**SHEFFIELD TEACHING HOSPITALS NHS FOUNDATION TRUST**

**EXECUTIVE SUMMARY: REPORT TO THE TRUST BOARD – WEDNESDAY, 19TH OCTOBER 2011**

| | |
|---|---|
| **Subject:** | Waste Management Annual Report 2010-1011 |
| **Supporting Director:** | Professor H Chapman – Chief Nurse/Operating Officer |
| **Author:** | Robert Green- Waste Manager/Kevin O'Regan – Director of Hotel Services |
| **Status (see footnote):** | A* |

**PURPOSE OF THE REPORT:**

To provide a summary of STH Waste Management Report 2010-2011

**KEY POINTS:**

- Introduction
- Waste hierarchy/duty of care
- Waste figures 2010-2011
- NHS carbon reduction strategy
- Audit Schedule 2010-2011
- Internal Audit report
- Waste Management training
- Security/Waste compounds
- Targets & Objectives
- Service development/Sharpsmart
- Key objectives 2011/12
- Conclusion
- Recommendations

**IMPLICATIONS:**

| | |
|---|---|
| **Achieve Clinical Excellence** | By providing a safe patient environment compliance framework and CQC registration |
| **Be Patient Focused** | Patient experience and reputation |
| **Engaged Staff** | On-going staff training |
| **CQC Evidence** | Outcome 10 – Safety and suitability of premises |

**RECOMMENDATION(S):**

To note the report and three key objectives for 2011/12

(i) On-going ward/departmental audits
(ii) Staff training
(iii) Re-cycling initiatives

**APPROVAL PROCESS:**

| Meeting | Presented | Approved | Date |
|---|---|---|---|
| T.E.G. | 24.8.11 | ✓ | 24.8.11 |
| Healthcare Governance | 26.9.11 | ✓ | 26.9.11 |
| Trust Board | 19.10.11 | | |
| | | | |

Status: A = Approval
A* = Approval & Requiring Board Approval
D = Debate
N = Note

Sheffield Teaching Hospitals NHS
NHS Foundation Trust

# WASTE MANAGEMENT

# ANNUAL REPORT 2010 – 2011

KOR/RG/5.8.11 (Final)

**1.** INTRODUCTION

2010 saw a change in staff for the STH Waste Management posts:-

Waste Manager Robert Green appointed in June 2010.

Assistant Waste Manager Francesca Bell appointed in October 2010.

Unfortunately, the Trust Waste Strategy and Policy (WSP) update has been delayed due to the pending release of HTM 07 01 Safe Management of Healthcare Waste Second addition. This document was due to be published in June 2010, however the consultancy period ran over significantly until April 2011.
A first draft will be available by the end of August 2011.

2. WASTE HIERARCHY


- The main sustainable aim is to reduce waste volumes produced by the trust.
- Reuse of items is encouraged through use of the trust communications bulletins and “Today’s messages.”
- The trust operates a mixed recycling system, which is now available to all areas of the trust.
- The trust employs a variety of energy recovery and alternative disposal techniques relating to wastes which are produced from STH.

3. WASTE FIGURES 2010 - 2011
**All wastes (details as from 2006/7))**

The table below shows the wastes produced from Sheffield Teaching Hospitals and their relative disposal methods.
The timescale is inclusive from 2006 – 2007 as this is the baseline year of assessment for the NHS carbon reduction strategy.

| | Destination (Tonnes) / Period | 2006 - 2007 | 2007 - 2008 | 2008 - 2009 | 2009 - 2010 | 2010 - 2011 |
|---|---|---|---|---|---|---|
| Landfill | Clinical | 1648 | 1591 | 1601 | 1627 | 1599 |
| | Household Waste - Landfill | 2386 | 2505 | 2517 | 197 | 361 |
| Recycling / Recovery | Recycled at Site | 245 | 372 | 401 | 207 | 136 |
| | Household waste - Recovery | 170 | 501 | 221 | 2522 | 2043 |
| | Total | 4279 | 4468 | 4519 | 4554 | 4139 |

Note: 2007 baseline figures highlighted in grey, baseline for the NHS Carbon Reduction strategy.

3.1 Clinical waste

Total clinical waste production includes wastes disposed via:

- High temperature incineration
- Alternative treatment technologies. (an alternative to incineration.)
- Offensive waste disposal into deep landfill.

Clinical waste production has stayed relatively constant with no significant fluctuations in overall production although fluctuations have taken place within the disposal categories.

