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## Foreword

**By Richard Skehens - Managing Director**

I am once again very pleased to endorse the Corporate Environmental Report for Grundon Waste Management Limited and would like to take the opportunity to thank Toni Robinson, her team and all those who have contributed this year. Whilst we are disappointed that we have failed to achieve some of our targets I think this is an indication of both the tough targets we set ourselves each year and very difficult trading times every business now faces. At Grundon we pride ourselves in being honest about our results and whilst we do not like to report that we have failed to achieve targets I feel it is important to be honest in a report of this nature. Hopefully next year we will be able to meet the challenges but over a reasonable timeframe the Company has shown marked improvements of its environmental performance and hopefully will continue to do so in future.



## Introduction

**By Toni Robinson - Compliance Manager**

This report details the annual environmental performance of Grundon Waste Management Ltd for the period from 1<sup>st</sup> January 2008 to 31<sup>st</sup> December 2009. This is now the tenth consecutive year that Grundon has publicly reported our performance against a core set of environmental indicators.

For a number of these indicators a comparison has been made with the figures reported in 2000, to understand the changes that have taken place over the last decade. This has shown some extremely encouraging achievements and it would be fantastic to be able to report on similar results during the next decade. This really does show how a Company the size of Grundon can make a real difference to the impact we have on our environment.

The picture on the front page of the report also demonstrates how things have changed over the last ten years. In 2000 the Midgham Landfill was operational and it is now restored for wildlife and amenity use, with reed beds and fishing lakes that have had a positive impact on the local environment.

During the last two years Grundon has continued to improve its overall performance, but has not achieved many of the targets we set. This shows that the Company sets itself tough challenges to meet and unfortunately at times these are not achieved. One of the main factors has been the economic downturn, which has meant we have decreased the quantity of waste we are handling with very little or no reduction in the environmental impact of the operations. For example, we are still driving the same distance to collect the waste but picking up less material.

During this period Grundon has continued to invest in new equipment that reduces the level of greenhouse emissions. These include the replacement of vehicles within our transport fleet, new items of mobile plant and energy saving devices within our facilities. Although new equipment is key to the reduction in emissions, the role that we all have should not be ignored – *do not waste energy and recycle where possible*. In the next two years we will continue to reduce our impact and as part of this commitment we have signed up to the 10:10 initiative - a national scheme with the goal of reducing emissions by 10% in 2010.

Following the publishing of each report I find it satisfying to receive positive feedback from many customers and other stakeholders showing interest in our achievements. I personally would welcome any feedback or comments as this will assist in ensuring future reports continue to be relevant. Finally, I wish to thank everyone who has assisted in compiling this report, either by providing the raw data or by producing the final document.



## Profile of Grundon Waste Management Ltd

Founded in 1929 by Steven Grundon, this family owned company is the largest privately owned waste management group in the UK. The company is well respected nationally for its professionalism and is acknowledged to be in the vanguard of waste management practice and innovation.

Grundon has developed from a local aggregate supply business into a national commercial group in the industrial services sector, with interests in:

- Collection of waste from local authorities and industrial and commercial developments.
- Recycling, composting and recovery.
- Disposal of residuals via treatment, landfill or energy from waste facilities.
- Waste minimisation consultancy advice.
- Developing technological solutions to industrial waste problems.

This report covers all our operational depots and waste facilities. At many locations there is more than one activity and these are shown by the shaded boxes in the table below (these are the facilities within the scope of this report). During the last two years, the only new facility that has been constructed is the Materials Recovery Facility (MRF) at our Wingmoor site, near Cheltenham; this site is not yet fully functional.



*Albion Dustcart  
(made in 1930)*

**Activities and locations falling within the scope of this report**

Site	Transport Depot	Materials Recovery Facility (MRF)	Transfer Station	Clinical	Treatment Facility	Landfill	Composting
Banbury							
Beenham						Closed	
Bishops Cleeve/ Wingmoor							
Colnbrook							
Ewelme							
Gatwick							
Heathrow							
Knowl Hill							
Midgham							
Mole Valley							
Stansted							
Tanhouse						Closed	
Wheatley						Closed	
Wicklesham							

## Overview of Environmental Performance Indicators

The waste management sector provides an important environmental service by dealing with the waste generated by society. This service has environmental impacts. The negative impacts include emissions of pollutants, the generation of odour and traffic, and the use of resources such as water and energy. The positive by-products of waste include the reuse and recycling of reusable materials, and below these in the waste hierarchy, the recovery of energy from waste through the generation of electricity from landfill gas, and other energy from waste processes. Waste management companies, such as Grundon, must be able to measure these impacts in order to manage them. They should also be able to communicate their progress in improving environmental performance.

