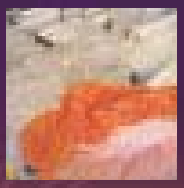
SEPA
Scottish Environment
Protection Agency

Waste Data Digest | 2001

Contents



Introduction

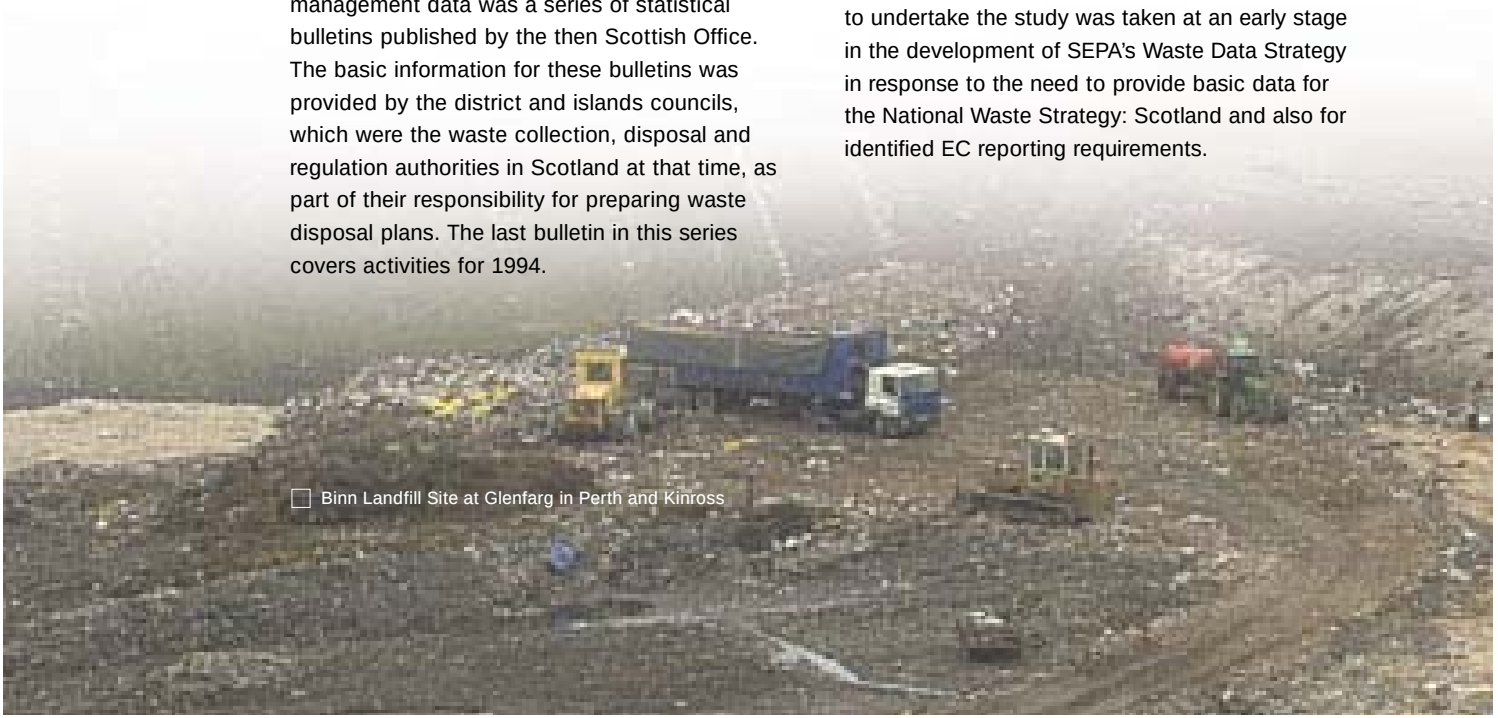
SEPA is committed to sound sustainable waste management practices throughout Scotland. To facilitate this, comprehensive data on waste arisings and disposals and on the network of treatment and disposal facilities across Scotland are needed. Regulatory activity, policy development and monitoring the impact of policy changes all require reliable data. Information on waste management activities is also an integral part of the development and implementation of the statutory requirements imposed on SEPA by the National Waste Strategy for Scotland.

Before SEPA became responsible for waste regulation in April 1996, the main source of waste management data was a series of statistical bulletins published by the then Scottish Office. The basic information for these bulletins was provided by the district and islands councils, which were the waste collection, disposal and regulation authorities in Scottish at that time, as part of their responsibility for preparing waste disposal plans. The last bulletin in this series covers activities for 1994.

On 1 April 1996 SEPA, as the waste regulation authority, became responsible for preparing a National Waste Strategy for Scotland. SEPA's National Waste Strategy: Scotland was published and adopted by Ministers in December 1999. It is the means by which the waste management planning requirements of the European Commission (EC) Waste Framework Directive (75/442/EEC as amended by Directive 91/156/EEC) are implemented in Scotland. The National Waste Strategy requires information on the type, quantity and origin of waste that is to be recovered or disposed of. The Strategy and this document fulfil the waste management planning requirements in the Directive and SEPA's other data needs.

In Scotland the local authorities are responsible, through their planning functions, for providing an adequate supply of land for the network of suitable disposal sites or installations required by the Waste Framework Directive.

This publication identifies the licensed waste management facilities in Scotland in 1997 and 1998. It also presents data taken largely from a one-off study by ERM Consultants, commissioned by SEPA and the Scottish Executive. The decision to undertake the study was taken at an early stage in the development of SEPA's Waste Data Strategy in response to the need to provide basic data for the National Waste Strategy: Scotland and also for identified EC reporting requirements.



Binn Landfill Site at Glenfarg in Perth and Kinross

The ERM study included, among other things, surveys of licensed landfill facilities and local authority waste management activities. Work was also undertaken to establish baseline data on various waste streams to be reported to the EC, some of which was derived from UK information.

Since this study SEPA has worked with local authorities to supplement and verify the reported data for 1998.

At the time the study was being carried out, SEPA also considered undertaking a sample survey of commercial and industrial waste producers to establish the size of these waste streams. However, SEPA concluded that this would be a major and costly task, which could not be justified. Experience elsewhere in the UK had also suggested that extrapolating sample results to give total arisings is not straightforward. To complement the disposal and recovery data SEPA also identified, while developing the Strategy, 13 priority waste streams which will be studied in more detail. These have been chosen and prioritised because of their volume, hazardous nature, potential for recycling or their potential to create an economic benefit.