3.2 Household waste

All household waste produced at STH goes to a materials recycling facility (MRF) where materials are recycled by product, used for alternative fuel derivatives or specifically segregated for landfill disposal.

This disposal method achieves 85% recycling/recovery and 15% disposal to landfill.

Household waste production has reduced by 386 tonnes in 2010 – 2011. More wastes have been sent to landfill and less waste has been recycled onsite than previous figures have shown.

3.3 Recycling at site

It is disappointing to see that tonnages of waste recycled at site have decreased. However, internal waste streams have been reviewed which should increase our recycling figures during 2011/12.
Two schemes have been employed to remedy this reduction:

- Office bin reduction and recycling. (Northern general hospital)
- STH recycling roll out.

## Clinical wastes disposal

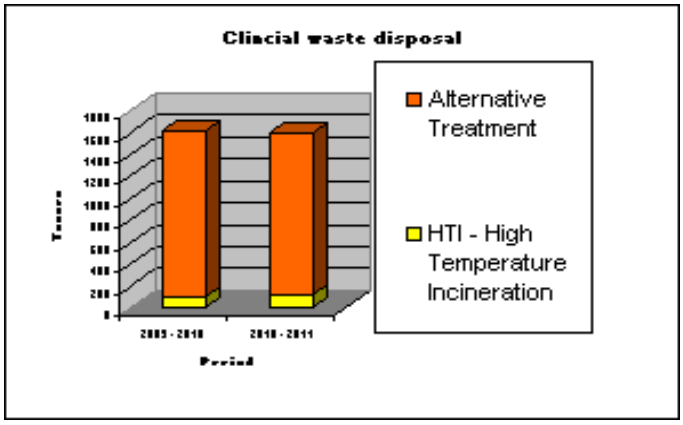
Clinical wastes have been reduced by 27.267 tonnes overall.

An additional 13.248 tonnes of clinical waste have been sent for High temperature incineration (HTI), which is the result of improved standards of segregation in relation to the wastes being sent to alternative treatment technologies.

Alternative treatment technology disposal has seen a reduction of 40.715 tonnes, which has been due to a number of factors:

- Removal of wastes which require incineration.
- An increase in general awareness in waste segregation, removal of household wastes from the clinical waste stream.
- Introduction of the Sharpsmart system (see section 8).

| Destination (Tonnes) / Period | 2009 - 2010 | 2010 - 2011 |
|---|---|---|
| HTI - High Temperature Incineration | 108.920 | 122.168 |
| HTI - % | 6.69% | 7.64% |
| Alternative Treatment | 1518.500 | 1477.785 |
| Alternative Treatment - % | 93.31% | 92.36% |
| Total | 1627.420 | 1599.953 |




Household wastes and recycling

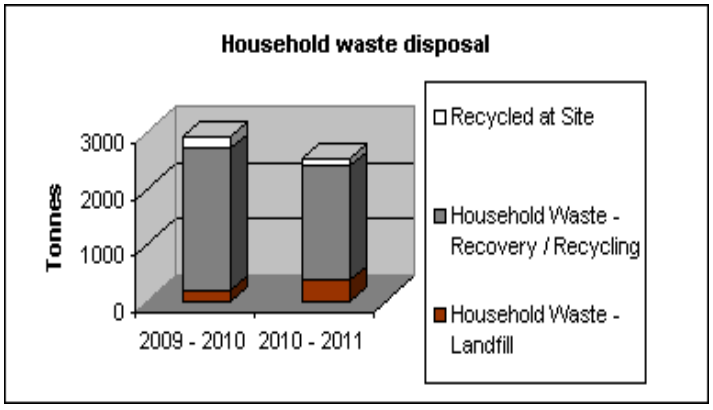
STH has adopted a mixed recycling system which enables all forms of recyclables to be collected in one bin.

2010 – 2011 has shown an overall reduction of 386 tonnes of household waste.

The two recycling schemes will further develop the volume of waste being recycled at site.

The MRF disposal technology segregates organic wastes which are suitable for landfill disposal and thus the wastes we send for landfill disposal are more beneficial to the environment.

| Destination (Tonnes) / Period | 2009 - 2010 | 2010 - 2011 |
|---|---|---|
| Household Waste - Landfill | 197 | 361 |
| Household Waste - Recovery / Recycling | 2522 | 2043 |
| Recycled at Site | 207 | 136 |
| Total | 2926 | 2540 |



4. NHS CARBON REDUCTION STRATEGY

Waste management is paramount in the NHS carbon reduction strategy:

- Reduce waste from clinical areas and hazardous waste.
- Reduce domestic waste to landfill.
- Increase recycling.

