



greenstar

setting the standard

www.greenstar.ie

Implementation of Landfill Directive at Non-Hazardous Landfills

1999/31/EC and 2003/33/EC

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...a new vision

consultancy - materials recovery -

recycling - composting - collection - commercial & domestic - residual disposal

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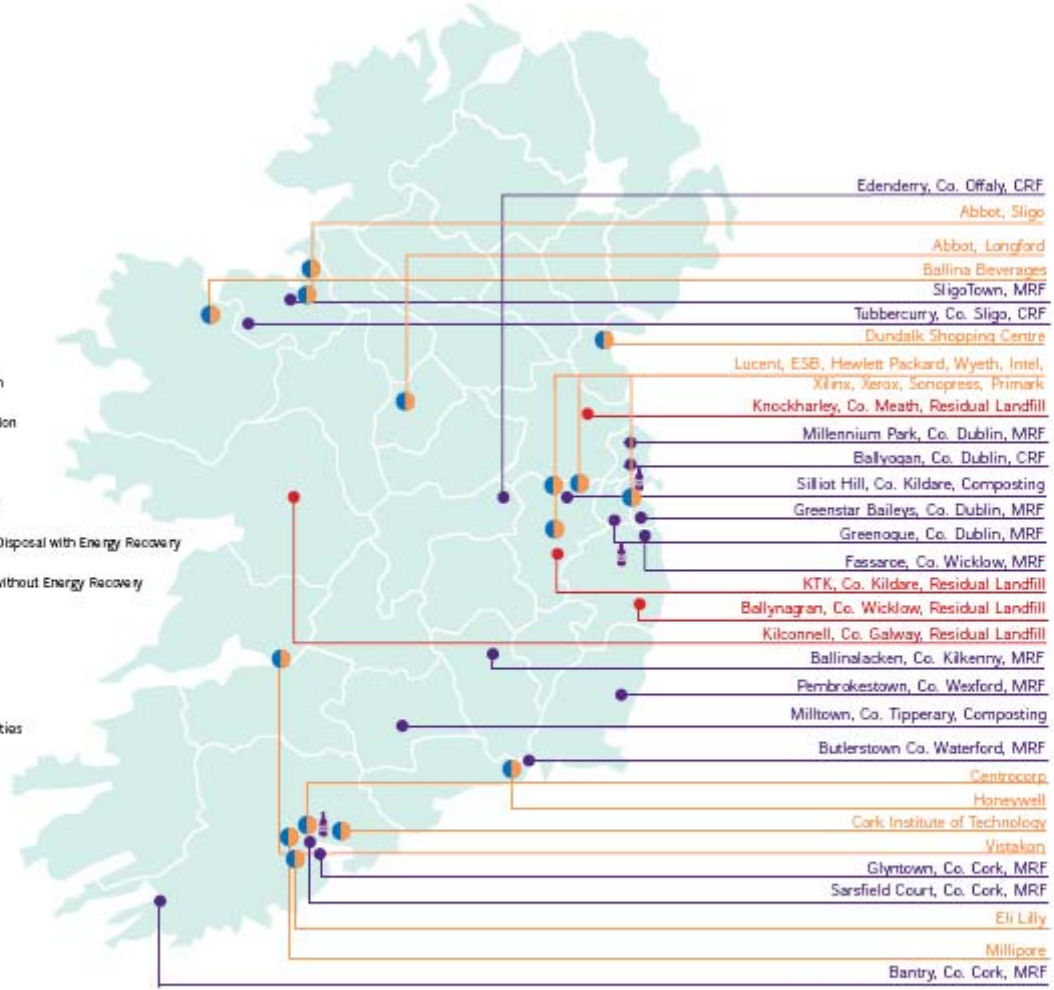
Greenstar

- Established 1999
- Irish owned and managed
- 600+ employees in 38 locations
- Repak Recycler of the Year 2006 / Finalist 2007 & 2008
- We provide services for 300,000+ customers nationwide
- 14 recovery operations countrywide
- Waste Managers in 24 of Ireland's leading multinationals
- Developers and operators of Ireland's most compliant residual landfills