A set of indicators were developed by Green Alliance<sup>1</sup> in conjunction with waste companies and leading waste organisations to encourage the consistent reporting of environmental performance. These were grouped under core areas:

- ***Climate Change***
- ***Transport***
- ***Water Use***
- ***Land Use and Wildlife***
- ***Regulatory Compliance***
- ***Environmental Management Systems***
- ***Waste Minimisation/Resource Productivity***
- ***Neighbourliness***

These indicators are a vital tool in understanding the environmental impact of the Company, helping to develop strategies to address the impacts and demonstrating this action to stakeholders.

In 2006, the Environment Agency, working with the waste industry, published the "Sector Plan"<sup>2</sup>. This plan examines the waste industry's impact on the environment and identifies what may be done to minimise this impact. This recognises that many companies are already reporting using mechanisms such as the Green Alliance indicators. Many of the objectives and targets identified within the Sector Plan are similar to those identified by Grundon in this report.

This report is structured so that each core area is looked at in turn, with the indicators as specified by Green Alliance being detailed with information on performance, including past results and future targets.



<sup>1</sup> Green Alliance; "indicating right: environmental performance indicators for the waste management sector" November 2001

<sup>2</sup> Environment Agency; "Sector Plan for the Waste Management Industry" August 2006

## Climate Change

The release into the atmosphere of greenhouse gases, such as carbon dioxide and methane poses a threat to the environment due to their potential to cause changes to the global climate, a phenomenon commonly known as “Global Warming”.

As a waste management company, Grundon give rise to the release of greenhouse gases from a number of sources. The main areas are from the emission of landfill gas, transport and energy use. Each year Grundon sets targets to ensure that the business is focused on reducing its impact:

Targets for 2008 & 2009:	Outcome	
● Further 5% reduction in total greenhouse gas emissions attributable to Grundon.	Target not achieved	<b>X</b>
● Reduce the amount of landfill gas that passively vents by a further 15%.	Target not achieved	<b>X</b>
● Maintain the quantity of electricity generated at our landfill sites.	Target not achieved	<b>X</b>
● Reduce natural gas consumed by 25%.	Target not achieved	<b>X</b>

The targets for 2008 and 2009 have unfortunately not been achieved, for a range of reasons which are discussed within this section.

### Indicator: Total greenhouse gas emissions divided by tonnes of waste handled

This indicator requires us to calculate our total greenhouse gas emissions to assess the impact of our activities on global warming and climate change. We have included the following direct emissions to atmosphere:

- Landfill gas escaping from our landfill sites, including emissions from our landfill gas flares and electricity generating landfill gas engines. This has been calculated from the modelling that is undertaken annually as part of the Pollution Inventory to quantify the emissions from each site.
- Exhaust gases from our vehicles which includes both our road going vehicles (both lorries and cars) as well as the mobile plant used within our MRFs (Materials Recovery Facilities), Landfills and other waste facilities.
- Emissions from both the Clinical Waste Incinerator (CWI) and the Clinical Waste Hydroclave.

As well as these direct emissions, we have also included indirect emissions. Electricity consumed in our offices, workshops and various waste facilities contributes to global warming, due to the fact that it is produced in power stations that burn coal, oil or gas.

Several different gases contribute towards greenhouse gas emissions, including landfill gas which is mainly carbon dioxide and methane, as well as other gases at lower levels. All these different gases are converted into ‘carbon dioxide equivalents’ so that impact from our activities can be compared with each other, as well as with those of other waste management companies.

The “carbon dioxide equivalent” is calculated by multiplying the quantity of gas by a given factor. For example, when working out the equivalent for methane it is multiplied by 21 and nitrous oxide is multiplied by 310. As a result, some of the less common gas found in very low concentrations can have a significant impact on the total tonnage of carbon dioxide.

*(Continued on page 6)*



*Common Spotted Orchid growing at Knowl Hill*



Clinical waste incinerator exhaust stack

(Continued from page 5)

The following table details carbon dioxide emissions from our facilities for 2008 and 2009; the previous year's data for 2007 has been included for comparison purposes. The table is split up into the different elements to enable us to understand which parts of Grundon contributes most thus focusing our attention on where we need to make the biggest improvements.

**Table 1a: Calculation of carbon dioxide equivalents**

Year	Tonnes of CO <sub>2</sub> Equivalent			% difference 2007 vs 2009
	2007	2008	2009	
Electricity Usage	3,216	4,008	3,979	23.7
Natural Gas Consumed	838	848	870	3.8
Diesel Consumed	11,730	13,644	11,292	-3.7
Landfill Gas Emissions	39,939	42,848	55,763	39.6
Release from CWI	1,310	67	302	-76.9
Release from Hydroclave	6,289	5,921	4,409	-29.9
Compost Emissions	759	329	59	-92.3
<b>Annual Total</b>	<b>64,081</b>	<b>67,665</b>	<b>76,674</b>	<b>19.7</b>

During 2008 and 2009 the total emissions for the Company has increased: compared with 2007 there was a 5.6% increase in 2008 and a 19.7% increase in 2009. This is almost solely due to increased landfill gas emissions; at the end of 2009 both active landfills had large areas that required capping and restoring. The capping layer on the landfill provides a barrier that prevents the greenhouse gases escaping and means they can be captured within the gas management system.