In common with most other organisations seeking to establish accurate data on waste arisings, SEPA has encountered problems in establishing robust sources of data. Producers of waste are not required to keep records of the waste they produce and such information they have is not always available in a usable form. Information on types and quantities of waste sent for recovery or disposal may be available from the duty of care transfer notes which producers must complete. However, the descriptions are variable and the large number of notes produced means that data capture would have to be by sampling and extrapolating. Information on special waste can be taken from special waste consignment notes, but again there are problems in tracking the waste through multiple handling at transfer stations.

Where primary data were not available, secondary sources of data were used and Scottish figures were extracted from UK information where necessary. Data are reported, as far as possible, for 1997 and 1998. When information is only available, or is more reliable, for one of these years then only that year is reported. SEPA recognises that industry organisations are often best placed to provide information on the management of the waste streams produced by their members and will, where appropriate, use them to supplement information reported.

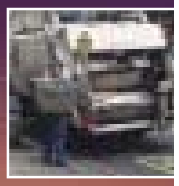
The information in this document mainly covers controlled waste in Scotland. This means waste defined in the national legislation, which implements the Waste Framework Directive. Broadly speaking, it means household, industrial and commercial waste or any such waste. It does not include radioactive waste or explosives which are the subject of separate legislation. It does, however, include agricultural wastes. These are not currently classed as controlled waste, but the government intends to bring them under this definition in the future.

SEPA is implementing a Waste Data Strategy to provide accurate and up-to-date waste management data in a consistent and comprehensive national format. The Waste Data Strategy will collect waste management data from licensed waste management facilities. Data on specific activities that are registered exempt from waste management licensing controls will be collected in an annual voluntary survey. Local authorities will be surveyed annually to determine their waste arisings and waste management activities. Data collection on waste arisings, through the identified Priority Waste Stream Projects, will also form part of SEPA's data strategy. Ad hoc industry trends surveys will also be considered as part of ongoing policy development work.

This publication is the first in a series of annual Waste Data Digests which will report routinely collected data. SEPA will separately publish output from the Priority Waste Stream Projects and any industry trend surveys.

Waste Arisings





Local Authority Waste Arisings

Controlled Waste Collected by Local Authorities

The figures in Table 1 show the various categories of controlled waste reported as collected by local authorities in Scotland in 1998. These figures are based on data provided by all local authorities in Scotland. Corresponding figures for 1997 are given in Annex 1, although not all local authorities provided returns for that year.

Many local authorities collect commercial waste as part of their mainstream household waste collection rounds as well as, or instead of, having a separate collection of commercial waste. The figure reported for household waste includes commercial waste collected as part of the mainstream household waste collection rounds, whilst the figure for commercial waste refers to separately collected commercial waste.

A breakdown of the figures shown in Table 1 by local authority is given in Annex 2 and is represented in Figure 1.

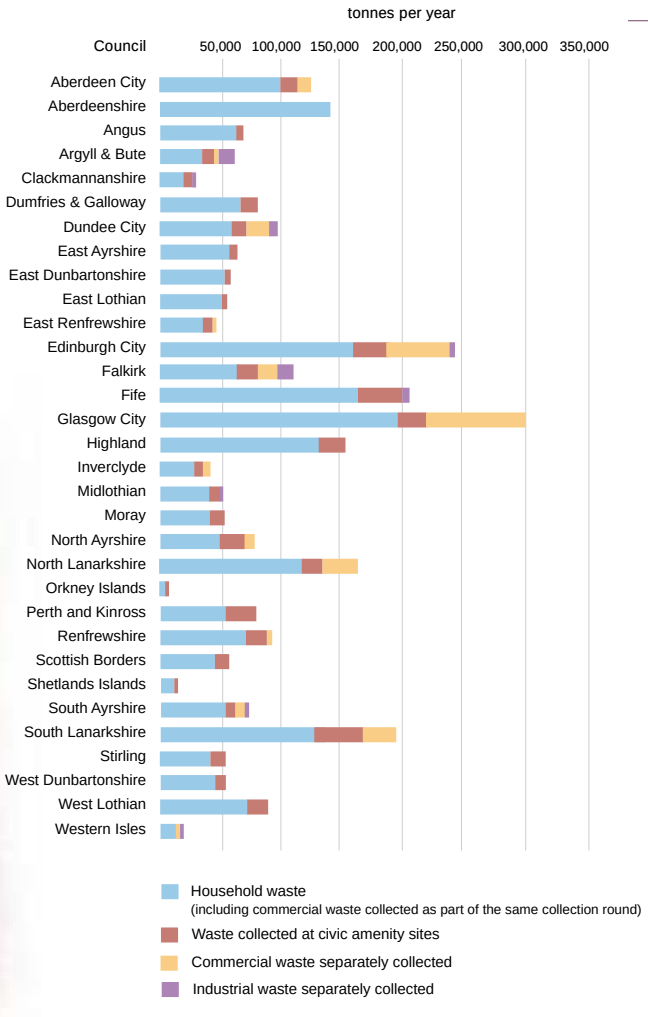
Table 1 Controlled Waste Collected by or for Local Authorities 1998

Type of waste	Tonnage	Percentage
Household[1]	2,181,000	75%
Civic Amenity	385,728	13%
Commercial[2]	284,015	10%
Industrial	46,030	2%
Total	**2,896,773**	**100%**

[1] Including commercial waste collected as part of the household waste collection round.

[2] Commercial waste collected separately from household waste.

Figure 1 Controlled Waste Collected by or for Local Authorities in 1998



Dundee Council workers collecting waste for recycling

Composition of Household Waste

Knowing the composition of household waste and being able to identify trends in the changes in composition are important for developing a strategy for household waste. For example, they help when setting recycling targets and in monitoring compliance. In each local authority waste composition changes seasonally and over time according to social and economic factors. Differences between local authorities reflect demographic, geographic and socio-economic factors. The availability of local recycling banks and the use local residents make of them can also have a significant impact on the content of each household waste container.

The questionnaire sent to local authorities as part of the ERM study asked for a breakdown of waste composition according to the Warren Springs Laboratory Standard Classification and for information on the sampling methodology used. The feedback received showed that only nine local authorities had carried out waste analysis and, although they reported their results according to the breakdown suggested, different sampling methodologies were used. This could have an impact on the results and, therefore, it is difficult to present a nationally consistent picture. The results of the ERM study are, therefore, reported in **Table 2** to demonstrate the range of analysis results.

