



Northacre Resource Recovery Centre

Annual Environmental Report - Contract Year 2 (Nov 2014 - Nov 2015)



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1. Introduction

This Annual Environmental Report (AER) is produced by Hills Waste Solutions (Hills) as required by Schedule 9 of the Waste Management Landfill Diversion Contract (the Contract) entered into between Wiltshire Council and Hills on 26 April 2011. The Contract is for 25 years and allows for 60,000 tonnes of municipal solid waste (MSW) to be treated at the Northacre resource recovery centre (Northacre RRC), located at Stephenson Road, Northacre Industrial Park, Westbury, Wiltshire.

The AER reports on the performance of the Northacre RRC in Contract Year 2 which runs from 11 November 2014 to 10 November 2015.

More information on Northacre RRC can be found on the website www.northacrerrc.co.uk

1.1 Role and relationship of the Council as Waste Disposal Authority (WDA) and Hills as waste management contractor

Wiltshire Council is responsible for the management of MSW, which it collects within the county. Hills is part of The Hills Group, a family owned business that has operated in the Wiltshire area for over 115 years. Hills is an important local employer that directly employs over 400 people of which 266 work in the Waste Solutions division, with additional support from local agencies providing a number of workers across the company.

Hills currently provides the majority of the waste management service to Wiltshire residents on behalf of the Council, including the operation of Northacre RRC.

1.2 Summary of contract purpose and objective

Wiltshire Council has developed a top level policy document 'Energy and Climate Opportunity (ECO) Strategy 2011 - 2020' to take on the challenge of climate change and energy security in Wiltshire.

In the ECO strategy, the Council has made a specific commitment to reduce the amount of MSW sent to landfill.

Three key actions taken to date are:

- The award of the Lakeside Energy from Waste contract to Hills, which commenced in June 2009 and diverts 50,000 tonnes of MSW per annum from landfill.
- Changes to waste and recycling collections, achieving a recycling and reuse rate of 46.4% in Wiltshire in Contract Year 2.
- The award of the Contract to Hills on 26 April 2011 to build the Northacre RRC. The plant was constructed between August 2011 and January 2013. The plant and process underwent a comprehensive commissioning programme that commenced in February 2013 and lasted until November 2013, at which point the plant was deemed to have performed to the relevant specification as certified by AMEC, the Appointed Independent Certifier for Wiltshire Council. The completion of the above, initiated the commencement of the contract between Wiltshire Council and Hills on 11 November 2013 to accept 60,000 tonnes of MSW per year.

To meet its share of the EU Landfill Directive target for 2020, Wiltshire must reduce landfilling of biodegradable MSW to 35% of the tonnage landfilled in 1995.

In order to achieve this target Wiltshire Council has produced a Municipal Waste Management Strategy (MWMS) which is under continual review. The latest version of this strategy is dated 2012. Within this document there are 4 key principles of which principle 3 is concerned with further diversion from landfill and principle 4 with waste treatment capacity.

Wiltshire Council will continue to support measures to reduce municipal waste sent to landfill, where the proposals comply with the waste hierarchy and achieve the aims of the MWMS 2012.

1.3 Purpose of the Annual Environmental Report

Wiltshire Council is accountable to its electorate to show value for services received under the Contract. This AER provides information and reports on the environmental performance of the operations within the direct control of Hills. It shows how Hills has assisted Wiltshire Council to meet its strategic commitments and is available free of charge to the public for information from Hills' websites, www.hills-waste.co.uk and www.northacrerrc.co.uk

1.4 Summary of what is monitored

In order to discharge its obligations under the Project Agreement which forms part of the Contract with Wiltshire Council, Hills carries out a wide range of monitoring to assess the effectiveness of the services provided. These are:

- Waste input levels - to ensure the waste targets are met and to review these with Wiltshire Council.
- Waste composition - to assess that the waste is of the appropriate composition and makeup for the plant design. Any non-conforming waste is communicated to Wiltshire Council and dealt with as per the environmental directives that the plant operates within.
- Landfill performance and fuel production performance - to maximise the amount of material diverted from landfill by either conversion into fuel, loss through drying or removal of recyclates.
- Fuel quality - to ensure that whilst maximising fuel production, quality and contractual targets are met and maintained.
- Moisture loss / drying performance - in order to ensure that as much material as possible is diverted from landfill through bio drying.
- Recyclate performance - to ensure the maximum amount of recyclable material is extracted and sent to merchants for further processing and recovery.
- Air emissions - to ensure air filtration systems work effectively and efficiently and that emission limits are met as set out in the Environmental Permit.

- Plant availability - to ensure both contractual obligations and operating costs are managed within expectation.
- Leachate composition and levels - as part of the internal quality control system along with the duty of care requirements for the transfer of waste.
- Fly management in and around the site - as a requirement of the Quality and Environmental Management Systems together with Environmental Permit obligations.
- Odour levels in and around the site - as a requirement of the Quality and Environmental Management Systems together with Environmental Permit obligations.
- Electricity generation and consumption - to assess and review the energy efficiency of both the plant and installed photovoltaic systems.
- Transport effectiveness and mileage - is measured and analysed in order to ensure the maximum efficiency is achieved from transport movements with regard to time, fuel consumption and payloads.
- Transport routes utilised - checked by random driver surveys in order to verify that the approved HGV routes are adhered to.

1.5 The purpose of monitoring

Hills monitors the process to ensure that as responsible contractors, we are aware of our performance levels in the following key areas:

- Legal compliance
- Environmental impacts
- Contract requirements.