The new CWI that was commissioned during 2007 has an improved scrubber system and this has reduced the overall emissions of the plant during the last two years. The CWI is the largest user of natural gas within Grundon and the target to reduce by 25% was implemented following the last report, which identified a significant increase. However, the volume used has been relatively stable during the last two years and it has been identified that the new plant uses more gas than the previous one.

The reduction shown in compost emissions is due solely to the fact that the Grundon operation ceased in February 2009; this activity is now managed by a third party contractor.

Electricity use within the Company continues to grow due to the expansion of our facilities. In both our new and existing facilities electricity saving devices have been installed to minimise power use; for example, within our MRFs a new type of hi-bay lighting has been installed. Fluorescent units controlled by movement sensors, these will reduce electricity by at least 50% over the conventional units.

Due to this being the tenth year of reporting the table below shows the overall reduction in greenhouse gas emissions during the last decade (see Table 1b).

**Table 1b: Comparison of carbon dioxide equivalents**

Year	Tonnes of CO <sub>2</sub> Equivalent		% difference 2000 vs 2009
	2000	2009	
Electricity Usage	1617	3979	146.07
Natural Gas Consumed	1375	870	-36.73
Diesel Consumed	9900	11292	14.06
Landfill Gas Emissions	233,144	55,763	-81.62
Release from CWI	60,958	302	-99.50
Release from Hydroclave	0	4,409	
Compost Emissions	0	59	
<b>Annual Total</b>	<b>306,994</b>	<b>76,674</b>	<b>-77.96</b>

In the last ten years there has been a significant reduction in the total tonnage of greenhouse gases produced. The most significant decreases are related to the release of landfill gas and emissions from the CWI (Clinical Waste Incinerator). The improvements in these are due to investment in new equipment, with landfill gas engines and flares being installed and the development of a new CWI with improved scrubber system.

The indicator covered in this section is based on dividing the Company's total greenhouse gas emissions by the amount of waste handled each year (see Table 1c). Waste inputs are based on actual tonnages from our waste management facilities and from details of the waste transported by our vehicle fleet.

**Table 1c: Total waste handled (tonnes)**

Year	2007	2008	2009
Tonnes	1,100,124	1,126,555	1,085,101

Since reporting commenced there has been an increase in tonnages year on year, until 2009 when a decrease has been seen due to the influence of the present economic climate.

**Table 1d: Total greenhouse gas emissions divided by tonnes of waste handled**

Year	2000	2007	2008	2009
Tonnes of CO <sub>2</sub> Equivalent	0.58	0.06	0.06	0.07
Kilogrammes	579	58	60.1	70.7

Based on the last two years' tonnages there has been a slight increase in the level of greenhouse gas emissions per tonne of waste handled. However, when comparing the emissions with the 2000 data, there has been a significant reduction in the level of greenhouse gases produced for each tonne of waste handled by Grundon. This is extremely encouraging and demonstrates how it is important to look at overall long-term trends rather than year to year information.

**Indicator: Amount in tonnes of landfill gas and the proportion of landfill gas being flared, used for power generation, or passively vented**

The purpose of this and the preceding indicator is to demonstrate the overall approach to landfill gas management and, where possible, to encourage electricity generation on the sites.



*Clinical Hydroclave at Knowl Hill*

**Table 2: Tonnes of landfill gas (LFG) produced**

Year	Total Emissions (tonnes)	Flared (tonnes)	Engine (tonnes)	Passive (tonnes)
2007	20,861	5,865	9,372	5,619
2008	15,908	4,427	5,717	5,764
2009	18,334	5,532	5,123	7,679

During 2008 and 2009 the amount of landfill gas being diverted to the engines at both Knowl Hill and Bishops Cleeve Landfill has increased. However, Beenham has reduced significantly which has impacted on the figures and meant the target was not achieved.

The increase in the volume of landfill gas flared is partly due to a flare now being operational at the restored Tanhouse Landfill and also that the Beenham flare has been used when the engine had insufficient gas to be operational.

The target for decreasing the amount of passively vented landfill gas has also not been met during this period. This is due primarily to:

- A landfill cell was being completed in 2009 at Bishops Cleeve; restoration works started at the end of the year but had to stop due to inclement weather. This meant a large area of waste was passive venting throughout the year and the active gas management system will not be operational until spring 2010.
- At Knowl Hill Landfill a large area is also nearing completion and therefore this has also led to an increase in the area of waste that was passively venting.

### Indicator: Total energy generated in megawatts

This indicator now covers the amount of energy generated at three of our facilities – Beenham, Bishops Cleeve and Knowl Hill. Table 3 shows the total output from the engine measured in MegaWatt hours (MWh) and the approximate number of houses the electricity could supply.