Table 2
Waste Composition - ERM study 1997-1998

[3]Category WSL Standard Classification	[4]Range of Analysis %
Fines (particles less than 10 millimetres)	0 - 17
Metals (ferrous & non-ferrous)	3.6 - 9.2
Putrescibles	16.2 - 62
Glass	4 - 9.7
Misc non combustibles	1 - 8.7
Misc combustibles	2 - 18
Textiles	0.5 - 6.6
Plastics	3.1 - 21
Paper & card	16 -33.4

Table 3
Waste Composition - Scottish Office and Department of the Environment

[3]Category WSL Standard Classification	[5]Scottish Office Analysis (1991 - 1994 data) Average Figures %	[6]DoE NHWAP Analysis (1992-1993) Average Figures %
Fines (particles less than 10 millimetres)	7.8	6.8
Metals (ferrous and non-ferrous)	7.2	7.3
Putrescibles	25.8	20.2
Glass	7.9	9.3
Misc non combustibles	3.8	1.8
Misc combustibles	6.0	8.1
Textiles	4.1	2.1
Plastics	10.3	11.2
Paper & card	27.0	33.2

The results show that the major elements in the composition of household waste are paper, card and putrescibles, which together constitute slightly more than half of the total. The same conclusion can be drawn from the results reported in the Scottish Office Statistical Bulletin (1996)[7] and by the former Department of the Environment, shown in Table 3.

[3] The Warren Springs Laboratory Standard Classification.

[4] Results derived from data supplied by nine local authorities for ERM survey.

[5] Figures taken from the Scottish Office Bulletin for 1996 (1994 data).

[6] A Review of Household Waste Arisings and Compositional Data, Wastes Technical Division, Department of the Environment, reporting results from the National Household Waste Analysis Programme 1992-1993.

[7] Scottish Office Statistical Bulletin Environment Series on Waste Collection, Disposal and Regulation Statistics, published in 1996, reporting on 1994 data.

Non Local Authority Waste Arisings

Since producers of industrial and commercial waste are not required to keep records of their waste arisings, the quantity of these wastes is not measured directly. It is also difficult to estimate quantities of waste recycled and recovered from figures for licensed treatment facilities. This is because many of them only treat the waste before sending it elsewhere for recycling or recovery. Waste arisings, therefore, have to be estimated and one method of doing this is to combine the quantities sent to landfill for disposal with information from secondary sources such as representative industrial organisations. Alternatively, estimates can be obtained through statistical sampling. Some work has been done by a number of organisations, including the Environment Agency and SEPA, to establish whether commercial waste arisings can be related to employee numbers or company turnover. This work has demonstrated that this approach needs further development to establish whether it can be used as a method of predicting commercial waste arisings.

Commercial Waste Arisings

Historically, recycling commercial waste has not been highly developed in Scotland, although work is underway to improve this. Some commercial waste is collected as part of the household waste collection system and may, therefore, not be identified as commercial waste by licence holders.

For these reasons, SEPA considers that the use of landfill quantities as a substitute for commercial waste arisings is problematic. It may well be that commercial waste arisings are significantly more than reported landfill disposals. Assuming a 5 to 10% recycling rate, the total waste arisings in 1998 may be in the range of 2.1 to 2.3 million tonnes.

Industrial Waste Arisings

Estimating industrial waste arisings can be done using disposals data augmented with secondary source data on recovery, where available. Many industry associations compile data for waste streams dealt with by their sector. Data from the ERM study suggests that although recovery is high for some waste streams, such as scrap metal, overall recycling rates are still low. It is difficult to obtain any direct measurement of construction and demolition waste arisings, which may be have been disposed of on site or recovered through exempt activities. In view of this uncertainty, the quantity of industrial waste landfilled is not a good substitute for arisings.

Specific and Priority Waste Streams

The majority of the household, commercial and industrial waste streams on the following pages have been identified for study as priority waste streams because of the general lack of specific Scottish data. The ERM study was intended to provide initial information on quantities and data sources to help prepare the specifications for SEPA's Priority Waste Stream Projects and to provide data for European reporting.

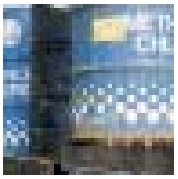
SEPA officer inspects a waste transfer station in Aberdeen

Packaging and Packaging Waste

The UK government estimates that around 9.3 million tonnes of packaging waste are produced in the UK each year. Proportionately, it is likely that just under one million tonnes of this arises in Scotland. The Scottish Executive has recently carried out a study to identify packaging waste sources and reprocessors[8]. This study will help inform SEPA's planned Priority Waste Stream Project on packaging and packaging waste in Scotland.

Hazardous and Special Wastes

Hazardous and special wastes pose particular risks to human health and the environment. The Special Waste Regulations 1996 implement the Hazardous Waste Directive (91/689/EEC). The Hazardous Waste Directive and European Commission Decision (94/904/EEC), establishing a list of hazardous wastes, provide the framework for determining whether or not a material is classified as hazardous waste.



The Special Waste Regulations 1996 define special waste as:

- waste contained in the EC Hazardous Waste List which display hazardous properties;
- any other controlled waste which displays defined properties, such as being flammable, toxic or irritant; and
- waste prescription only medicines.

The Special Waste Regulations 1996, therefore, cover a wider range of wastes than those defined in the Hazardous Waste Directive. In addition, the 1996 regulations replaced the Special Waste Regulations 1980 and extended the range of wastes classified as special. This means, therefore, that it is not possible to compare figures from before 1996 directly with later figures.

On the basis of information contained in the Scottish Office Statistical Bulletin 1996, special waste arisings in 1994 were about 114,000 tonnes and 18,628 consignment notes were issued. Data on waste movements from the special waste consignment notes during 1997 and 1998 confirm that the quantity of waste consigned under the Regulations increased substantially to around 200,000 tonnes in 1997 and dropped slightly to around 160,000 tonnes in 1998. Similarly the number of consignment notes handled has increased to around 48,000 a year.

In addition, 982,000 tonnes of contaminated land considered to be special waste was produced and disposed of within the premises of the Ravenscraig Steelworks in 1987. The corresponding figure for 1998 was 843,000 tonnes. This material was not consigned since it was not moved from its point of origin.

Over 90% of consigned special waste falls into four main categories, namely oily wastes, waste from organic and inorganic chemical processes and construction and demolition wastes. The remaining 15 categories all accounted for the remaining 9%. The breakdown of the main categories for 1998 are shown in Table 4.

[8] Identification of Packaging Data in Scotland, Central Research Unit, Scottish Executive, 2001.