Greenstar – Integrated Waste Managers



- On site Waste Management Services promoting prevention, minimisation and re-use at client facilities
- Glass collection facilities
- Recycling facilities
- Residual Landfill with Energy Recovery



Greenstar - Proud Sponsors of the Green Schools Initiative



Winners of the Repak Recycling Operator of the Year 2006

Residual Landfill Development by Greenstar

- Designed to accept residual treated waste only
- Scaled to meet need defined by Regional Waste Management Plans
- Compliant with 1999/31/EC from beginning
- Designed for optimum gas extraction and energy recovery
- Located, Designed, Operated, Closed and Cared for in compliance with:
 - 1999/31/EC
 - 2003/33/EC
 - EPA Waste Licence Conditions
 - Planning Permission
 - GSI Groundwater Protection Responses for Landfills
 - EPA Manual Landfill Site Selection
 - EPA Manual Landfill Design
 - EPA Manual Landfill Operations
 - EPA Manual Landfill Monitoring
 - EPA Manual Landfill Restoration and Aftercare
 - CRAMP for each site
 - BAT Guidance
 - Best International Practice
- Community Fund arrangements for each facility

Compliant Waste Acceptance

- Landfill Directive 1999/31/EC
 - Article 6
 - Only treated waste may be accepted
 - Acceptance of stable non-reactive hazardous wastes
 - Article 11
 - Checking of Documentation / Visual / Register
 - Annex II
 - Basic Characterisation
 - Compliance Testing
 - On- site Verification
- Criteria and Procedures for Acceptance of Waste 2003/33/EC
 - Leaching limit values for the acceptance of wastes at inert, non-hazardous and hazardous landfills
 - Wastes exempt from testing
 - Sampling and test methods
- EPA Waste Classification Tool

Measuring Compliance with LFD

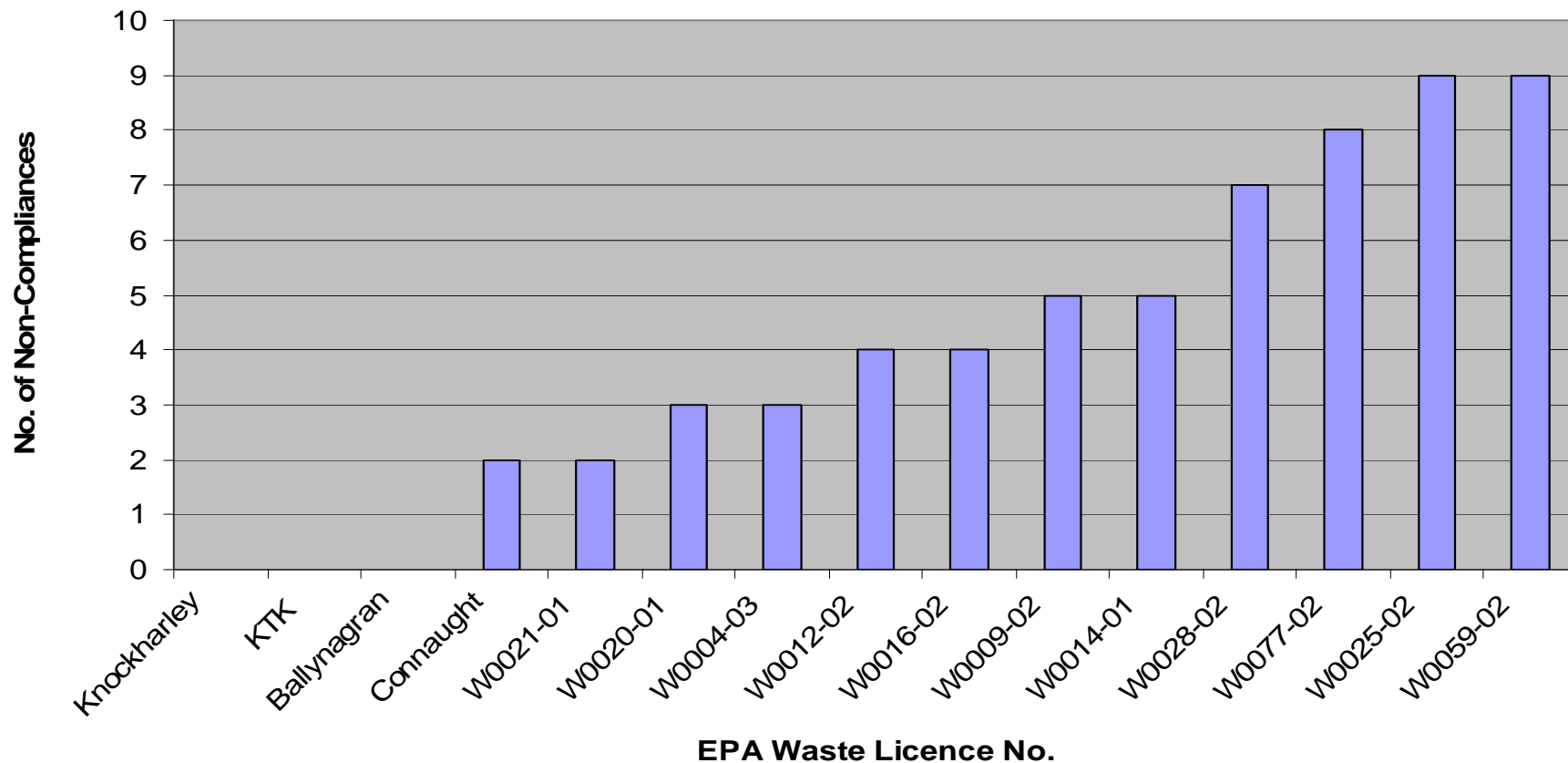
- Location
 - EIA process leading to Waste Licence and Planning Permission
- Design
 - EIA process
 - Specified Engineering Works approvals by EPA
- Construction
 - Third Party Construction Quality Assurance
 - EPA approval to commence Waste Acceptance
 - Quarterly Monitoring Reports and AER
- Operation
 - EPA Audits
 - EC Audits
 - Planning Compliance
 - Quarterly Monitoring Reports and AERs
 - Landfill Gas Capture Rates
- Closure Plans
 - EPA CRAMP Approval
 - EPA Audits
 - Landscaping Plan
- Aftercare
 - EPA Audits
 - Return of Waste Licence