Hills examines the data collected and takes corrective and preventive action as needed. This regular review ensures that we:

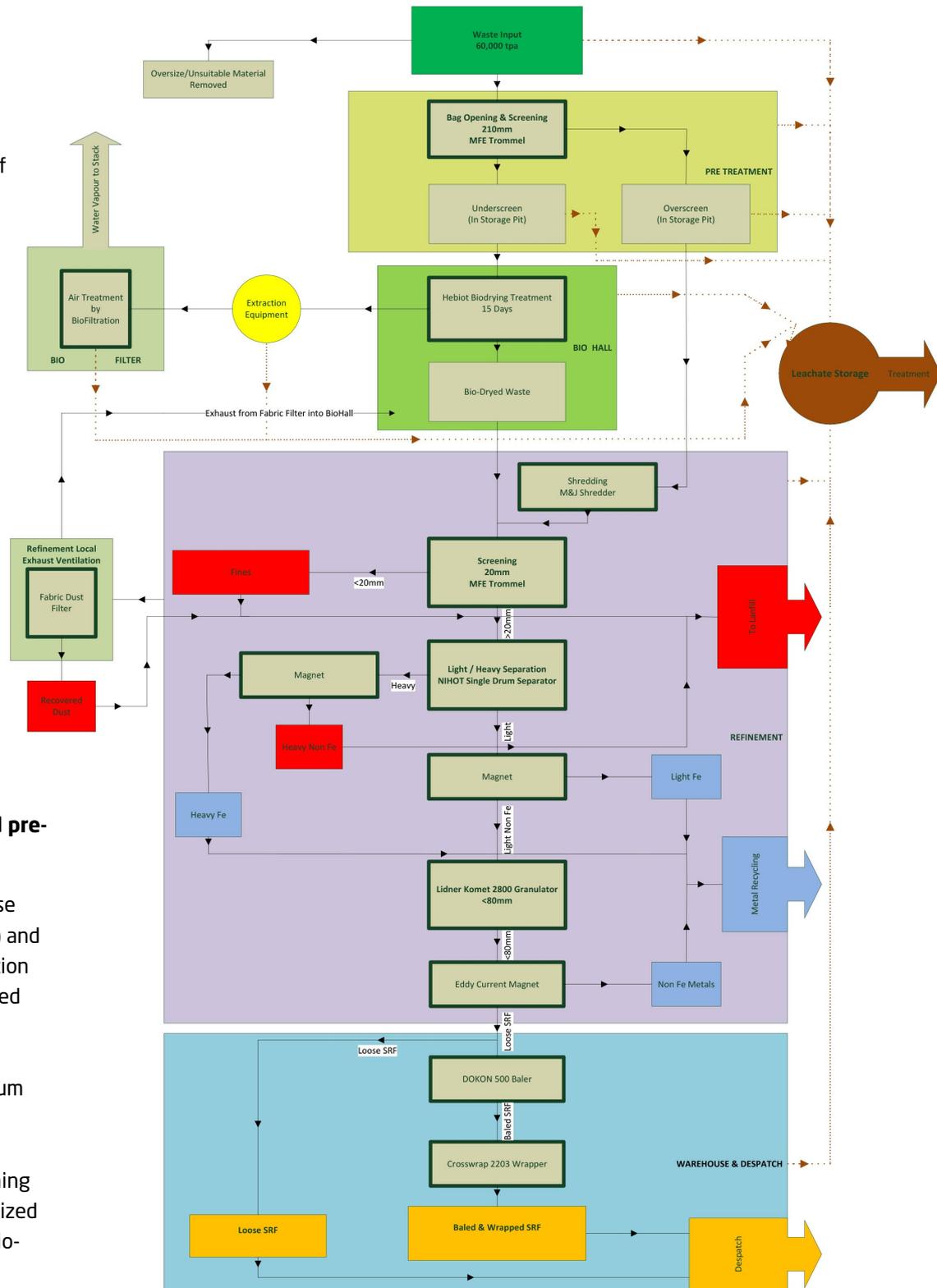
- Maintain standards
- Minimise environmental impacts
- Set and achieve targets
- Demonstrate continual improvement.

2. Waste Management Facilities

2.1 Outline of the plants and processes

Northacre RRC consists of 4 main areas defined in the flow diagram as:

1. **Pre-treatment**
Reception and pre-treatment
2. **Bio-hall**
Bio-stabilisation
3. **Refinement**
Mechanical refining
4. **Warehouse and despatch**
Baling, wrapping and storage



2.1.1 Reception and pre-treatment

MSW is delivered on refuse collection vehicles (RCVs) and deposited into the reception pits. The material is moved from the reception pit by conveyors and automatic cranes then through a drum screener which creates two main waste streams, oversized material (anything over 220mm) and undersized materials, primarily the bio-degradable fraction.

Oversized material is placed in a separate storage bay where it is sent directly to the Solid Recovered Fuel (SRF) refining line. This stream is composed of chemically inactive material (plastic, paper and card) and is not suitable for biological treatment. Undersized material is placed in a separate storage bay before being placed in windrows within the bio-hall by automated cranes.

2.1.2 Bio-Stabilisation

The automated crane moves material from the undersized storage area into the main bio-hall, creating windrows of 4 to 6 metres in height. Air pressure is equalised throughout the bio-hall in a underfloor area called the plenum, and this air circulation assists with the drying process of the material.

Each windrow is managed separately to maximise bio-stabilisation. Air is drawn through the material to promote aerobic decomposition and oxidation of the organic content for a period of up to 15 days. Temperatures within the windrows are monitored and air flows are adjusted in response, to optimise the drying process.

This process dries the waste. Some moisture is required for bio-stabilisation and composting processes in order to continue digestion and water can be re-introduced to aid this through an automatic system.

Negative pressure is maintained in the bio-hall to help contain gas or vapour emissions with a secondary ventilation system that takes odorous air into the bio-filter.