Table 4 Main Categories of Special Waste

Type of Waste	European Waste Catalogue (EWC) Code	Percentage of total
Oil waste except edible oils	13 00 00	29
Waste from organic chemical processes	07 00 00	23
Waste from inorganic chemical processes	06 00 00	21
Construction and demolition waste	17 00 00	18
Total		**91**

For these four main categories of waste, SEPA's records indicate that 148 companies were licensed to treat or dispose of oil wastes except edible oils, nine for inorganic chemical process waste, 14 for organic chemical process waste and 53 for construction and demolition waste.

Oils

Oil wastes account for 29% of the special waste stream. The majority of oil wastes are classified as special and SEPA obtains information on these through the special waste consignment note system. The Priority Waste Stream Project on oil wastes will also look at non-special oils and examine a wide range of issues surrounding the arisings and management of these wastes.

Household Hazardous Wastes

Asbestos arising from households is the only household waste defined under the Special Waste Regulations 1996 as being a special waste. Household hazardous wastes are, for the most part, included within the normal local authority waste collection rounds and are not detailed separately in data provision from local authorities.

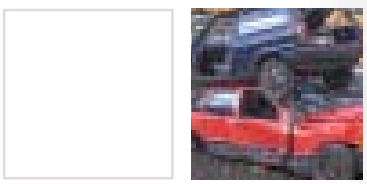
Clinical Waste

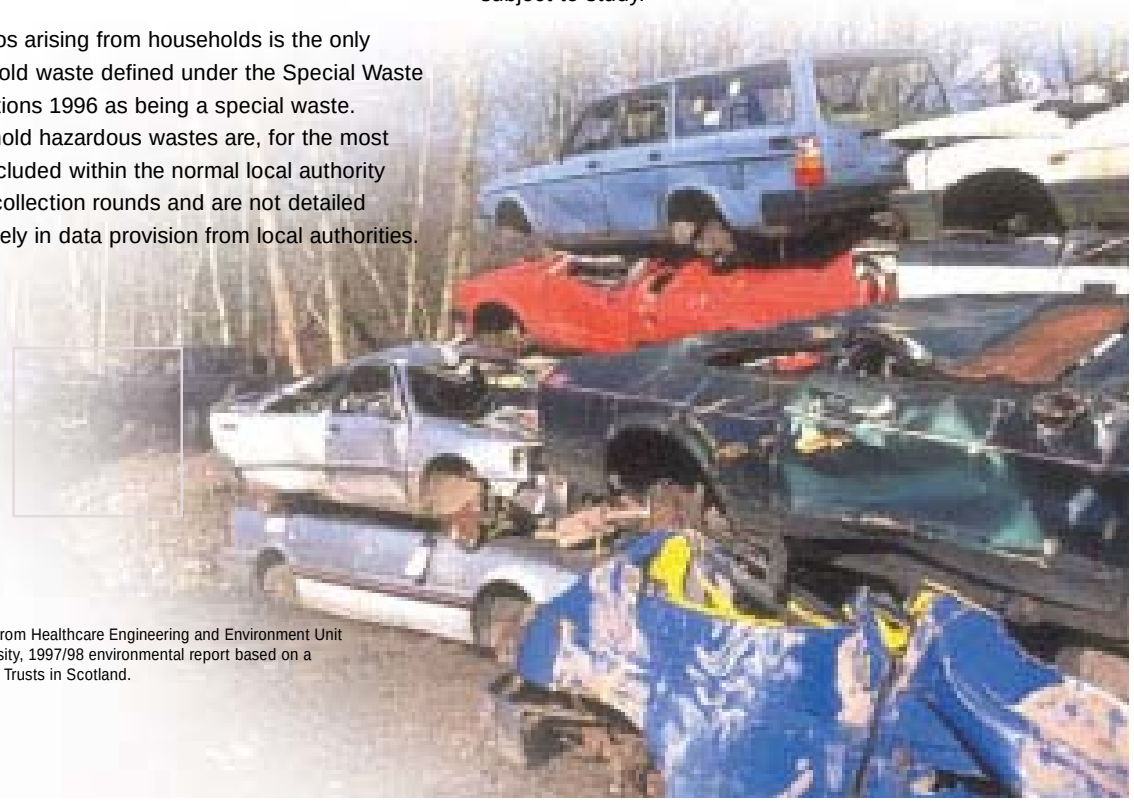
Clinical waste arisings from National Health Service (NHS) Trusts in Scotland for 1997-1998[9] were estimated at 15,020 tonnes. This figure does not include other clinical waste arisings from, for example, veterinary practices, private practice and non NHS nursing homes. The Priority Waste Stream Project on clinical wastes will look at the broad range of such wastes.

End of Life Vehicles

No separate data are available for end of life vehicles in Scotland. However the Automotive Consortium on Recycling and Disposal (ACORD) Annual Report Summer 1999 estimated that 1,900,000 vehicles were scrapped in the UK in 1997 and 1,800,000 in 1998. On the basis of the ACORD data, SEPA estimate that there were about 146,500 tonnes of end of life vehicles in Scotland in 1997 and 141,000 tonnes in 1998.

This estimate is based on vehicle ownership in Scotland of 7.3 % of the UK total in 1997 and 7.5% in 1998 and does not include vehicles bought directly from abroad. The weight of a vehicle is estimated at 1.06 tonnes, including engines and gearboxes. The End of Life Vehicles Directive was adopted in October 2000, with transposition into UK legislation expected some time in 2002 and end of life vehicles are currently subject to study.





[9] ERM study, sourced from Healthcare Engineering and Environment Unit of Strathclyde University, 1997/98 environmental report based on a survey of the 50 NHS Trusts in Scotland.

Table 5 End of Life Vehicles figures for 1997 and 1998

		UK 1997	Scotland 1997 (7.3% UK figures)	UK 1998	Scotland 1998 (7.5% UK figures)	
Number of End of Life Vehicles	Cars	1,700,000	124,100	1,600,000	120,000	units
	Vans	200,000	14,600	200,000	15,000	units
	Total	**1,900,000**	**138,700**	**1,800,000**	**135,000**	**units**
Weight of Vehicles for Disposal	Avg. 1025 Kg/ vehicle in 1997	1,947,500	142,167	1,854,000	139,050	tonnes
	Avg. 1,030 Kg/ vehicle in 1998					
Weight of Part Exchanged Core Units	(Engines, Gearboxes etc)	60,000	4,265	30,000	2,250	tonnes
Total Weight of Material for Disposal		**2,007,500**	**146,432**	**1,884,000**	**141,300**	**tonnes**

Source: ACORD second annual report, summer 1999 (reporting 1998 performance)

Tyres

There are no separately available figures for the quantity of waste tyres arising in Scotland. However, in 1998 the Tyres and the Environment Report[10] estimated that 380,000 tonnes of waste tyres were generated in the UK in 1996. The ERM report estimated that the weight of waste tyres produced in Scotland was 28,000 to 29,000 tonnes a year. This assumed that waste tyre arisings are proportional to the number of vehicles on the road. Tyres are currently being investigated in a Priority Waste Stream Project, linked with end of life vehicles.