Waste management can directly measure its carbon emission by allocating an emission factor to each disposal method employed.

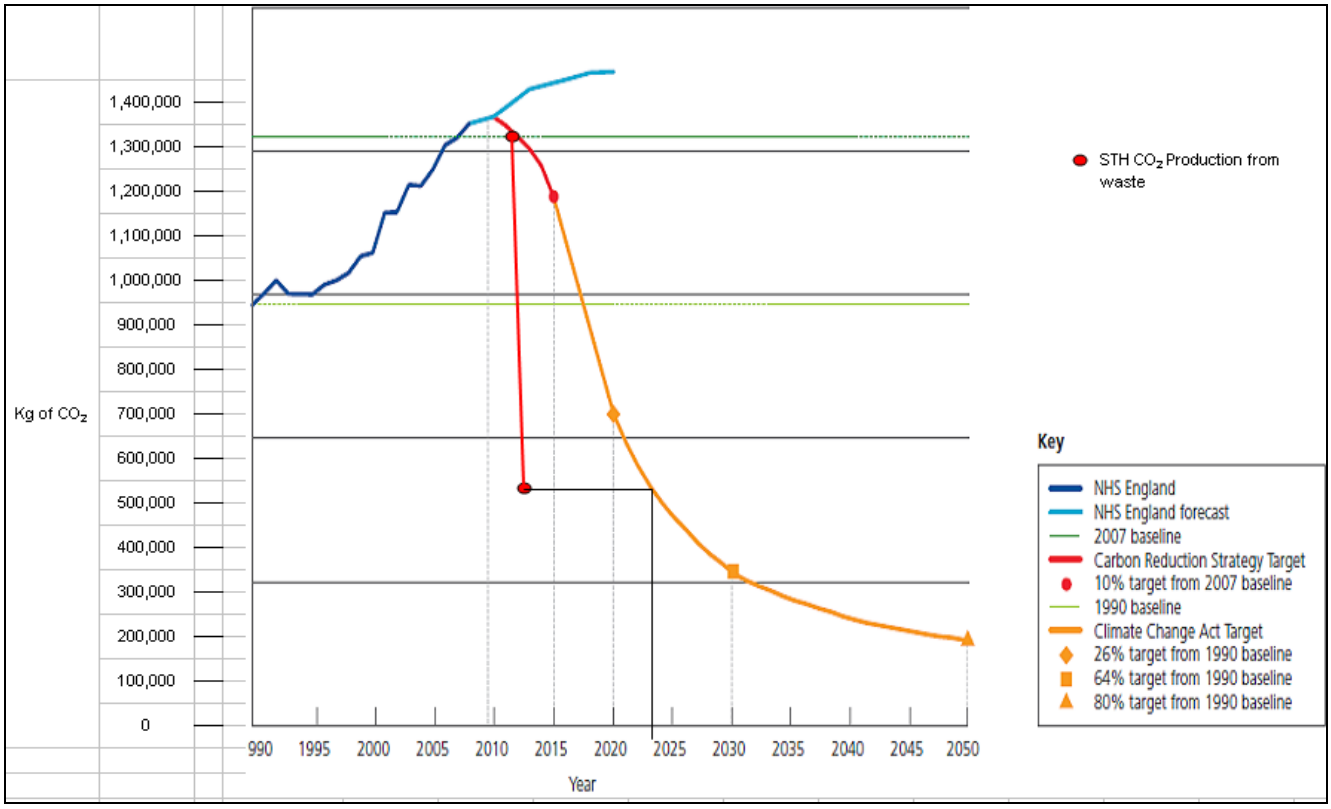
The volume of waste multiplied by the allocated emission factor gives the carbon emission.
Emissions factors have been taken from national averages and DEFRA online.

The 2006 – 2007 carbon emissions have been used to calculate the required carbon reduction in line with the strategy. The chart below shows the required reduction in carbon emissions relative to strategy reduction targets.

2006/07 Base line

| Date | % | % reduction required by NHS carbon reduction strategy | STH Target Emission | Key |
|---|---|---|---|---|
| 2006/07 | 100% | 0% | 1,337,231 | |
| 2015 | 90% | 10% | 1,203,508 | |
| 2020 | 74% | 26% | 989,551 | ◆ 26% target |
| 2030 | 36% | 64% | 481,403 | ■ 64% target |
| 2050 | 20% | 80% | 267,446 | ▲ 80% target |

The graph below shows Sheffield Teaching Hospitals current position relative to the 2006 – 2007 baseline.