Compliant Operations

- KTK Co Kildare
 - ✓ 100% compliant in Annual EPA audits past 3 years in a row
 - ✓ 100% compliant in two EC landfill directive audits
 - ✓ 100% compliant in ISO 14001 audits
 - ✓ CIWM Green Apple award winner
- Knockharley, Co. Meath (opened Dec 2004)
 - ✓ 100% compliant in EPA audits 2005, 2006, 2007, 2008
 - ✓ 100% compliant in EU Audit
 - ✓ 100% compliant in ISO 14001 audits
- Connaught Regional Landfill, Co. Galway (opened Dec 2005)
 - ✓ 100% compliant 3 annual EPA audits
 - ✓ ISO14001 application in preparation
- Ballynagran Co Wicklow (opened Oct 2006)
 - ✓ 100% compliant in EPA audits 2007, 2008
 - ✓ 100% compliant in ISO 14001 audits
 - ✓ Winner CIWM UK and Ireland PEELS Cup award 2008

EPA Annual Audits 2007

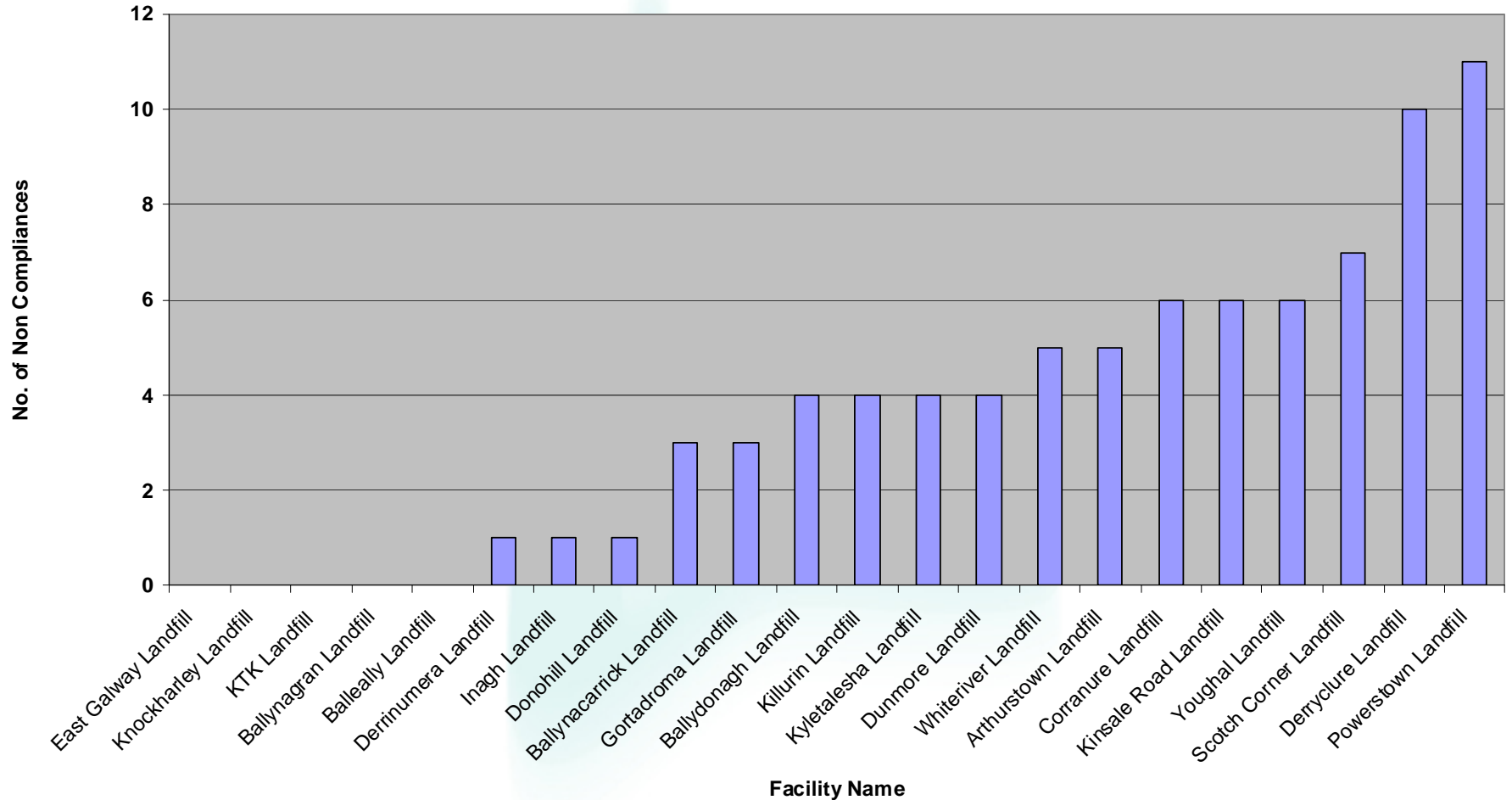
EPA Audit Results 2007 (Landfill)



Health warning: Based on an assessment of audit reports available on EPA files at time of inspection. Apologies in advance for any omissions or errors- unintended!

EPA Annual Audits 2008

Comparison of MSW Landfills EPA Annual Licence Audits 2008



Complaints as performance indicators?

- Complaints alone cannot be relied upon as a measure of compliance
 - Using complaint numbers as a PI can encourage more complaints
 - Complaint numbers are prone to influence by externalities
 - Vexatious complaints happen
- Measuring of complaints as a PI should always be set in the context of the audited compliance record of facilities
- All complaints need to be investigated and documented
- Valid complaints should always result in improved procedures
- Complaints should be a catalyst for improved communications

ISO 14001 as a compliance tool

- Compliments waste licence management and H&S
- EMS based (Environmental Management System)
- Audit driven
- Pre-certification audit can identify weaknesses in the system
- Extensive certification audit
- Bi-annual surveillance audits
- Observations made by the auditor
- Emphasis on communications, corrective actions and training