Newsprint and Paper

There are no separate Scottish figures available for paper production. The Pulp and Paper Information Centre has data, which indicates that UK production of paper in 1998 was just under 6.5 million tonnes. In 1998 the UK also imported about 7.4 million tonnes of paper giving a total consumption of 13.9 million tonnes. A report for the Newspaper Recycling Working Group indicates that the 1998 UK newsprint and magazine consumption was approximately 2.8 million tonnes. A proportionate figure for Scotland would be 280,000 tonnes.

[10]Tyres and the Environment, Environment Agency, 1998

Construction and Demolition Wastes

Estimating construction and demolition waste arisings is particularly problematic since these wastes may be re-used on site or in an exempt activity. For this reason, the use of landfill data as a substitute for arisings would not provide a full picture and arisings are expected to be well in excess of reported disposal figures of 5.1 million tonnes for 1998. Construction and demolition wastes are currently under investigation.

SEPA officers inspecting demolition waste at a construction site in Aberdeen

Waste Electrical and Electronic Equipment

There are no specific data available on arisings or recovery of waste electrical and electronic equipment in Scotland. A study undertaken by AEA Technology in 1996 estimated that 650,000 tonnes of such waste was generated in the UK. On that basis the ERM Report estimated that proportionately by population the total arisings in Scotland would be 56,300 tonnes. The Waste Electrical and Electronic Directive is expected to be adopted mid 2002.

Batteries and Accumulators

The EC Directive on Batteries and Accumulators (91/157/EEC) aims to reduce levels of mercury, cadmium and lead. According to the organisation Wastewatch, the Directive covers only 10% of the battery waste arisings in the UK.

Based on the ACORD data using an estimated battery weight of 12.6 kilograms per vehicle, the ERM Report estimated that the quantity of waste lead acid batteries from scrap cars is 1,750 tonnes per year.

Agricultural Wastes

A report called Towards Sustainable Waste Management funded by the Biffaward project on Sustainable Resource Use was published by the Environment Agency in July 2001. It estimates that the total amount of non-natural waste arising from the agricultural sector in 1998 in the UK was about 0.5 million tonnes.

Table 6 shows the estimated quantities of some non-natural waste streams in Scotland. The waste estimates were generated using a methodology combining MAFF agricultural census data and calculations of waste generated per head of livestock or per hectare of cropping.

Table 6 Estimates of Agricultural waste arisings in Scotland (1998)

Type of Waste	Weight (tonnes)
Plastic packaging	5,457
Paper and card packaging	1,601
Metal, wood, glass & rubber	277
Films and contamination[11]	13,347
Other non packaging plastics	6,645
Non-packaging cardboard	146
Agrochemicals	23,506
Animal health products[12]	27,964
Machinery waste	10,183
Asbestos roof sheeting	10,312
Total	**99,438**

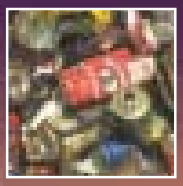
Chlorofluorocarbons (CFCs)

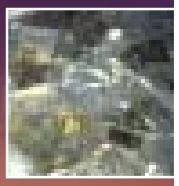
A ban on the supply and use of CFCs for maintenance or servicing of refrigeration and air conditioning equipment came into force in December 2000 and on halon use in existing non-critical fire protection systems from December 2002. Compulsory recovery and disposal of CFCs and other ozone depleting substances in domestic refrigeration equipment will come into force on 31 December 2001. A study by Friends of the Earth Scotland suggests that around 280,000 domestic fridges and freezers are discarded in Scotland each year, containing an estimated total of 143 tonnes of ozone depleting gases.

[11] Includes an estimate of associated contamination by soil, water and other residues.

[12] Sheep dip accounts for 99.9% of animal health products.

Waste Recovery and Disposal in Scotland



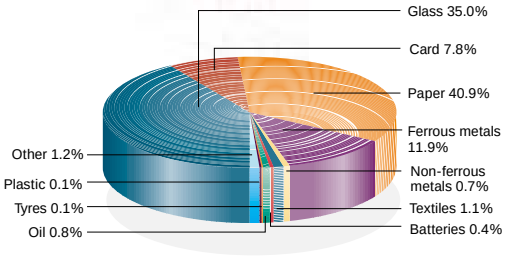


Recycling and Recovery

Local Authority Recycling and Composting

Just over half the local authorities in Scotland reported that in 1998 they had separate schemes for collecting materials for recycling. Approximately a quarter reported that they had separate collection schemes for green waste for composting. During 1998, just over 92,500 tonnes of local authority collected waste were recycled and 22,500 tonnes were composted. The total figure of 115,000 tonnes of waste recycled and composted represents approximately 4% of total waste collected by local authorities.

Figure 2 Local authority recycling by material in 1998



A breakdown of recycling quantities by local authority is given in Annex 3. In 1998 there was no standard method in use by local authorities for determining what should be included in their recycling figures. For this reason recycling rates have not been calculated here.

Figure 2 shows that recycled waste is mainly made up of paper and card (48.7%) and glass (35.0%).

Figures for waste composted by local authorities in Scotland in 1998 are given in Annex 4.

Specific and Priority Waste Streams

Packaging and Packaging Waste

The Producer Responsibility Obligations (Packaging Waste) Regulations 1997 (as amended) were introduced in March 1997 as part of the UK implementation of the EC Directive (94/62/EC) on Packaging and Packaging Waste. This Directive aims to reduce the impact of packaging on the environment largely by setting mandatory targets for recovery and recycling 50% to 65% of packaging waste by July 2001. Therefore, based on current figures, the UK must recover and recycle at least 4.65 million tonnes of packaging waste each year.

The UK regulations placed the legal responsibility for achieving the overall Directive targets on most UK companies which have an annual turnover exceeding £5 million and who manufacture, use or import more that 50 tonnes of packaging each year. Since 2000, the financial threshold for responsibility is £2 million. Qualifying companies are required to:

- register and submit data to SEPA or the Environment Agency each year. This includes calculating the company's recovery and recycling obligations;
- take 'reasonable steps' to fulfil these recovery and recycling obligations;
- certify that the recovery and recycling obligations have been met and provide evidence of reprocessing.