Note: Graph taken from NHS Carbon reduction Strategy for England.

STH is currently operating below the required reductions set out by the NHS carbon reduction strategy and close to that set for achievement in 2023. (See graph on previous page.)

| Destination | HH Landfill | | HH Recovery | | Recycling at site | | Non burn Clinical | | Clinical HTI | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Emission factor | 447 | | 0.106 | | -884.2 | | 120 | | 2350 | | Total | |
| Period | Tonnes | Kg / CO2 | Tonnes | Kg / CO2 | Tonnes | Kg / CO2 | Tonnes | Kg / CO2 | Tonnes | Kg / CO2 | Kg / CO2 | As a percentage of NHS carbon reduction target |
| 2010 - 2011 | 361 | 161,367 | 2043 | 217 | 136 | -120,251 | 1478 | 177,360 | 122 | 286,700 | 505,392 | 62.2% |
| 2009 - 2010 | 197 | 88,059 | 2522 | 267 | 207 | -183,029 | 1519 | 182,280 | 109 | 256,150 | 343,727 | 74.3% |
| 2008 - 2009 | 2517 | 1,125,099 | 221 | 23 | 401 | -354,564 | 1504 | 180,480 | 97 | 227,950 | 1,178,988 | 11.8% |
| 2007 - 2008 | 2505 | 1,119,735 | 501 | 53 | 372 | -328,922 | 1456 | 174,720 | 131 | 307,850 | 1,273,436 | 4.8% |
| 2006 - 2007 | 2386 | 1,066,542 | 170 | 18 | 245 | -216,629 | 1515 | 181,800 | 130 | 305,500 | 1,337,231 | 0% |

As the trusts recycling schemes develop, more waste will be diverted towards the “Recycled as site” destination as this returns the most beneficial carbon footprint. Substantial $CO_2$ benefits are available by segregating recyclable materials on site.

We have made continual improvement and good progress towards meeting $CO_2$ reductions.

## 5. AUDIT SCHEDULE 2010 – 2011

A waste management audit was undertaken and focused on the basics of waste management, ensuring compliance is achieved across STH.

22 areas were audited across STH, and pre-acceptance audits were conducted across all five sites.
Pre-acceptance audits are essential to Duty of Care regulations and must be completed annually between the waste producer and the waste contractor.
Our annual audits with the waste contractor were found to be compliant in all areas with one exception of a laboratory area at RHH where some wastes were being sent for Alternative Treatment process that required incineration. This has been rectified and approved as compliant.

The 2011 – 2012 audit schedule will see the introduction of a trigger audit review.
A two stage audit review consisting of an initial audit undertaken by the STH waste management team which will then trigger an in depth audit if required.

The two stage audit has been introduced to increase the auditing coverage at STH as the in depth audit is time consuming.
The Internal Audit report generated in January 2010 has recently been reviewed by Internal Audit, which confirmed that recommendations had been actioned.

## 6. WASTE MANAGEMENT TRAINING

The 190 AA160 Waste management training has been expanded from quarterly to monthly sessions in order to maximise coverage across the trust.
The table below shows the number of staff who have received training from the waste management team.

| Course | No. of staff |
|---|---|
| 190 AA100 Central Induction Programme | 603 |
| 190 AA160 Waste Management | 43 |

Waste awareness days have also been successful and a small group of key staff have visited Viridor's premises in Sheffield. The waste awareness days have been linked with the "Be Green" events booked for the summer of 2011.

**7.** SECURITY AND WASTE COMPOUNDS

A capital scheme to improve security of waste on trust premises was completed during 2010 - 2011 at the CSSD Undercroft NGH, whereby a secure caged area is now in place to segregate and secure wastes produced on the trusts premises.
The main waste compound gates at the NGH site are now operational.

8. SERVICE DEVELOPMENT – SHARPSMART

Sharpsmart is a sharps containment system which improves the safety of healthcare workers when disposing of sharps and reduces the environmental impact at the same time. It is also designed to minimise access to controlled wastes and to prevent potential needlestick injuries. A purpose built reusable sharps container also replaces the need to use a single use sharps container.