2.1.3 Mechanical Refining

Once the bio-stabilisation phase is completed, the material is removed from the bio-hall and placed into the refining area hopper. Through the refinement area, material which is unsuitable for SRF production is removed using the following equipment:-

- Primary shredder
- Hopper
- Drum screener (20mm mesh)
- Air drum separator
- Secondary shredder
- Magnetic belt
- Eddy current separator
- Conveyors
- Chutes
- Dust extraction system

2.1.4 Baling, Wrapping and Storage

The SRF material generated by the mechanical refining process enters the warehouse for baling and wrapping.

The bales are typically 1.5m long by 1.1m wide and 1m tall and weigh between 0.95 tonnes and 1.5 tonnes depending upon material density.

The SRF, once baled and wrapped, is stored in the warehouse in preparation for loading onto enclosed trailers, destined for Energy from Waste (EfW) facilities.

2.2 Summary of waste inputs and recovery and recycling achieved

	Inputs (t)	Landfill (t)	Recyclate (t)	SRF (t)	Landfill Diversion %	SRF % of inputs	Landfill % of inputs	Recyclate % of inputs
2013/14	53,762	16,882	521	21,327	68.6	39.7	31.4	1
2014/15	60,670	18,971	613	27,496	68.7	45.3	31.3	1
Change	6,908	2,089	92	6,023	0	5	0	0

The table shows the overall performance of Northacre RRC in Contract Year 2 and compares this to Year 1. The performance confirms that 68.7% of waste was diverted from landfill, 45.3% was recovered (SRF) and 1% recycled. The remaining 22.4% is attributed to moisture loss through the drying process, some of which is extracted and the remainder being collected as leachate and exported to a leachate treatment facility.

3. Performance Monitoring

3.1 Targets

3.1.1 This section shall report on Hills' performance by reference to the Contract targets and the Council's Best Value Duty. Please refer to Schedule 20 (Best Value)

Schedule 10 of the Contract states that in Year 2 and each subsequent year, 20,000 tonnes of SRF would be produced and accepted by the SRF Contractor(s). Hills produced and had accepted by the SRF Contractor(s) 27,496 tonnes of SRF thereby exceeding the target by 37.5%.

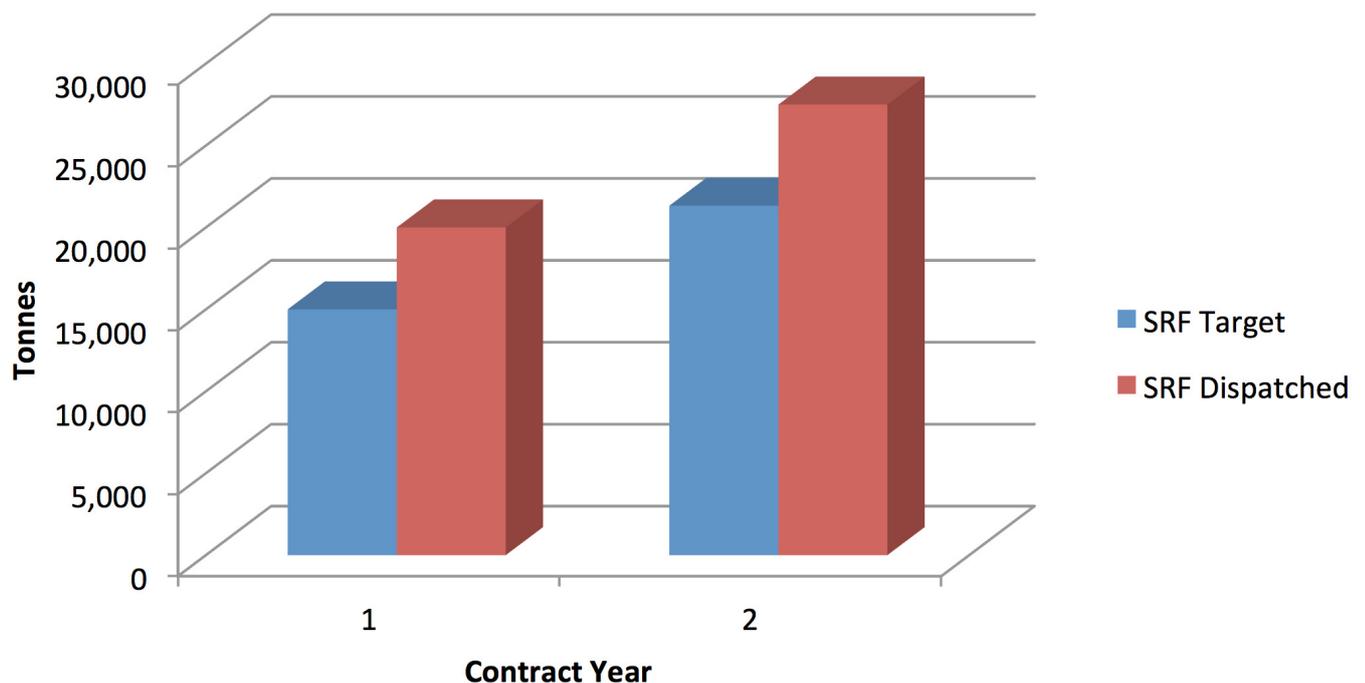
Schedule 20 of the Contract states that Hills shall make arrangements to secure continuous improvement in the way in which the Services are provided, having regard to a combination of economy, efficiency and effectiveness. The Annual Service Report is a key document with respect to providing continuous improvement and shows that the provision of waste into Northacre RRC has improved from Year 1 to Year 2.

Wiltshire Council, together with Hills, continues to actively monitor the routing of collection vehicles to increase vehicle efficiency and deliver the maximum tonnage direct to Northacre RRC, thereby reducing the need to transfer waste. However, a transfer facility at Lower Compton assists in ensuring that contracted volumes are met.

3.1.2 Hills shall compare their performance with the Annual SRF Target as set out in Schedule 10 (Payment and Performance)

As can be seen from the below graph, Northacre RRC exceeded the Year 2 contract target of 20,000 tonnes with respect to SRF production.