Alternatively, they may join and submit their data to a compliance scheme, which will meet the company obligations on their behalf. In 1998, there were 12 Compliance Schemes in the UK of which one, Wastepack, was registered with SEPA.

Data reported by registered companies and compliance schemes is aggregated to give a national total on how much packaging has been handled. It is also used to calculate the total aggregate recovery and recycling obligation of the UK (52% recovery target and 16% recycling target). Annex 5 shows the aggregate packaging handled in 1998 by companies registered with SEPA and members of Wastepack.

Bales of paper at a recycling plant in Stirling

Most recovery and recycling is carried out by reprocessors of UK packaging waste. These companies are accredited and monitored by SEPA or the Environment Agency. Accredited reprocessors generate approved evidence of reprocessing in the form of Packaging Waste Recovery Notes (PRNs) which certify the quantity and type of waste reprocessed. Obligated companies and compliance schemes can meet their recovery and recycling obligations by buying or obtaining PRNs for the appropriate quantity and type of material.

SEPA holds data on packaging handled and recovery obligations of the companies and compliance schemes registered with SEPA.

Because the packaging waste regulations stem from an EC Directive, the recovery and recycling targets have to be met by the UK as a whole. Hence there are no separate Scottish targets and Scottish data cannot be disaggregated from the UK totals. SEPA also gathers quarterly data on the packaging waste reprocessed and PRNs issued by accredited reprocessors.

1998 Registration (1997 data)

The data in Table 7 are based on information received from companies obligated to register during 1998 for packaging handled during 1997. Some companies and compliance schemes registered with SEPA operate in England and Wales so the recovery data do not correspond to packaging and packaging waste handled in Scotland. Corresponding figures are given in Annex 5 for companies obligated to register in 1999, for packaging handled in 1998.

Table 7 1998 Registration for producer responsibility obligations

	1998 Registrations	1998 Total Businesses estimate[13]	Recovery Obligation (tonnes)
SEPA individually registered companies	98	200	14,341
SEPA registered compliance scheme members	152	320	122,011
TOTAL	**250**	**520**	**136,352**

[13] The figure for total businesses is different to the number of registrations. This is because company groups can include all their subsidiary companies in one registration.

Aggregate Tonnages for Packaging Handled by SEPA Registered Companies and Compliance Schemes

The data in the following tables are based on information received from the 250 companies registered with SEPA during 1998 for packaging handled during 1997. They are for packaging handled within Great Britain and for packaging imported or exported and do not correspond to packaging and packaging waste handled in Scotland.

Table 8 Total Tonnage of Packaging and Packaging Materials Supplied 1998

Activity	Paper	Glass	Aluminium	Steel	Plastic	Wood	Others
Manufacturer	22,972	0	0	0	3,535	86,429	0
Converter	50,340	0	175	45,791	36,658	6,257	0
Packer/filler	121,029	64,045	1,785	81,204	59,589	66,381	637
Selling	182,610	71,118	6,114	48,581	115,496	44,193	887

Table 9 Tonnage of Packaging and Packaging Materials Exported from the UK 1998

Activity	Paper	Glass	Aluminium	Steel	Plastic	Wood	Others
Manufacturer	2,987	1	1		91	10,914	0
Converter	5,282	1	52	2,516	5,189	2,721	0
Packer/filler	31,212	4,351	553	5,668	13,754	11,419	37
Selling	14,898	114	10	1,042	3,767	9,432	23

Table 10 Tonnage of Packaging and Packaging Materials Imported 1998

Activity	Paper	Glass	Aluminium	Steel	Plastic	Wood	Others
Manufacturer	17,454	0	8	10,675	13,458	42	
Converter	10,477	1,138	555	11,536	9,756	2,969	
Packer/filler	13,051	3,514	254	6,152	6,223	2,101	42
Imported transit package	27,597	0	33	1,269	3,389	6,797	19

Table 11 Statement of Obligations by Material 1998

Obligation	Material	Tonnage
Gross Recovery		136,352
Recycling	Paper	10,826
	Glass	3,984
	Aluminium	251
	Steel	4,300
	Plastic	5,728

In 1998 there was no obligation under the regulations for companies to supply special waste data for 1997 activities.

Sampling special waste in Paisley

Reprocessing in Scotland

The table below shows the number of SEPA accredited reprocessors and the packaging waste reprocessed in Scotland during 1998. Please note that there is no correlation between the packaging handled by SEPA registered companies and compliance schemes and packaging waste recovered and recycled by SEPA accredited reprocessors. These figures can only be correlated once they are aggregated to UK level i.e. once total UK packaging handled and total packaging waste reprocessed in the UK are assessed.

Table 12 Reprocessing of packaging waste in Scotland

	1998
Number of SEPA accredited reprocessors	13
Packaging waste reprocessed by accredited companies in Scotland in tonnes	340,000
Total Number of reprocessors in the UK	193
Total Packaging Waste reprocessed by accredited reprocessors in the UK in tonnes	3,338,705

Table 13 Quantity of packaging waste processed by material

Material	Packaging Waste Reprocessed (tonnes)
Paper	200,022
Plastic	4,622
Glass	120,218
Total	**324,862**

In 1998 there were no accredited reprocessors for steel or aluminium in Scotland, nor were any energy from waste plants accredited. The requirement to recover wood packaging waste did not come into force until 2000.

Details of accredited reprocessors in 1998 are given in **Annex 6**.

Hazardous and Special Wastes

The details of sites and operators are given in Annex 6.

Table 14 shows the quantities of special waste reported to have been landfilled in Scotland in 1997 and 1998. These figures are based on the returns made during the ERM study. Since responses tended to come from the larger sites, which are likely to handle the majority of special wastes for disposal, SEPA considers that extrapolation would not be appropriate. The figures are therefore presented as they were reported. The figures are high for these years since they include 982,800 tonnes in 1997 and 843,000 tonnes in 1998 of contaminated material disposed of in a secure containment facility on the premises of the former Ravenscraig steelworks.

Table 14 Special waste landfilled in 1997 and 1998

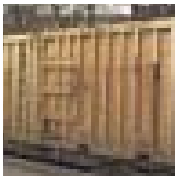
	Total Special Waste (tonnes)	Liquid	Asbestos	Other
1997	1,060,428	30,511	11,074	1,018,843
1998	911,078	28,879	13,474	868,725

Table 15 Sites licensed to dispose of or treat special waste

Activity	Number of licences
Disposal only	89
Recovery only	122
Disposal and Recovery	75
Total	**286**

The figures in Table 15 include vehicle dismantlers and scrapyards, which handle relatively small quantities of special wastes such as lead acid batteries and used engine oil which arise from these activities.

