ensuring transparency in communications and actions
- Concentrating on achieving results
- Continuously improving



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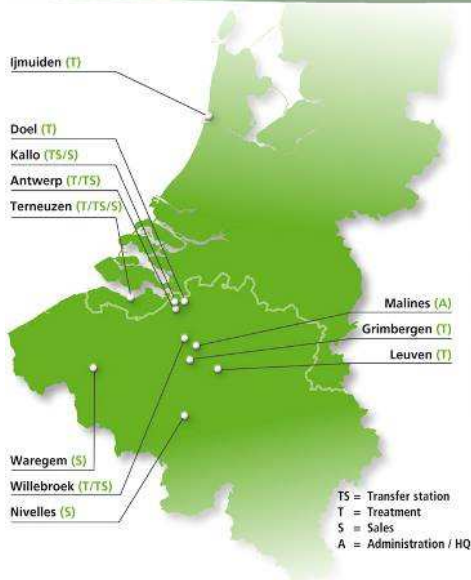
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Treatment & transfer stations in the Benelux



Antwerp, 500 000 tonnes of cradle-to-grave treatment



Doel, 1 000 000 tonnes of waste-to-energy treatment



Kallo, waste transfer haz waste



Terneuzen, waste transfer / waste water purification



Willebroek, transfer / recycling / non haz waste



Ijmuiden, hydrochloric acid treatment 165 000 tonnes



Leuven, thermal treatment medical waste



Grimbergen, transfer / compost / biomass

Growth & expansion of infrastructure in Belgium

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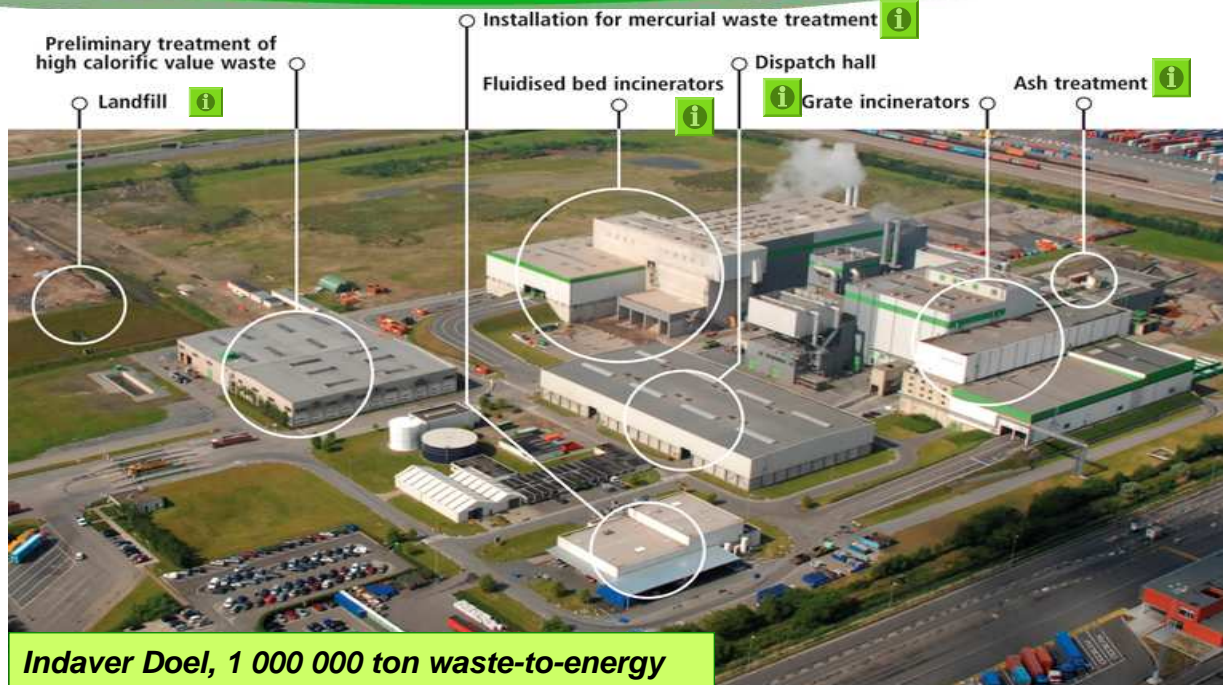
Indaver Antwerp



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Indaver Doel



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Indaver Antwerp: Landfill Category 1