The main contract for accepting SRF is with Remondis GMVA who were contracted to accept a minimum of 19,500 tonnes of SRF in Contract Year 2.



3.2 Monitoring Diversion

3.2.1 Describe what is considered as diversion and how performance is assessed against Contract targets

Landfill diversion consists of the waste that would have been deposited in landfill which has now been diverted to other end uses through reuse, recovery, recycling, and alternative forms of treatment.

Northacre RRC achieves landfill diversion in the following ways:

- The drying and stabilisation of the waste in the bio-hall removes the moisture content of the waste and this is exhausted out of the stack as water vapour or collected as leachate.
- Recyclates are removed from the waste stream during the mechanical refining process and these are sent to merchants for recycling.
- SRF is the main product from the site and this is currently utilised to generate electricity at EfW facilities that have achieved R1 status for energy efficiency meaning that they can be officially classed as 'recovery' rather than disposal facilities.

The process produces some by-products which currently have to be sent to landfill. These are produced during the mechanical refinement process and consist of:

- Fines (under 20mm)
- Heavies not including recyclables.

The performance of the above is measured on a daily basis and is reviewed between Hills and Wiltshire Council at monthly and quarterly contract performance review meetings.

3.2.2 Describe the means employed to achieve the Annual SRF Target

Wiltshire Council is contracted to deliver 60,000 tonnes of MSW to Northacre RRC. A two shift pattern, from 06:00 - 14:30 and from 13:30 - 22:00 is utilised to ensure the plant operates to an efficient level maximising the throughput of MSW to achieve the targeted SRF production.

Northacre RRC also employs a dedicated maintenance team to service and maintain the equipment to the manufacturers' recommended specification to ensure that unplanned downtime is kept to a minimum.

There are also two (five day) planned shutdown periods that are permitted under the Contract which are further utilised to maintain plant and equipment.

Significant and appropriate spare parts are kept on site and Hills has maintained a good working relationship with local, regional, national and international suppliers of goods and services to ensure a comprehensive network of suppliers can be called upon.

Once SRF is produced it is crucial to have contracts with off-takers to ensure the SRF output is used at EfW plants. For Contract Year 2, Hills had an agreement in place with Remondis GMVA to take 19,500 tonnes of SRF and an additional contract to cover quantities above this with an alternative supplier, thereby ensuring compliance with the annual target. Hills continues to negotiate with other off-takers with respect to contracting additional tonnages of SRF.

3.2.3 Report the diversion rate achieved

The landfill diversion rate for Contract Year 2 is 68.7% as shown in section 2.2; a slight improvement on the previous year.

3.2.4 Evaluate the means of monitoring the Processing operations, including the amount of Acceptable Refuse actually processed, and the Redundant Residue left at the end

Hills is certified to both the ISO 9001 and ISO 14001 standard which ensures we operate an extensive and fully auditable Quality and Environmental Management Systems. Within these systems there are detailed procedures to ensure that the process is closely monitored.

All MSW received and SRF exported from the facility is weighed by a fully serviced and calibrated weighbridge. The input and export tonnages (SRF, recyclate and redundant residue) are reported on a monthly basis.

The process is ultimately evaluated by the success against the contracted SRF export target which Hills has exceeded in Contract Year 2.

3.3 Monitoring SRF

3.3.1 Describe what is considered as SRF and how performance is assessed against Contract targets

SRF is specified in Schedule 1 of the Supply Agreement between Hills and Remondis dated 26th April 2011. Under the contract between the Wiltshire Council and Hills, SRF is defined as:

'Any residue of Contract Waste Processed under this Contract being biotreated waste which is solid recovered fuel.'

Routine testing of SRF material is carried out in accordance with Hills' quality procedures to ensure compliance with the specification.

The performance is measured on a daily basis and is reviewed between Hills and Wiltshire Council at the monthly and quarterly contract performance review meetings.

3.3.2 Describe means employed to monitor performance

See section 3.3.1

3.3.3 Report the SRF produced

See section 3.3.1

3.3.3.1 Amount of Acceptable Refuse (in tonnes and also expressed as a percentage of Acceptable Refuse) converted to SRF

See section 2.2

3.3.3.2 The amount of energy generated e.g. converted to electricity and / or heat (if any)

For Contract Year 2, 27,350 tonnes of SRF was produced at an average calorific value of 16.93 MJ/kg. This equates to

- Total energy of 463,035,500 MJ
- 128,620 MWh, enough energy to supply 26,250 homes with electricity for a year*

*The conversion factor is sourced from the Renewable Energy Association. On average, one house in the UK consumes 4.9 MWh of electricity per year.

3.3.3.3 Amount of SRF diverted from Landfill (in tonnes and also expressed as a percentage of Acceptable Refuse)

See section 2.2

3.3.3.4 Amount of waste landfilled (in tonnes, and also expressed as a percentage of Acceptable Refuse)

See section 2.2

3.4 Monitoring Recycling

3.4.1 Describe what is considered as Recycling and how performance is assessed

Under the Contract recyclable materials are defined as both ferrous metals and aluminium, both of which are delivered to an end market.

The performance is measured on a daily basis and is reviewed between Hills and Wiltshire Council at the monthly and quarterly contract performance review meetings.

3.4.2 Describe the means employed to Recycle Acceptable Refuse

The ferrous and non-ferrous recyclate recovered from the process is recycled at a number of permitted re-processors including Shanleys.

3.4.3 Report the amount of Recycling (in tonnes and expressed as a percentage of Acceptable Refuse) regardless of whether the Recycling related to Recyclable Materials or otherwise

See section 2.2

3.4.4 Report on the diversion from Landfill of materials, with particular reference to SRF

Figures for landfill diversion are shown in section 2.2. The table confirms that 68.7% of waste was diverted from landfill in Contract Year 2. 45.3% of waste inputs were converted to SRF. The remaining 23.4% which was diverted from landfill was made up of recyclate (1%) and moisture loss through the drying process (22.4%).