During 2010 – 2011the Sharpsmart system has been implemented throughout STH. The system is constantly being fine tuned through feedback from the departments detailing their requirements and mirroring this with stock control.

Sharpsmart provide an "Auditsmart" audit report which is an independent review of the wastes produced by STH. The information received from these audits is shared with the departments to either provide positive feedback or training as and when required to respective areas.

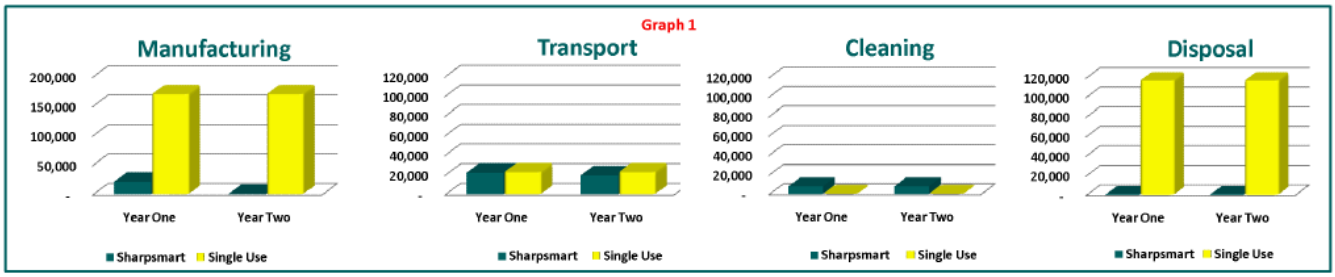
Sharpsmart has reduced the trusts $CO_2$ footprint in relation to disposal of sharps and pharmaceutical wastes by 84% (258.026 Kg of $CO_2$).

Whilst the Auditsmart's cover just 1.6% of the trusts 37,000 containers produced per annum, we have received some of the highest standards throughout Sharpsmart's customer base.

Sharpsmart have undertaken a Life Cycle Assessment of $CO_2$ on behalf of STH.
In year one STH has achieved an 83% cumulative reduction of $CO_2$ and has reduced the un-necessary incineration of plastics by 37 tonnes per annum.

The cumulative reduction in $CO_2$ is measured by assessing the four main areas of the Sharpsmart system. The four areas are Manufacturing, Transport, Cleaning and Disposal.

Graph 1




2010/11

Table 1

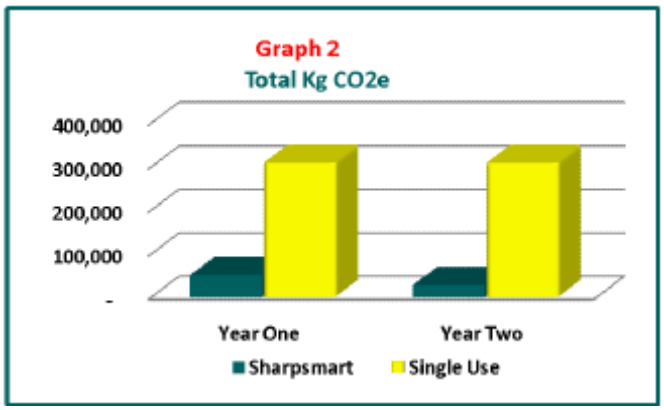
| Kg CO2e Generation Year One | | |
|---|---|---|
| Stage | Sharpsmart | Single Use |
| Manufacturing | 21,067 | 169,615 |
| Transport | 21,765 | 22,362 |
| Cleaning | 7,709 | - |
| Disposal | 11 | 116,600 |
| Total yr 1 | 50,551 | 308,577 |