- Landfill category 1 (Vlarem II art. 5.2.4.1.10) for haz waste
 - Landfill for haz waste and residual waste from incineration and/or treatment of waste materials
 - Total surface: 10,76 ha
 - Total capacity: 2 700 000 m³
 - Wheel wash installation
 - Leachate to Water Purification Indaver
- Character & composition of accepted waste:**

- Residual waste from incineration and/or treatment of waste materials
- Hazardous waste pre-treated waste
- Waste containing asbestos
- Hazardous industrial waste
- Specific waste, because of character and composition comparable with hazardous industrial waste
- Hazardous rubble and demolition materials, inclusive asbestos concrete



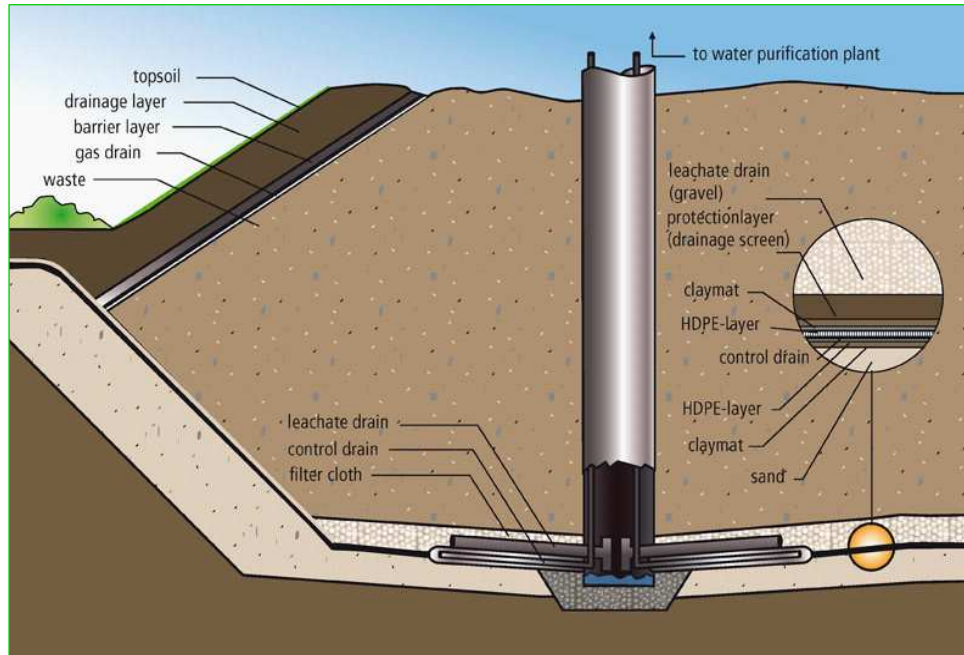
Process scheme

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Construction Landfill Category 1



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Indaver Doel: Landfil category 1

- Landfill category 1 for haz waste
- Total surface: 2.2 ha
- Total capacity: 524 400 m³




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Indaver Doel: Landfil category 2

- Landfill category 2 (Vlarem II art.5.2.4.1.10) for non haz waste
- Landfill exclusive for inorganic non haz waste with low content of organic/biological degradable substances.
- Total surface: 2.1 ha
- Total capacity: 500 600 m³
- Wheel wash installation
- Leachate to process water in Grate incinerator



Process scheme 

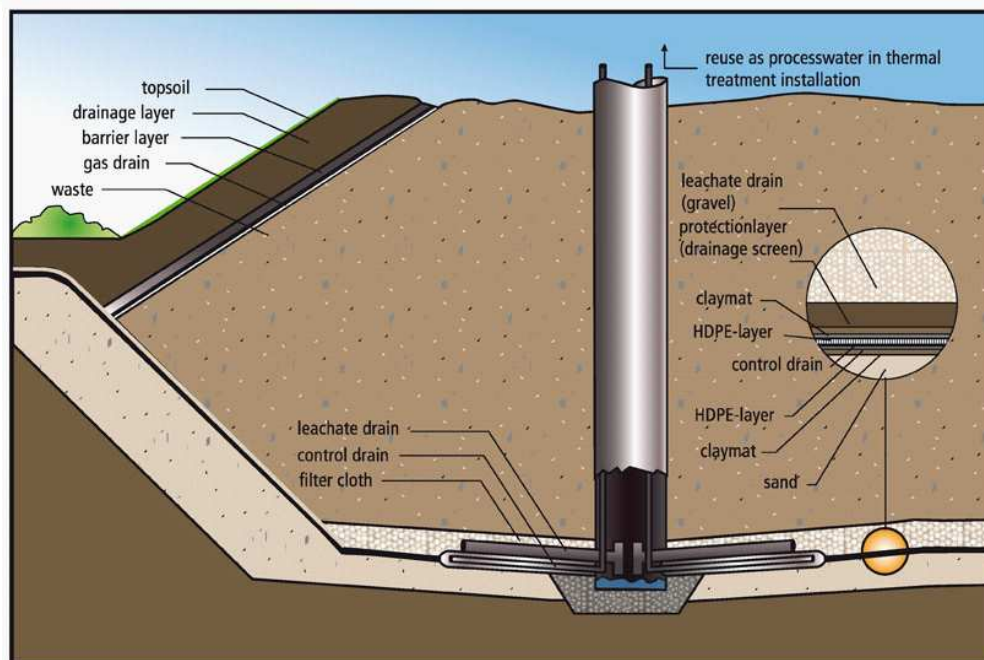
Character & composition of accepted waste:

- Non haz residual incineration substances and/or treatment of waste
- Non haz pre-treated waste
- Non haz industrial waste
- Specific waste, because of character and composition comparable with non haz industrial waste
- Non haz rubble and non haz demolition materials

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Construction Landfill Category 2



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WAC: translated to Flemish situation

			Vlaem II, afd 5.2.4	
			DP GA	DP NGA
			norm	norm
matrix	TDS (WOG)	% DS	10	10 *
	apolaire KWS	% DS	5	5
	EOX	mg/kg DS	1000	1000
	TOCv		6%	6% DS
	LOI / gloeiverlies		10%	10% DS
	oplosmiddelen	% DS	3	3
	afschuifspanning	kN/m2	10	10

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The WAC: translated tot Flemish situation

		Vlaem II, afd 5.2.4	
		DP GA	DP NGA
uitloging	pH	4-13	4-13
	As	mg/l	2,5
	Ba	mg/l	30
	Cd	mg/l	0,5
	Cr	mg/l	7
	Cr6+	mg/l	0,5
	Cu	mg/l	10
	Hg	mg/l	0,2
	Mo	mg/l	3
	Ni	mg/l	4,0
	Pb	mg/l	5,0
	Sb	mg/l	0,5
	Se	mg/l	0,7
	Zn	mg/l	20
	ammonium	g/l	geen
	F	mg/l	50
	Cl	mg/l	2500
	nitriet	mg/l	geen
	SO4	mg/l	5000
	CN-	mg/l	1,0
	DOC	mg/l	100
	fenol-index	mg/l	geen
	= nieuwe parameters		
	* tot 100 % indien zoutcelcondities		
	** richtwaarden, mits evaluatie van een BBT (geldig tot 16/07/2009)		

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Remarks

- Flanders has a long history on acceptance criteria, mainly based on German legislation (TA Abfall)
 - Concept basic characterisation no problem
 - Use of so called “salt cells” for waste with high TDS
- Flanders combined the EU WAC with existing Flemish criteria
- some landfill categories not covered within the WAC keep the existing Flemish criteria
- Flemish authorities decided:
 - To introduce the new WAC parameters for all landfill categories to avoid potential switch between haz and non-haz landfill
 - To introduce criteria for monolithic waste

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Concerns

■ Leachate

- Limit values only for granular waste, based on L/S10
- Limit values WAC expressed in mg/kg DM
- Old Flemish limit values expressed in mg/l
- Very low limit values for new parameters: Ba, Sb, Se, Mo, DOC
 - What is (eco-)toxicological relevance ?
 - Stabilization / immobilisation of oxy-anions (Sb, Se, Mo) not successful if metals are present in metal mixtures

■ Composition:

- Limit values WAC, expressed “as such”
- Old Flemish limit values, expressed as “dry matter”
 - EOX, hydrocarbons (mineral oil), solvents, ..

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Concerns

■ Monolithic waste

- No clear definition
- limit values (expressed as mg/m²), based on Flemish legislation secondary raw materials
- No limit values on composition

■ Analytical verification

- Big variation between Flemish landfill operators in approach
- When is a load and / or a wastestream compliant to the WAC ?
- When should stabilised waste be compliant after treatment ?

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Conclusion: "improve EU Decision 2003/33"

- Revision of limit values of Sb, Se, Mo, based on exchange of information between member states, and taking into account BAT
- Allow acceptance of wastestreams in "salt cell" technology, for
 - high (inorganic) salt contents
 - pretreated waste still exceeding LV **after** applying BAT
- Introduce clear definition and WAC on "monolithic" waste
 - Limitation on input "organic" fraction before stabilisation
- Waste verification / compliance procedure covered by a Code of Good Practise, or Guideline (included for stabilised waste)

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