**Table 3: Output from landfill gas engines**

Year	Output (MWh)	No. of Homes
2007	10,951	10,300
2008	8,497	8,000
2009	9,026	8,500



Gas engine at Wingmoor Quarry Landfill

### CLIMATE CHANGE - THE FUTURE

These indicators over the last two years have been influenced greatly by the passive emissions from the landfills. These sites are operated with individual cells and when one of these is full with waste the amount of landfill gas passively venting is increased. During the next two years Grundon will restore these cells and is looking at means of managing landfill gas in these cells prior to restoration by installing sacrificial pipework.

#### Targets for 2010 & 2011:

- A 10% reduction in total greenhouse gas emissions attributable to Grundon, as part of our commitment to the 10:10 initiative.
- Reduce the amount of landfill gas that passively vents by 15%.
- Increase the quantity of electricity generated at our landfill sites by 20%.

## Transport

Targets for 2008 & 2009:	Outcome	
● Continue to reduce fuel usage of our fleet, with the target being 0.60 litres/mile.	Target not achieved	✗
● Ensure that replacement vehicles within our transport fleet are specified with the latest most efficient engine types, presently EURO V.	Target achieved & ongoing	✓
● Continue to develop the use of alternative fuels.	Target achieved & ongoing	✓

At the core of the Grundon business is the fleet of vehicles that are used to collect and transport the various recyclates and waste streams that are generated by our customers. Other vehicles are also used within the business including company cars, vans, heavy goods vehicles and earthmoving equipment.

As well as being concerned about the possible environmental impacts of fossil fuel consumption and vehicle exhaust emission, fuel is also a significant cost to the business, therefore we endeavour to minimise fuel usage and improve efficiency wherever possible. The carbon dioxide emissions from our transport activities have been quantified within the climate change indicators earlier in this report. The purpose of these transport indicators is to monitor how efficiently this fuel is used.

### Indicator: Fuel used divided by miles travelled

Within this indicator we concentrate solely on our waste collection fleet to ensure that the figures can be compared to previous years. We have not considered the fuel consumed by non-road site vehicles (e.g. loading shovels and excavators) as miles travelled are not relevant. Company cars and vans have also been excluded as the Company has less control over the mileage travelled and they make up such a small proportion of the total miles covered. However, within the climate change indicator, the fuel consumed by these vehicles has been taken into account.

The figures for the last three years are shown in Table 4; the data for 2007 has been included to allow for a comparison. In line with business activity, the fleet has continued to grow with more miles being travelled although less fuel is being consumed.

**Table 4: Fuel used by distance travelled**

Year	Fuel Used (litres)	Miles Travelled	mpg	litres/mile	No. of Vehicles
2007	3,482,996	5,244,643	5.70	0.66	228
2008	4,442,914	5,641,738	6.13	0.79	239
2009	4,213,354	5,759,932	6.21	0.73	249



*Part of the Grundon fleet of vehicles at Ewelme*

In the last two years the fuel consumption per mile travelled has decreased with half a mile further being travelled with each gallon of fuel used. However, the target that Grundon set itself was not achieved during this period.

This reduction is an ongoing trend due to initiatives that have been implemented to improve overall fuel consumption of our fleet, which includes an active replacement programme with the age profile of our fleet continually dropping. Replacement lorries are purchased with the most efficient engines, the EURO V with 53 vehicles within our fleet to this standard and 14 with EUROIV engine. Grundon are specifying the highest standard engine, being one step ahead of government emission legislation with the EURO V engine type becoming mandatory in 2014. We are also continuing to actively investigate the use of alternative fuels within our fleet.

### Indicator: Fuel used divided by tonnes of waste handled

The total amount of waste handled was calculated in the last section and these figures have been used to calculate this indicator.

**Table 5: Fuel used related to waste handled**

Year	Fuel Used	Waste Handled	Litres per tonne
	litres	tonnes	
2007	3,482,996	1,113,834	3.13
2008	4,442,914	1,126,555	3.94
2009	4,213,354	1,085,101	3.88

This indicator shows that when considering the amount of waste handled the fuel usage per tonne has actually increased. This is due to the present economic climate, where many industries and businesses are producing less waste and therefore Grundon vehicles are travelling to the same locations but collecting less material. This indicator shows that even with the best effort of Grundon other factors can influence the results.

## TRANSPORT - THE FUTURE

The ongoing fleet replacement will continue to improve the fuel efficiency of the vehicles and, in turn, reduce diesel usage. During 2010 a new transport planning system is being introduced into our depots so that most efficient routes minimise travelling distance and fuel consumption.



Sweeper vehicle with low emission EURO V engine

### Targets for 2010 & 2011:

- Continue to reduce fuel usage of our fleet, with the target being 0.60 litres/mile.
- Ensure that replacement vehicles within our transport fleet are specified with the latest most efficient engine types, presently EURO V.
- Implementation of the transport planning system.