Projected 2011/12

Table 2

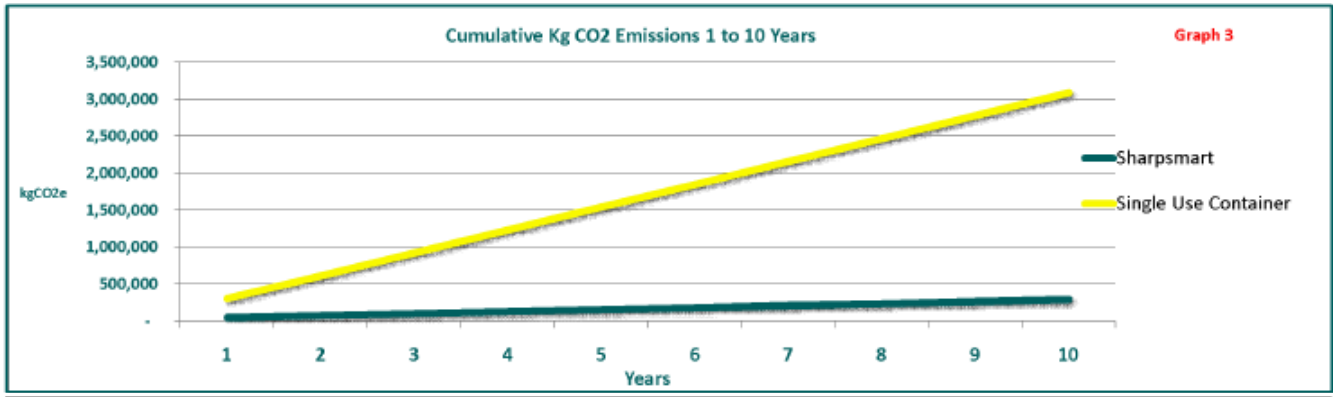
| Kg CO2e Generation Year Two | | |
|---|---|---|
| Stage | Sharpsmart | Single Use |
| Manufacturing | 316 | 169,615 |
| Transport | 19,135 | 22,362 |
| Cleaning | 7,709 | - |
| Disposal | 11 | 116,600 |
| Total yr 2 | 27,171 | 308,577 |

Graph 2 shows $CO_2$ emissions relative to traditional single use containers in the first two years.




(Projected)
Year 1 shows the total $CO^2$ produced in relation to the sharpsmart system which includes manufacturing, transportation, cleaning and disposal. Manufacturing in Year 1 also includes $CO^2$ produced following the installation of the sharpmart system.
Year 2 is the projected $CO^2$ production based upon Year 1 albeit manufacturing in Year 2 is only relating to the maintenance and replacement of damaged units.

Graph 3 shows the cumulative $CO_2$ emissions




| CO2e Cumulative | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sharpsmart | 50,551 | 77,706 | 104,860 | 132,015 | 159,169 | 186,324 | 213,478 | 240,633 | 267,787 | 294,942 |
| Single Use | 308,577 | 617,155 | 925,732 | 1,234,310 | 1,542,887 | 1,851,465 | 2,160,042 | 2,468,619 | 2,777,197 | 3,085,774 |
| Difference CO2e | - 258,026 | - 539,449 | - 820,872 | - 1,102,295 | - 1,383,718 | - 1,665,141 | - 1,946,564 | - 2,227,987 | - 2,509,410 | - 2,790,833 |
| Difference % | -84% | -87% | -89% | -89% | -90% | -90% | -90% | -90% | -90% | -90% |

This system has been a successful development throughout the Trust.

9. KEY OBJECTIVES 2011/12

| **Objectives** | **Targets** |
|---|---|
| Increase recycling at STH. | – Implement a recycling roll out plan for all 5 sites.<br>– Increase recycling by 10% (254 tonnes) in 2011-2012. |
| Reduce costs. | – Implement two pilot areas and a roll out plan for an offensive clinical waste stream. (5% reduction in clinical waste disposal costs.)<br>– Implement a recycling roll out plan.<br>– Reduce expenditure on clinical waste packaging products by 10%.<br>– Increase the scope for cost neutral disposal exercise such as cardboard baling and sustainable furniture disposal. |
| Two stage audit process. | – 50% increase in departments audited. (Increase from 22 to 33 as a minimum.)<br>– Ensure continued compliance is achieved in Pre-acceptance audits with the waste contractor. |
| Training. | – Achieve 100% attendance at Waste Champion training courses.<br>– To inform waste champions/departments of staff non-attendance at waste management updates.<br>– Develop bi-annual waste awareness days. |

10. CONCLUSION

Auditing and staff training have progressed waste management compliance and awareness within the Trust. Reduction in overall waste volumes and $CO_2$ emissions put STH in a strong early position to achieve targets set out by the NHS carbon reduction strategy.

11. RECOMMENDATIONS

- Focus will continue to be given to waste auditing and time spent in departments to give further reassurance and guidance to the staff implementing waste management within the departments.

- Staff training to continue at the elevated level to promote good practice and compliance throughout the trust.

- Recycling initiatives to be implemented as this will benefit all areas of waste management e.g. waste reduction, compliance, environmental targets & financial savings.

R.Green
Waste Manager

K.V.O'Regan
Hotel Services Director

KOR/RG/JT/26.9.11(Final)