Creating a Culture of LFD Compliance

The role of the operator/licensee:

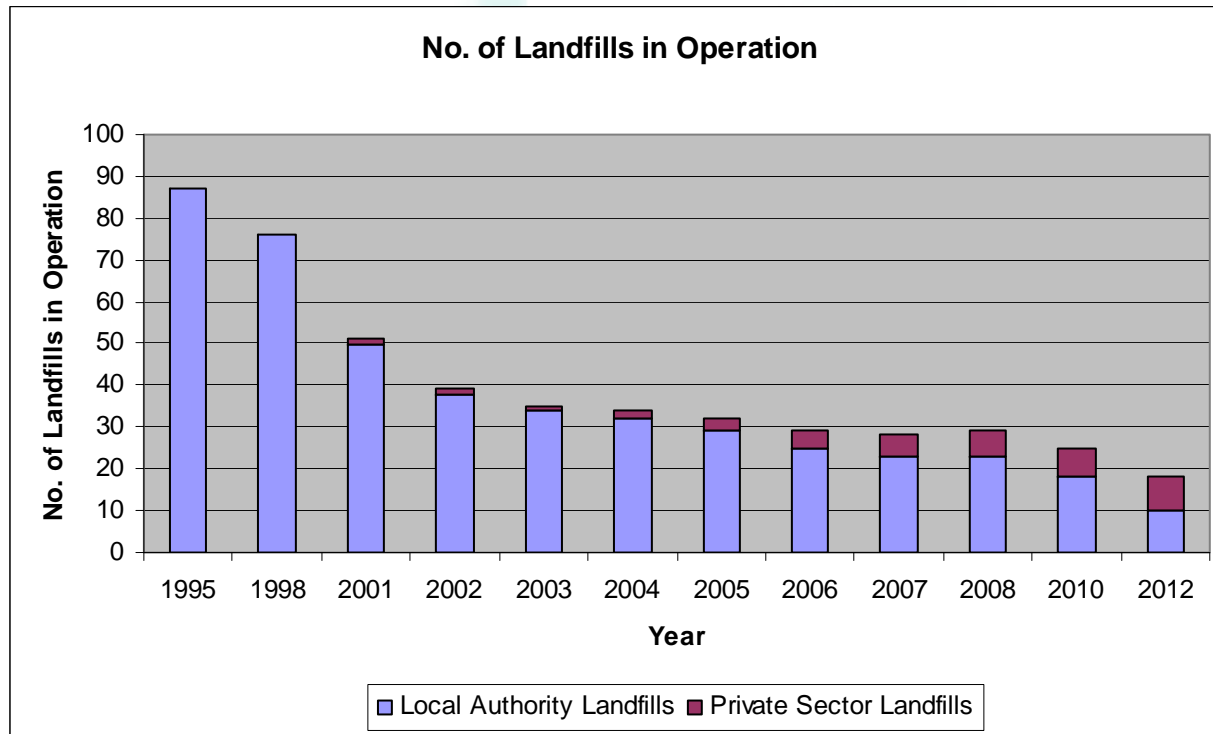
- Compliance as a core value of the organisation
- Recruit and develop strong experienced facility managers
- Well trained operational teams
- A thorough knowledge of the rules / waste licence
- Relevant and informed procedures – written at the coal face
- Targeted training programmes at all levels
- Share the local success with the wider organisation
- Learn from non-compliances
- Healthy competition
- Appropriate linking of compliance to bonuses/ performance targets
- High Standard of training

Creating a Culture of LFD Compliance

The role of the Regulator / Policy Makers

- Clear and appropriate conditions/ regulatory guidance documents
- A fair, transparent and regular (for all) audit system
- Public recognition of high standards – compliance breeds compliance
- Prosecution for poor operational standards
- Measure performance using appropriate indicators
- Encourage investment in compliant state-of-the-art landfills through the phasing out of older less compliant sites
- Encourage investment in BMW diversion treatment technologies through appropriate economic incentives
- Develop markets for diverted BMW

Fewer Landfills – Higher Standards





Thank you for listening.

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