## Water Use

Targets for 2008 & 2009:		Outcome	
●	Reduction in actual water use to 24 litres per tonne of waste handled.	Target not achieved	✘
●	Ensure that brown water systems are specified within any new buildings.	Target achieved	✔

### Indicator: Amount of water used divided by tonnes of waste handled

During 2008 and 2009 we have continued to report accurate figures through the use of meter readings at the majority of our facilities, although some still have to be estimated. These figures are shown in Table 6 below.

**Table 6: Amount of water used divided by waste handled**

Year	Volume of Water Used Per Annum		Tonnes of Waste Handled	Litres of Water/ Tonnes of Waste Handled
	m <sup>3</sup>	litres		
2007	28,135	28,135,000	1,100,124	25.57
2008	28,734	28,734,000	1,126,555	25.51
2009	46,290	46,290,000	1,085,101	42.66

Unfortunately, during 2009 the water use in the Company has shown a significant increase in the total quantity used. This was due solely to a significant water leak at our Knowl Hill facility, which led to a 230% increase in water use at the facility. This is an old industrial site with an extensive network of aged pipework which meant that these leaks were not noticeable on site and were only discovered when the water meter readings were analysed as part of the implementation of the Environmental Management System on site. On investigation there was found to be two 3" pipes leaking, these were immediately repaired but led to a significant loss of water. If the figures in Table 6 are re-calculated assuming that Knowl Hill used the same volume of water use in 2009 as the previous year, then a rate of 25.53 litres of water per tonne of waste handled would have been recorded for the Company. This demonstrates how one leak can greatly affect water use and the ability to achieve targets set.

During this period all our new buildings, such as the Wingmoor MRF, have been specified with water saving devices, such as:

- Rainwater harvesting for use within building.
- Water saving devices being used in washrooms to save water, such as push taps (so that they are not left running) and regulators on urinals.

This will help to minimise water use, in addition to staff implementing site specific reduction schemes.

### WATER USE - THE FUTURE

Although we are now accurately recording our water use, the figures for 2009 have been affected by the large water leak. Grundon systems need to be improved to ensure that, in future, leaks of this scale are identified and rectified sooner, so the impact is reduced.

All our facilities are continuing to look at ways of reducing the potable water use by looking at more efficient systems and the use of brown water.

### Targets for 2010 & 2011:

- Reduction in actual water use to 24 litres per tonne of waste handled.
- Introduction of systems at all operational sites to ensure that water use is regularly monitored, so leaks are identified at the earliest opportunity.



*Tankers at our Wingmoor Farm Treatment Plant*

## Land Use and Wildlife

Targets for 2008 & 2009:	Outcome	
<ul style="list-style-type: none"> <li>Continue to take positive steps to monitor and enhance the wildlife on our sites.</li> </ul>	Target achieved & ongoing	✓
<ul style="list-style-type: none"> <li>Complete additional restoration work and tree planting at Knowl Hill.</li> </ul>	Target not achieved	✗
<ul style="list-style-type: none"> <li>Plant at least 2,500 additional trees on our sites.</li> </ul>	Target achieved	✓

### Indicator: Actual or planned uses of restored land

In previous reports we have compared the areas restored year on year at each of the landfill; however, since our first report in 2000 the majority are now restored so this is no longer appropriate.

The operational landfill sites are now:

- Bishops Cleeve/ Wingmoor Landfill – accepts both hazardous and non-hazardous wastes for landfilling within two separate operational areas. The land on site is returned to agricultural with approximately 85% of the area already restored. This land is either grazed by the site’s alpacas or the fields are mowed for hay.
- Knowl Hill Landfill – accepts industrial and commercial waste for landfilling and at present 54% of the site is restored to woodland. The target for restoration was not achieved as the operational area is not yet completed to final height.
- Ewelme Landfill – the majority of the site is restored with only a small area still active that just accepts inert (soils) materials for disposal.

The following provides a summary of the other landfills that have been covered within the environmental report:

- Beenham – this site is now fully restored to agriculture and the fields are used for grazing and hay making. A landfill gas engine is operational at the site.
- Midgham – this site has now been restored for many years for wildlife with the development of lakes and reed beds. These areas are now well established and have significant positive impact on the area.
- Tanhouse – the site is now the location of a MRF and transport depot.
- Wheatley – this site was restored to agriculture and is managed accordingly.



Alpacas at Bishops Cleeve

**Indicator: Number of trees and length of hedgerows planted**

The target set for the period has been exceeded with a total of 4,429 trees planted at the sites over the last two years as detailed in Table 7. The majority of these were related to the planting around the Wingmoor MRF, plus additional landscaping related to the landfill.

**Table 7: Trees and hedges planted in 2008 & 2009**

Site	Trees No.	Hedges (m)	Comments
Beenham Landfill	0	6	Hedgerow extension on old landfill
Knowl Hill Landfill	1,000	0	Tree planting on restored areas
Tanhouse MRF	150	0	Tree planting around MRF building
Wingmoor Landfill	3,279	500	Planting on landfill area around new MRF

During the last ten years, Grundon has planted a total of 27,857 trees and 2,170 metres of hedgerow. On average each metre of hedge has 4 plants, so in total 36,537 trees have been planted. The planting of trees is recognised as a means of off-setting the carbon dioxide being produced and a single tree will absorb 21.7kg per year - therefore this planting will absorb an additional 796 tonnes of carbon dioxide per year.