Moving waste by train from Edinburgh



Imports and Exports of Hazardous Waste

The movement of waste into and out of EC member states is governed by Council Regulation (259/93/EEC), the Waste Shipments Regulation (WSR) which is supplemented by the Transfrontier Shipment of Waste Regulations 1994. Wastes on the red or amber lists in the WSR are subject to appropriate control procedures as defined within the WSR. Wastes on the green list which are shipped for recovery or recycling are subject to normal commercial transactions and not to any control procedure. However, they must be accompanied by a document containing prescribed information.

Table 16 gives details of red and amber list waste imported to Scotland from outside the UK for recovery in 1997 and 1998. These were in liquid form and the quantities are given in litres. There were no consignments of amber or red list waste exported from Scotland during this period.

Table 16 Waste Imported to Scotland from outside UK for recovery or recycling

Type of Waste	Quantity (in litres) 1997	1998
Acetone	107,000	-
Acetone/isopropanol	33,900	22,280
Acetone/hexane/water	112,200	-
Acetone/water	44,460	137,100
Ethyl acetate	42,260	-
Hexane/mineral oil	718,720	655,680
Isopropyl/alcohol	250,565	-
Methanol	36,167	-
Methyl ethyl ketone	3,208	-
Methylene chloride	233,960	-
Mixed non halogenated solvents	-	19,600
Mixed solvents	3,863,415	4,283,308
Mixed solvents/dissolved solids	346,900	-
Mixed solvents/solids	21,560	-
Solvent mix	-	118,540
Toluene	191,304	43,140
Toluene/kerosene/alkylated phenols	21,500	-
Toluene/mineral oil	-	20,960
Total	**6,027,119**	**5,300,608**

Oils

The ERM study estimated that approximately 400 tonnes of oil a year was collected at recycling points during 1997-1998. Approximately 36,000 tonnes was refined for use as fuel oil, with approximately a further 3,500 tonnes refined for use as lubricating oil in this period. SEPA launched the Oil Care Campaign in 1999 in response to a growing concern over illegal dumping of waste oils. Oil is the cause of more than 35% of Scottish water pollution incidents and more than half of Scotland's serious water pollution. Oil wastes will be the subject of a Priority Waste Stream project to investigate arisings, recycling and recovery activity and also to look at barriers to increasing use through these routes.

Household Hazardous Wastes

Household hazardous wastes, for the most part, come through the routine waste collection round of the local authorities and are managed in the same way as other household wastes. Separate figures for this waste stream are therefore difficult to obtain. Household asbestos is classified as special waste under the Special Waste Regulations 1996.

Clinical Waste

Anatomical and special waste streams are incinerated. Low risk material and sharps are landfilled following heat treatment and maceration. There were two clinical waste heat treatment plants and three hospital incinerators operating in Scotland in 1998. These facilities are listed in Annex 6.

End of Life Vehicles

ACORD, in their Annual Report Summer 1999, reported the UK breakdown of waste recycled in 1997 and 1998 as in Table 17. SEPA calculated the corresponding values for Scotland assuming that vehicle ownership in Scotland is 7.3 % of the total for the UK for 1997 and 7.5% for 1998. This does not include vehicles bought directly from abroad and assumes that the recycling rate in Scotland is the same as in the rest of the UK. Almost all of the material recycled was exported to England and Wales or abroad.

Table 17 Breakdown of waste recycled from end of life vehicles (weights in tonnes)

			UK 1997	Scotland 1997 (7.3% UK figures)	UK 1998	Scotland 1998 (7.5% UK figures)
Weight of Parts Re-used	MVDA	All Types	207,000	15,111	193,000	14,475
Weight of Material Recycled	BMF	Ferrous Metal	1,200,000	87,600	1,094,000	82,050
	BMF	Non ferrous (shredders)	34,000	2,482	33,000	2,475
		Non ferrous (dismantlers)	22,000	1,606	20,000	1,500
	BPF	Plastics	1,000	73	1,000	75
	MVDA	Tyres	8,000	584	3,000	225
	MVDA	Fluids (including fuels)	45,000	3,285	43,000	3,225
	MVDA	Batteries	10,000	730	9,000	675
	MVDA	Glass	500	37	2,500	188
Sub-total material recycling			1,320,500	96397	1,205,500	90,413
Total Material Recovery			1,505,500	110,902	1,398,500	104,888
Landfill of Residue			502,000	36,646	485,500	36,413
Recovery percentage			76%		74%	

Source ACORD second annual report, summer 1999 (reporting 1998 performance)
MVDA Motor Vehicle Dismantlers Association
BMF British Metals Federation
BPF British Plastics Federation

Tyres

The government and tyre industry working group estimated that re-treading accounted for 26% of tyre recovery, which is equivalent to approximately 7,000 tonnes a year in Scotland. There were no major facilities for recovering energy from tyres or for other re-uses in Scotland in 1998.

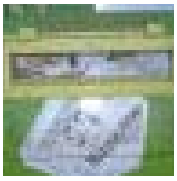
Newsprint and Paper

There are no newsprint recycling plants in Scotland. Paper collected for recycling into newsprint is therefore transported to plants in England. The Newspaper Recycling Working Group estimates that in 1998 around 700,000 tonnes of newsprint and magazines were recovered. A proportionate figure for Scotland would be about 70,000 tonnes. Assuming that 280,000 tonnes of newsprint and magazines are consumed, a balance of 210,000 tonnes would be landfilled.

Construction and Demolition Wastes

Between 1990 and 1994 construction and demolition waste going to landfill showed a gradual increase to 7.8 million tonnes in 1994. No separate figures are available for 1995 and 1996.

The ERM study estimated that in 1997, 7 million tonnes of construction and demolition waste went to landfill and this figure dropped significantly in 1998 to 5.1 million tonnes. It is not clear whether this represents a drop in arisings or an increase in recovery or re-use elsewhere. Industry data is not sufficiently robust to draw conclusions and this requires further investigation.



This Dumfries company recycles old computers by reworking and testing them

Waste Electrical and Electronic Equipment

The ERM Report estimated the quantity of electrical and electronic waste collected for recovery was in the range 8,000 to 10,000 tonnes a year. This was based on information provided by organisations involved in recycling and recovery, including the Electronic Manufacturers Equipment Recycling Group and Lothian and Edinburgh Environmental Partnership.