4. Effectiveness of Process

4.1 Financial

4.1.1 Evaluating the End Markets for Recycled Materials, in terms of supply, demand and relative value of products

One of the purposes of the mechanical refinement process is to segregate any potential recyclables from the product stream and these are as follows:

- **Heavy Metals** - This is sent to a merchant for further reprocessing as the level of contamination is too great to give the material any residual value. In future Hills aims to improve the method of collection of this material to improve its quality and thereby create a value that can be shared with Wiltshire Council.
- **Light Metals** - Due to the nature and position of this extraction, the primary purpose of this is to remove any fragments of metal before the Lidner Granulator / Secondary Shredder. As the material is over 65% plastics and bags, it is too heavily contaminated to have a value. Hills initially trialled sending this to a number of recycling companies who were looking to charge a re-processing fee of such a level as to make this uneconomical. Therefore this material stream is currently sent to landfill until such a time as it can be economically processed.
- **Shredded Non-Ferrous Metals** - A number of modifications have been carried out to improve the cleanliness of the extracted non-ferrous metal (aluminium cans) and this has been met with some limited success. Due to the small volumes and contamination issues, we are looking to reprocess/clean this material at another Hills facility prior to selling the recyclate.

4.1.2 Optimising the effectiveness of production or processing to maximise financial returns

See section 4.1.1

4.1.3 Income from SRF (if any)

No income is generated from SRF export.

4.1.4 Income from electricity and / or heat generation (if any)

Hills does not receive any income from the electricity generated by SRF output.

In August 2014, Hills worked with Wiltshire Council to install 1,248 photovoltaic (PV) solar panels on the roof of Northacre RRC.



The (PV) solar panels will generate over 280,500 kWh of electricity each year, the equivalent to the annual energy use of 85 homes, all of which will be consumed on site at Northacre RRC, powering the mechanical biological treatment process that creates the SRF. Over a 20 year period it is estimated that the PV solar panels will save Wiltshire Council over £1.5 million, and avoid CO₂ emissions of over 2,720 tonnes. Wiltshire Council is receiving a Feed-in Tariff (FIT) payment.

4.1.5 Income from Recycling

613 tonnes of material was recycled during Contract Year 2. No income was received for this material.

4.2 Environmental

4.2.1 The measures taken by the Contractor to minimise (at the risk and cost of the Contractor) any negative environmental impacts from the facility and the carrying out of the Works and Services

Northacre RRC is operated under Environmental Permit Number EPR/LP3491EE issued and regulated by the Environment Agency (EA). The permit recognises what environmental effects may impact on the local environment and sets conditions to ensure that the impacts are controlled to acceptable levels.

The environmental impacts of the facility are managed through Hills' ISO 14001 certified Environmental Management System (EMS), which includes the Northacre RRC plant. Hills has carried out a thorough environmental risk assessment of the processes taking place at Northacre RRC, to identify any possible impacts and rated the residual risk with current engineering controls and procedures in place. Where the risk is considered too high, and beneficial changes have been identified, Hills has made improvements.

A good example of this was the potential risk of elevated fly levels which could be generated by the plant. Hills recognised at the design stage, that flies were a potential issue, and control measures were incorporated into the building design. Hills identified that the controls were not as effective as expected, so a fly management plan was developed to deal with the issue. This management plan was subsequently approved by the EA. The plan includes the use of:

- In-situ larvicide application
- Insecticide fogging
- Improved building sealing
- Fly population monitoring

By continuing to use and improve these actions, the number of recorded justified fly complaints remains low.

Hills has a strict contractor approval process in place to ensure that the contractor is competent to carry out works at Northacre RRC. Contractors have to provide evidence to prove their competence before they are allowed to start work and agree to follow Hills' site procedures. This process ensures that risks to people and the environment as a result of contractor activities on site are minimised.

As part of Hills' Quality Management System (QMS) an approved access route to and from Northacre RRC has been produced, which is provided to all HGV drivers as part of their induction to site.

4.2.2 The emission controls in place to demonstrate compliance with the Environmental Permit and all Legislation, including:

Legal requirements are identified and tabulated in Hills' legislation register, which forms part of the EMS. This document identifies the requirements of all legislation, what process they apply to and how those requirements will be met.

4.2.2.1 Emission levels from the facility

Emissions to air from the Northacre RRC are proportionately controlled according to the risk of causing pollution. The bio-hall is the most odour generating area of the site and air from this area is extracted and passed through a bio-filter to reduce any dust, odour, bio-aerosols or potentially harmful substances below the limits set in the EA permit.

Odour and dust emissions are controlled in the refinement area of the facility through the fabric dust filter.

Surface water from the road is collected, passed through interceptors and discharged to a watercourse. Emissions to this outlet could occur if a polluting liquid contaminated the site drainage. The major liquid pollutants are leachate and fuel in the storage tank and site vehicles. Leachate is stored in a sealed system and drains to a tank, which is periodically tested. Bulk fuel is stored in a bunded tank within a building and protected from accidental damage by steel barriers. Procedures are in place to control the transfer of these liquids, which include actions to take following a leak or spill. Equipment identified as required under these procedures such as spill kits are also available on site to limit potential effects.

Hills complies with the Ozone Depleting Substances (ODS) (Qualification) Regulations 2006 and ensures that only qualified persons, through the contractor approval process, work on the recovery, recycling, reclamation or destruction of controlled substances. Hills has identified all equipment containing ODS and minimises leaks through regular maintenance and monitoring.

All wastes and other materials are normally stored within the building to reduce the risk of fugitive emissions of odour and litter.

Hills undertakes environmental monitoring to make sure that processes, plant and people are performing to the required standards and to detect any changes. For example, there is a risk of pollution from a diesel spill on site. Hills has developed procedures and checklists which require staff to check on a regular basis that plant and equipment is not leaking and spill control equipment is available. If defects are identified, then these are communicated to plant supervisors for action. This whole process is subject to audit as part of the EMS.