**Indicator: Volume of green waste composted**

During the period the Beenham composting operation was reviewed and it was decided that the operation should be sub-contracted to a third party specialist from February 2009. From this date, the facility has been removed from the scope of the report. The contract enables Grundon to continue to offer a facility for green waste processing to our customers. For completeness the total amount of green waste processed through the site since commencement has been recorded below:

**Table 8: Tonnage of green waste processed**

Year	Tonnes
2003	2,108
2004	18,235
2005	24,884
2006	19,666
2007	19,859
2008	8,612
2009	1,540
<b>TOTAL</b>	<b>94,904</b>



*Restored landfill and lake at Ewelme*

**LAND USE & WILDLIFE - THE FUTURE**

An essential part of the management of our sites, and in particular the landfills, is the development of long term plans to ensure that they are returned to a useful purpose once the sites reach the end of their operational life. These plans are different for each site but it is vital that these plans are developed taking into consideration the local environment, so that the site long-term has a positive impact on the local environment. In particular, restoration at our Knowl Hill Landfill is required within the next two years as this site has a large operational area that needs to be completed.

**Targets for 2010 & 2011:**

- Continue to take positive steps to monitor and enhance the wildlife on our sites, including the development of biodiversity action plans.
- Complete additional restoration work and tree planting at Knowl Hill.
- Plant at least 2,800 additional trees on our sites.

**Regulatory Compliance**

Target for 2008 & 2009:	Outcome	
● Grundon will endeavour to manage all its facilities so that there will be no enforcement notices or prosecutions.	Target achieved	✓

The legal framework under which the UK waste management industry operates is ever tightening and compliance with these conditions is one of Grundon's key commitments as detailed within the Corporate Environmental Policy statement. All of our waste management facilities operate under an Environmental Permit issued by the Environment Agency (EA). These detail specific conditions that must be complied with during operations. The EA regularly audit the sites to monitor compliance with these conditions.

**Indicator: Number of enforcement notices**

During the last two years no enforcement notices have been served or prosecutions taken.

**REGULATORY COMPLIANCE - THE FUTURE**

**Target for 2010 & 2011:**

- Grundon will continue to endeavour to manage all its facilities so that there will be no enforcement notices or prosecutions.



*Liaison group*

## Environmental Management Systems

Targets for 2008 & 2009:	Outcome	
● The Colnbrook CWI will maintain accreditation to ISO14001.	Target achieved	✓
● Bishops Cleeve Landfills & Treatment Plant will achieve accreditation to ISO14001	Target achieved	✓
● A further additional site will be working to the formal EMS.	Target achieved	✓

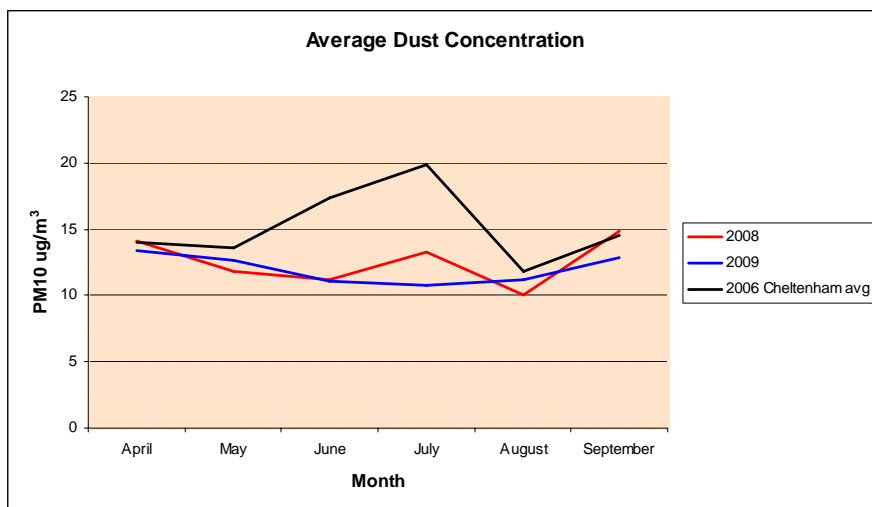
### Indicator: Registered sites as a proportion of total number of sites

Four Grundon sites are now working to the Environmental Management System (EMS) - Colnbrook Clinical Waste Incinerator, Bishops Cleeve facility, Ewelme Waste Transfer Station and the Knowl Hill facility. The Bishops Cleeve facility gained certification to ISO14001:2004 and is now managing the systems to ensure this is maintained.

The EMS is used to identify and manage potential environmental impacts and also to drive for continuous improvement. For example, at the Bishops Cleeve facility one of the key targets is to show a downward trend in fugitive dust emissions from the site. There are 6 active dust monitors surrounding the site continuously sampling ambient air; in 2009, 85,536 samples were taken. The results are sent to the site's monitoring computer where they are analysed. This ensures compliance with the Environmental Permit and the Air Quality Standards Regulations, both of which state that the dust levels, PM10 readings should be no greater than 40 ug/m<sup>3</sup> per year and no greater than 50 ug/m<sup>3</sup> per day.

During 2009 a new type of landfill cover, ConCover, was introduced at the Bishops Cleeve site to cover the waste at the landfill. In appearance, the ConCover product could be likened to papier-mâché: it is a mix of recycled fibres and paper mixed with water and a polymer-binding agent. It is applied to areas of the landfill not in daily use via a large bowser with a spray cannon attachment. An application over the waste is around 15mm thick, creating a sealed environment. This 'crust' can last many weeks if undisturbed, preventing dust emissions from the surface being picked up by winds. Following the use of ConCover during the dry months of 2009 there has been an 18% reduction in PM10 emissions at a monitoring point directly in line with the disposal area. This decrease is illustrated in the graph below and shows a much more stable ambient dust concentration than in 2008. It is also considerably lower than the local town's average.

**Graph 9: Ambient dust concentration**



*Dust monitoring at Bishops Cleeve*



Colnbrook Clinical Waste Incinerator

## ENVIRONMENTAL MANAGEMENT SYSTEMS - THE FUTURE

Grundon has seen positive benefits from the introduction of the EMS and will continue to increase the number of facilities formally certified to the ISO14001 standard. The formal EMS during the 2010/2011 period is to be introduced at all our operational sites, as part of our development of formal management systems within the business. This introduction will strengthen our existing internal management systems to ensure compliance with all environmental, health and safety and transport legislation.

### Targets for 2010 & 2011:

- All sites will maintain accreditation to ISO14001.
- Ewelme Waste Transfer facility and Knowl Hill facility will have achieved accreditation to ISO14001.
- The formal EMS will be implemented at all our operational sites.

## Waste Minimisation/Resource Productivity

Targets for 2008 & 2009:	Outcome	
<ul style="list-style-type: none"> <li>● To continue the increase in waste recovered from the waste stream and achieve a total of 15%.</li> </ul>	Target partly achieved, although 15% not reached	✓/X

### Indicator: Relative amounts of materials recovered from the waste stream as a proportion of total waste handled

This indicator measures the amount of waste going for re-use, recovery and recycling, rather than for final disposal, and enables us to monitor the changing nature of our waste management activities since reporting commenced.

Table 10a: Tonnage of material recovered

Year	Beenham MRF	Ewelme MRF	Mole Valley MRF	Tanhouse MRF	Wingmoor MRF & Landfill	Banbury Transfer Station	Ewelme Transfer Station	Beenham Compost	Total
2008	21,792	21,246	33,104	39,199	7,322	2,941	2,562	7,845	136,011
2009	22,938	19,337	50,294	50,853	4,778	5,096	2,030	1,335	156,661

Table 10a. details the amount of waste recovered as an actual tonnage from each facility. The indicator specifically requires us to look at the amount of material recovered from the waste stream as a proportion of the total waste handled by the Company, see Table 10b.

Table 10b: Proportion of materials recovered related to total waste handled

Year	2000	2008	2009
Tonnes handled	530,000	1,126,555	1,085,101
Tonnes recovered	20,651	136,011	156,661
% of waste stream recovered	3.9	12.1	14.4

If only the material handled by these facilities (listed in Table 10a) was considered, rather than the whole Company then a recovery rate of 38% would be seen in 2009. The lower rate is due to the fact that a significant proportion of the waste handled by Grundon cannot be recovered or re-used and material is also brought directly to our facilities by third parties for disposal, so we have no influence regarding whether it can be recovered, i.e. waste to the landfills.

During the ten years of reporting there has been significant growth within the proportion of material recovered and this highlights the changes being experienced within the waste management industry.

**Indicator: Number of integrated contracts that include waste minimisation and/or resource management services**

Over the last few years the contract management team has continued to increase the number of integrated contracts. There has been a big incentive for our larger customer base to achieve cost savings, through better segregation and using innovative technologies to help avoid the increases in landfill tax.

This year for the first time we have been able to offer the Lakeside Energy from Waste Plant as an option to divert waste away from landfill. This is a further disposal option which can be included as part of a Total Waste Management Strategy, and has formed a key element in us being successful when tendering for work.

The biggest growth for integrated contracts has been within the NHS market. Grundon has been successful in securing Imperial College Healthcare NHS Trust, which is the largest Trust within the London area. We now offer a fully integrated service to St Mary's, Hammersmith and Charing Cross Hospitals. In a true partnership approach we have provided training and support to enable the whole Trust to correctly segregate waste to ensure the best recycling or disposal option is utilised.

With the growth in the NHS market our integrated contracts have now increased to 20, and with being able to offer the Energy from Waste we hope to increase this further over the next two years.