Despite precautions, systems can fail, and accidents can occur and Hills needs to be ready to deal with the consequences. Hills has developed comprehensive emergency procedures, which include the action to take in particular circumstances, location of hazards on-site, drains and watercourses, contact numbers and a command / control hierarchy. Staff regularly practice dealing with emergencies such as spills and lessons learnt are fed back into procedures.

The limits for emissions from the bio-filter to air are given in schedule 3, table S3.1 of the EA Permit and these, as in Year 1, were not exceeded. There are no other numerical limits in the licence for any point source emission.

The likelihood of emissions to air, water and land has been further assessed in the Environmental Accident Assessment and Management Plan. This plan is periodically reviewed and appropriate controls deployed where any deficiencies are identified.

4.2.2.2 Report on any accidental releases of Hazardous Materials

There were no accidental releases of hazardous materials in the reporting period.

4.2.2.3 Report on the number of breaches of controls in the last Year, including: -

(a) The number of convictions for freshwater pollution;

There were no convictions for freshwater pollution.

(b) The number of convictions for other emissions

Hills has not been convicted of any breaches of controls at Northacre RRC. Legal compliance is a top priority for Hills and the site conforms to legal requirements.

The EA carries out audits and inspections of the process. The findings are recorded on CAR1 forms and addressed through Hills' management system. Each inspection may generate a CCS score; the higher the score, the poorer the performance and an increased likelihood of prosecution. Hills was inspected three times during Contract Year 2 and no breaches were identified or CCS scores received.

(c) The number and geographical origin of complaints received regarding the facility

A total of 24 complaints were received in Contract Year 2. Two of these related to odour and the remainder related to flies. Nineteen of the 22 fly complaints arose over a 4 day period between 17 and 20 June 2015. Fly management plans were being strictly followed at the time.

All complaints received are investigated thoroughly and in relation to odour it was found that Northacre RRC was not the source of the odour.

(d) Power consumption on site

For the period 1 November 2014 to 31 October 2015 the recorded power consumption for Northacre RRC was 2,617 MWh (original assumption of 2,500 - 3,000 MWh per annum). This equates to a slight reduction of 2% compared to Year 1.

4.2.3 Measures taken to deal with complaints

Northacre RRC is operated under an Environmental Management System (EMS) independently certified to ISO 14001, and there is a comprehensive complaint management procedure in place. Hills is committed to providing a high quality, accessible and responsive service to businesses and the community. Hills takes complaints seriously and gives training to all employees on how to deal with complaints.

Complaints can be received from a variety of sources including:

- In person
- By telephone or text
- By letter or e-mail
- From web page referral.

The details of the complainant and the issues are recorded in the complaint register and passed on to the responsible manager for action. This includes investigating the issue, correcting the problem, stopping it happening again and providing feedback to the complainant. The status and number of complaints is discussed at monthly management meetings. Hills holds liaison meetings with elected local representatives which give the opportunity to discuss issues face to face.

Waste is an emotive issue and unfortunately, there may be some occasions when a large number of complaints may be generated concerning Hills' activities, whether justified or not. Hills has a dedicated communications team, who can help in these circumstances and Hills is proud of our record in working with Wiltshire Council, the Environment Agency and other agencies to resolve issues.

4.2.4 Fuel efficiency

All fixed and mobile plant using fuel are maintained and serviced in accordance with manufacturer's recommendations using qualified technicians, to ensure that their fuel efficiency is optimised. After the service, Hills is given a record of parts replaced and the actions carried out. Hills maintains records of fuel consumption.

Plant	Description	Service Agreement	Service Provider
Manitou MLT634T	Telehandler with multiple attachments	Service 500 and 1000 hr	T H White, Devizes
Manitou MI25D	Forklift	Service 500 and 1000 hr	T H White, Devizes
Case MXN190	Tractor	600 and 1200 hr	T H White, Devizes
Mitsubishi L200 Trojan	Pickup truck	9,000 miles	Mitsubishi

4.2.5 Amount (in tonnes) of processed residue and recyclable materials transported by road, rail and water

Material	Receptor & Type	Destination	Method	Quantity (te)
SRF/RDF	GMVA - EfW	Germany	Curtainside -Road, Ferry & Road	18,728
SRF/RDF	Andusia - EfW	Germany	Curtainside -Road, Ferry & Road	7,091
SRF/RDF	N&P - EfW	Germany	Curtainside -Road, Ferry & Road	1,677
Refinement Fines	Hills - Landfill	Lower Compton, Wiltshire	R040 Skips - Road	11,047
Heavies non-metals	Hills - Landfill	Lower Compton, Wiltshire	R040 Skips - Road	7,924
Metals	Shanleys - Recycling Merchant	Trowbridge, Wiltshire	R040 Skips - Road	613

4.2.6 Emissions of CO₂ from the Contractor's own transportation (if any) used in the transportation of SRF, Redundant Residue, Unacceptable Refuse or Recyclable Materials from the Facility

Hills' own transport is only used to carry redundant residue, consisting largely of fines and heavies from Northacre RRC to Lower Compton landfill. All other transport of SRF and recyclable materials is made by other waste carriers. The table below details emissions of CO₂ from Hills' vehicles.

Distance travelled and carbon dioxide emitted from Hills' vehicles			
Number of Collections	Distance travelled, miles	Biodiesel used, litres	Carbon Dioxide equivalent, tonnes*
2,321	44,563	37,664	97

*Scope 1 emissions, based on DEFRA conversion factors 2012 for average biodiesel blend

In the Contract Year 2, 321 collections of redundant residue were made by Hills vehicles. On average 75% of movements are made by dual bin lorries and the remainder by single bin lorries.

4.2.7 Total distance travelled by the Contractor's own transportation (if any) used in the transportation of SRF, Redundant Residue, Unacceptable Refuse or Recyclable Materials from the Facility

Hills' own transport is only used to carry redundant residue, consisting largely of fines and heavies from Northacre RRC to Lower Compton landfill. All other transport of SRF and recyclable materials is made by other waste carriers. The data is provided in the table in section 4.2.6.

4.2.8 The volume of waste produced by the Contractor

The table below shows the tonnages of waste produced at Northacre RRC.

Waste types	Quantity (t)
Dry Mixed Recyclables	0.780
General waste	6
Cardboard	1.2
Hazardous waste	0.028
Total	8.008

4.2.9 Amount in tonnes and percentage of Processed Residue and Recyclable Materials being dealt with by each stage of the waste hierarchy

The table below shows both tonnage and percentage of processed residue and recyclable material being dealt with by each stage of the waste hierarchy.

Waste Hierarchy Stage	Tonnage	Percentage
Reduce	0	0%
Reuse	0	0%
Recyclable - Ferrous and Non-ferrous	616	1.02%
Recovery - SRF	27,496	45.32%
Disposal - SRF (Landfill)	0	0%
Disposal - Fines and heavies (Landfill)	18,971	31.27%
Disposal - Leachate	4,920	8.11%
Disposal - Moisture loss	8,670	14.29%
Total	60,673	100%

4.2.10 Progress towards ISO 14001

Hills' management systems in place at Northacre RRC facility were externally audited by SGS against the internationally recognised ISO standards for environment, quality and health and safety. Hills achieved certification of the systems to ISO 9001 Quality; ISO 14001 Environmental; and OHSAS 18001 Health & Safety in July 2014 and have maintained these standards through Contract Year 2.

In summary, this means that Hills has:

- Demonstrated compliance with legislation
- Prevented pollution
- Identified and controlled risks to people and the environment
- Provided a reliable, quality service to our customers
- Deployed external and internal audits
- Used competent staff
- Demonstrated continual improvement
- Put in place procedures to deal with emergencies and abnormal operating conditions.

5. Wider Environmental Assessment

5.1 Financial

5.1.1 Relative cost effectiveness of options

Hills has continued to pursue the development of a renewable energy plant adjacent to Northacre RRC to remove the need to export SRF.

See 5.2.1.2 for further detail.

5.2 Technical

5.2.1 Discussion of how (if at all) the Contractor has contributed to and/or performed in:

5.2.1.1 Promoting sustainable Landfill practices

All the residual waste generated by Northacre RRC is taken to Hills' landfill at Lower Compton.

Hills' landfill sites are designed to collect landfill gas which is processed to generate energy that is sold back to the National Grid. In the period 1 May 2014 to 30 April 2015, the Chapel Farm and Lower Compton landfills generated 58,095 MWh of electricity which is enough to supply electricity to over 11,860 homes.*

*The conversion factor is sourced from the Renewable Energy Association. On average, one house in the UK consumes 4.9 MWh of electricity per year.

At Chapel Farm Hills continues with restoration of the landfill to a bio-diverse habitat suitable for bees, insects, small mammals, ground nesting birds and reptiles. Now well into its second phase, the hay meadows have established themselves around log piles for invertebrates, and hedgerows provide wildlife corridors and pollen for bees.



5.2.1.2 Developing & deployment of waste management technologies which reduce environmental impact of waste

Principle 3.4 from Wiltshire Council's MWMS 2012 states that the Council will promote local use of the solid recovered fuel manufactured at the Northacre RRC plant.

Northacre Renewable Energy Limited (NRE) is a Special Purpose Vehicle (SPV) company formed by The Hills Group working with technology providers and funders, for the purpose of constructing a renewable energy plant using advanced thermal treatment to generate power and potentially heat on land adjacent to the Northacre RRC.

The centre will convert Solid Recovered Fuel (SRF) from the Northacre RRC and commercial and industrial waste destined for landfill into a syngas which will be used on site to generate around 22 megawatts of renewable power per annum. A substation will be constructed on site to enable the electricity produced to be exported to the National Grid.

It is hoped that NRE will also be able to provide electricity and possibly heat to other businesses on the Northacre Industrial Park. The proposed development will be a major commitment to sustainable waste management.

In line with National Planning Policy Framework 2012, the Localism Act 2011, and Wiltshire Council's Statement of Community Involvement, 2010 (SCI), Northacre Renewable Energy carried out 8-weeks of pre-application consultation with local stakeholders from 13 October to 5 December 2014 including a public exhibition on 4 November 2014 at Northacre RRC before submitting its planning application. This application was granted in September 2015.

As part of the ongoing environmental management of Northacre RRC, Hills is continually developing practices to improve our environmental performance. One area for improvement Hills has identified is that of an on-site leachate plant to treat leachate that is currently exported either to a Hills or third party treatment facility. Development of this project continues and Hills will assess the financial viability of installing a treatment facility at Northacre RRC to reduce transport costs and the impact on the environment.



5.2.1.3 Encouraging research into the recyclables market

Hills continually reviews options for recycling our waste including the recycling of fines that currently go to landfill.

5.2.1.4 Establishing markets for SRF

Hills looks to develop relationships with brokers to establish a number of potential off-takers of SRF. SRF is currently being exported to continental Europe for energy recovery. As stated in section 5.2.1.2 Hills is assessing the viability of building a renewable energy plant at Westbury thereby establishing a local market for SRF produced at Northacre RRC.

5.3 Environmental

5.3.1 Discussion of how (if at all) the Contractor has contributed to and performed in:

5.3.1.1 Reducing environmental impacts

Hills is committed to reducing any environmental impacts associated with its activities. Northacre RRC is operated under an Environmental Management System (EMS) and is independently certified to ISO 14001.