Grundon is hoping to continue to support both existing and new customers in diverting waste away from landfill, increasing recycling and offering new innovative technologies. Our biggest target over the next year is to improve on providing customers with more information on their environmental performance regarding waste management, to include carbon footprint reporting.

## WASTE MINIMISATION/RESOURCE PRODUCTIVITY - THE FUTURE

Within our MRFs we are trying to maximize the recovery rate of material to improve efficiency. We are also encouraging our customers to segregate more waste, so that more mixed recyclables can be collected from more customers so more waste can be recovered for recycling.

We are working towards recovering more waste from all our own facilities and are seeking to minimise all waste production. We are developing more accurate ways of recording the waste we produce such as by fitting our collection vehicles with bin weighing devices, so that accurate weights can be recorded.

**Target for 2010 & 2011:**

- **To continue the increase of waste recovered from the waste stream and aim to achieve a total of 20%.**



*Integrated hospital contract*

## Neighbourliness

Targets for 2008 & 2009:	Outcome	
<ul style="list-style-type: none"> <li>To reduce levels of complaints at all sites and ensure complaints are investigated.</li> </ul>	Partly achieved	✓/X
<ul style="list-style-type: none"> <li>To continue to engage with the local community at Bishops Cleeve ahead of impending planning application.</li> </ul>	Achieved & ongoing	✓/X

### Indicator: Number of complaints divided by number of sites

During 2008/2009, Grundon had set itself the target of reducing the number of complaints received at its operational sites. Unfortunately this was not achieved although the large majority of our facilities do not receive complaints.

Table 11 details complaints received within the last two years for all of our sites, including, for comparison, the 2007 data. All complaints are recorded within this table and then fully investigated, with a formal procedure in place as part of the Grundon Environmental Management System. Only a very small percentage of the complaints are substantiated, however, for completeness all are recorded.

**Table 11: Number of complaints received**

Site	2007	2008	2009
Bishops Cleeve & Wingmoor Quarry Landfills	30	44	41
Knowl Hill site	52	123	58
Mole Valley MRF	0	0	2
Colnbrook CWI	1	0	0
Beenham MRF	1	1	2
<b>TOTAL</b>	<b>85</b>	<b>169</b>	<b>103</b>

The large majority of complaints are related to the Bishops Cleeve and Knowl Hill facilities; these both have specific factors that mean they are the focus of the local community.

At Bishops Cleeve, a planning application was submitted in 2009 for an extension to the life of the site. This has focused attention on the site and means that any operational issues at either the Grundon site or the adjoining third-party site are reported to the Environment Agency. These complaints are then forwarded to us after the event and therefore it is generally not possible to substantiate the complaint.

At Knowl Hill Grundon operate both a clinical hydroclave and a landfill. During 2007 and 2008 both facilities experienced operational problems that caused occasional odours to be detected off site and led to an increased number of complaints. Improvement works have now been completed at both facilities and this has seen a reduction in the level of complaints during the latter part of 2009.



Public exhibition at Bishops Cleeve MRF

**Indicator: Number of sites with liaison committees as a proportion of total number of sites**

At our larger operational sites - Colnbrook/Tanhouse, Ewelme, Beenham and Bishops Cleeve - formal Liaison Committees are established and continue to meet at regular interval to discuss ongoing operations and developments. In total, 16 out of our 29 facilities (55%) are represented by Liaison Committees.

Further engagement with the local community at Bishops Cleeve has been achieved through events such as the Public Exhibition, that was held at the site on a Saturday, and the attendance at village events.

These groups continue to provide a vital link for clear communication between Grundon and the local community. These committees are made up of local residents, representatives of the local parish councils and other local interest groups. The members have the opportunity to discuss any issues that they have about the activities of the Company and then formal feedback can be given as appropriate.

**NEIGHBOURLINESS - THE FUTURE**

We will continue to operate our facilities to best practice standards to minimise the number of complaints. We will need to establish co-ordinated procedures throughout the Company to record complaints and the outcome following investigation.

**Targets for 2010 & 2011:**

- To reduce levels of complaints at the Knowl Hill site and ensure complaints are investigated.
- Following investigation look at the proportion of complaints that can be substantiated and use these for comparison.



*Bishops Cleeve Street Fair*



## Summary

This fourth Corporate Environmental Report covering 2008 and 2009 demonstrates some very encouraging results over the ten year period since our initial report in 2000. It is clear the effort Grundon is putting into reducing our environmental impact is working and we are achieving real benefits throughout the business, although the current economic situation has made this more challenging.

Targets for further improvements have been identified in each core area. We will continue to address these to ensure that the improvements are maintained and thus minimise the impact of our activities on our world. Future reports will continue to help us to track these changes and report on our achievements.

We welcome your comments or questions on this report. In the first instance, please contact our Estates Office by telephone on 0118 971 4040 or by e-mail at [estates@grundon.com](mailto:estates@grundon.com)



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