Towards the end of Contract Year 1, an ultra-low volume (ULV) insecticide fogging system was installed, which now forms an integral part of the sites' fly management plan. This fogging system is used daily and is maintained by Hills staff. Total Pest Control continues to provide an additional fogging service based on weather conditions and fly activity.

The fly management plan in general, continues to minimise the risk of flies leaving the processing building and is updated when improvements are made.

Rain water falling on the facility roof is collected and stored for use on site. This reduces the quantity of water required to be purchased from the local water supplier.

Where possible Hills use local contractors and suppliers to further reduce any impact on the environment.

5.3.1.2 Securing sustainable transport of Waste: rail, water, "sustainable" fuels

Currently all waste is carried by road to a range of appropriate facilities. Recyclables and residual waste are transported to local facilities by road, which remains the most suitable option. With regard to exporting SRF, Hills is assessing the viability of building a renewable energy plant at Westbury therefore establishing a local market for SRF and reducing environmental impact.

5.3.1.3 Reducing lorry numbers and lorry miles

Currently all waste is carried by road to a range of appropriate facilities. Recyclables and residual waste are transported to local facilities by road, which remains the most suitable option. A trial was undertaken to supply a UK facility with SRF, however this was found to be not economically viable. Hills is assessing the viability of building a renewable energy plant at Westbury therefore establishing a local market for SRF and reducing environmental impact.

5.3.1.4 Promoting resource conservation within the company

The Hills Group head office at County Park, Swindon is benefitting from the installation of a 37.75kWp PV solar panel system which will pay for itself via feed-in-tariff payments and reduced electricity bills within six years. In the first year of operation it was estimated that the PV system from Southern Solar would produce 34,466 kWh of electricity and provide an equivalent saving of 18,233kg of CO₂. In fact it produced 38,000 kWh of electricity.

5.3.1.5 Promoting waste management practices which minimise the risks of immediate and future environmental pollution and harm to human health

In line with good practice and efficiency, Northacre RRC has replaced the need to landfill up to 60,000 tonnes of MSW per annum. All waste operations are carefully monitored and managed within a purpose built facility. This facility has minimised both immediate and long term potential environmental impacts and significantly reduced the legacy of landfill operations. Hills is amongst the pioneers of operating mechanical biological treatment technology in the United Kingdom.

5.3.1.6 Securing achievement of waste hierarchy objectives

For Contract Year 2, Hills has diverted 41,702 tonnes of MSW from landfill. This is calculated from the amount of waste accepted at Northacre RRC minus the bio-stabilised residue that is landfilled at the end of the process. Through the development of Northacre RRC, Hills has moved significant quantities of waste up the waste hierarchy (see table in section 4.2.9).

Hills measures the amount of waste produced throughout this process and will continue to review the options available to process waste that is currently going to landfill in order to move it up the waste hierarchy.

6. Other Environmental and Social Benefits Assessment

6.1 Discussion of how (if at all) the Contractor has contributed to wider objectives

6.1.1 Community

A liaison committee was formed in 2012 to keep local residents informed on construction progress and subsequent operational activities at the Northacre RRC. The committee is made up of representatives of Hills Waste Solutions, local parish councils, Westbury Town Council, Wiltshire Council and neighbouring businesses. Minutes of all meetings are published at www.northacrerrc.co.uk

Hills has actively participated in a number of Westbury Area Board meetings where they have been able to report on and answer residents' questions in relation to the Northacre RRC together with proposals for a renewable energy centre to be built alongside the Northacre RRC.

6.1.2 Education

A number of organisations and community groups have undertaken a tour of the Northacre RRC to learn more about how it works. These include:

- 10 March 2015 - 14 members from the University of the 3rd Age visited the site for a presentation and tour.
- 5 June 2015 - around 10 employees of ULN (the nearby cheese factory) visited for a tour and presentation as part of their environmental week.
- 23 June 2015 - members of the Wiltshire Wildlife Trust visited the site for a presentation and tour.
- 11 August 2015 - a number of councillors and members of Wiltshire Council visited the site for a presentation and tour.

- 25 November 2015 - around 20 A-Level students and staff from a school in the Forest of Dean attended site for a tour and presentation. The students were studying Environmental Science, Physics and Geography.

6.1.3 Research/promotion of markets for Recycled products and the amounts spent of such research/promotion

Nothing to report.

6.1.4 Amount spent on community projects

In 2014/15 Hills distributed more than £630,000 to community and environmental projects in Wiltshire through the Landfill Communities Fund. These ranged from local sports facilities, to nature reserves, community centres and children's play areas. Specific to Westbury, the Laverton Institute received a grant from this fund to install digital screens and display boards within the building. Westbury Cricket Club received a grant to install a new LED electronic scoreboard.



Above: Laverton Institute receives grant from Hills

Hills has continued its support for both the Westbury Rugby Club and the Westbury Music and Arts Festival through direct funding and sponsorship agreements.



Above: Hills sponsors the Westbury Rugby club

The Hills Group was once again the main sponsor of the annual Campaign to Protect Rural England (CPRE) Wiltshire Best Kept Village Competition which encourages team working within communities and promotes the preservation of village life in the county.

Below: Hills sponsors the annual CPRE Wiltshire Best Kept Village competition





Above: Hills has supported the Wiltshire Wildlife Trust for over 25 years

6.1.5 Amount spent on local environmental projects

Hills has committed to providing annual funding to the Wiltshire Wildlife Trust. This unique 25 year partnership has seen the Trust benefit from almost £7 million of funding which has been used to purchase special wildlife sites, facilitate public enjoyment and appreciation of the natural environment and increase the knowledge and understanding of the natural world among children.

6.1.6 Number of schools involved in projects (including the number of children's visits)

Nothing to report.

6.1.7 Number of jobs created for local people

Northacre RRC directly employs 18 staff and in addition supports the local community by preferring local businesses as suppliers.



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