Batteries

Wastewatch estimate that during 1998 in the UK, 634 million batteries of all types ended up in landfill. SEPA assumes that most of the 1,750 tonnes of waste lead-acid batteries from scrapped cars were recovered. Data on batteries is difficult to obtain and SEPA will investigate this as part of two separate studies into end of life vehicles and waste electrical and electronic equipment.

Agricultural Wastes

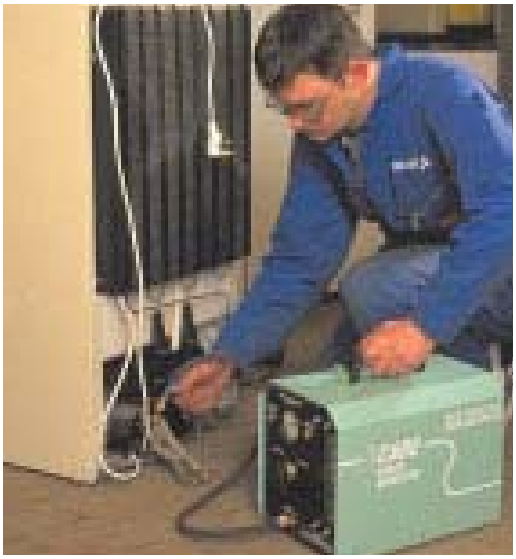
Agricultural waste is not a controlled waste at present and transfer to waste management contractors is limited. It does occur where the waste has a value for recovery, for example scrap metal and oils.

Most waste plastics from farms is disposed of by burning. Two schemes have been established in Scotland for recycling plastic from farms, with a total membership of around 1,000. Results from a survey by MAFF in March 2000 suggest that about 12 to 15% of farm plastics is recycled and that almost all oils arising on farms are recycled or otherwise recovered. Only a very small quantity of scrap metal and machinery is landfilled.

Chlorofluorocarbons (CFCs)

The ERM study reported that of 24 local authorities responding, 15 operated CFC collection schemes in 1997. Eight of these local authorities collected 514kg of CFCs mainly from refrigerators, the remaining were unable to quantify CFCs collected.

During 1998 the ERM study reported that 19 of 28 responding local authorities reported operating CFC collection schemes. In total 790kg of CFCs were collected by 11 local authorities, mainly from refrigerators. The remaining were unable to quantify CFCs collected.



A fridge is de-gassed before being recycled

Incineration

There were no municipal waste incinerators operating in Scotland in 1998. The total licence capacity for non municipal waste incinerators in 1998 was just under 77,000 tonnes per year but the actual throughput was approximately 25,000 tonnes. Most of the incinerators had capacities of less than one tonne per hour and were designed for handling specific waste streams such as clinical waste, animal carcasses and other industrial wastes. Many deal only with waste arising on site. Details of these sites are given in Annex 6.

Landfilled Waste

The ERM study included a survey of landfill operators' activities in 1997 and 1998. Just over half of those contacted completed the questionnaire. These responses tended to be from the major operators. Audit visits were undertaken for some of the major sites to verify the reported data.

As it was not possible to obtain data from all landfill operators, the figures for landfill in Scotland were extrapolated from reported data.

Each returned questionnaire was assigned to a tonnage throughput band and an average site throughput was derived within each band. The bands adopted were those of the current Fees & Charges Scheme:

0 to < 5,000 tonnes per year
5,000 to < 25,000 tonnes per year
25,000 to < 75,000 tonnes per year
75,000 to < 150,000 tonnes per year
150,000 and over tonnes per year

It was then possible to extrapolate figures for the non-returned questionnaires in each band to produce a total estimate for all sites.

Further work by SEPA on the distribution and size range of the missing returns suggests that the methodology adopted for extrapolation gives reliable figures for the landfill quantities.

SEPA estimates that the total amount of waste landfilled in Scotland in 1998 was just under 12 million tonnes. The breakdown of this figure is shown in Table 18. Corresponding figures for 1997 are shown in Annex 7.

Further work was also done to compare household waste arisings reported by authorities with the quantity of household waste landfilled. The quantity of household waste reported by operators as landfilled is estimated to be three million tonnes.

However, it is likely that many landfill operators report all waste they receive from local authorities as household waste. This includes household, commercial and perhaps some industrial waste collected by the authorities. It is therefore reasonable to conclude that the three million tonnes of household waste reported by the operators as landfilled is equivalent to the total waste collected by and under the control of local authorities.

Figure 3 Total Controlled Waste going to Landfill per Type of Waste

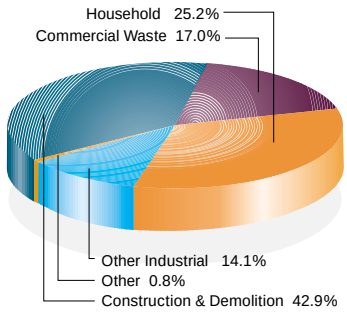


Table 18 Total Controlled Waste going to Landfill in Scotland in 1998

Type of Waste	Tonnes	Percentage
Household	2,990,850	25.2
Commercial	2,023,982	17.0
Industrial - Construction and Demolition	5,096,867	42.9
Other Industrial	1,671,056	14.1
Other	90,673	0.8
Total Controlled Waste	**11,873,428**	**100**

Sewage Sludge

Table 19 shows the disposal routes for sewage sludge in Scotland in 1998. In accordance with the requirements of the Urban Waste Water Treatment Directive (91/271/EEC) the disposal of sewage sludge to surface waters, including the sea, ceased in December 1998. Consequently, alternative disposal routes have now been developed. Figures for 1996-1997 are given in Annex 8. Figures given here for 1997 come from a UK sewage sludge survey carried out by the Water Research Centre (WRC) on behalf of the Environment Agency and the government.

Table 19 Disposal Routes for sewage sludge in Scotland 1998

Outlet	Water Authority			Totals	Percentage
	NoSWA	ESWA	WoSWA		
	Tonnes of Dry Solids				
Sea	2,500	19,000	50,800	72,300	74%
Agriculture/ Land Reclamation	6,300	13,400	3,200	22,900	23%
Landfill	900	1,800	-	2,700	3%
Totals	**9,700**	**34,200**	**54,000**	**97,900**	**100%**

NoSWA North of Scotland Water Authority
ESWA East of Scotland Water Authority
WoSWA West of Scotland Water Authority

Disposal of Waste to Landfill

Landfill is by far the most common disposal route for waste in Scotland, accounting for over 90% of the total. The 264 licensed landfill sites in operation in 1998 therefore form the principal network of disposal facilities. Details of these are shown on the map in Figure 4 and detailed in Annex 6.

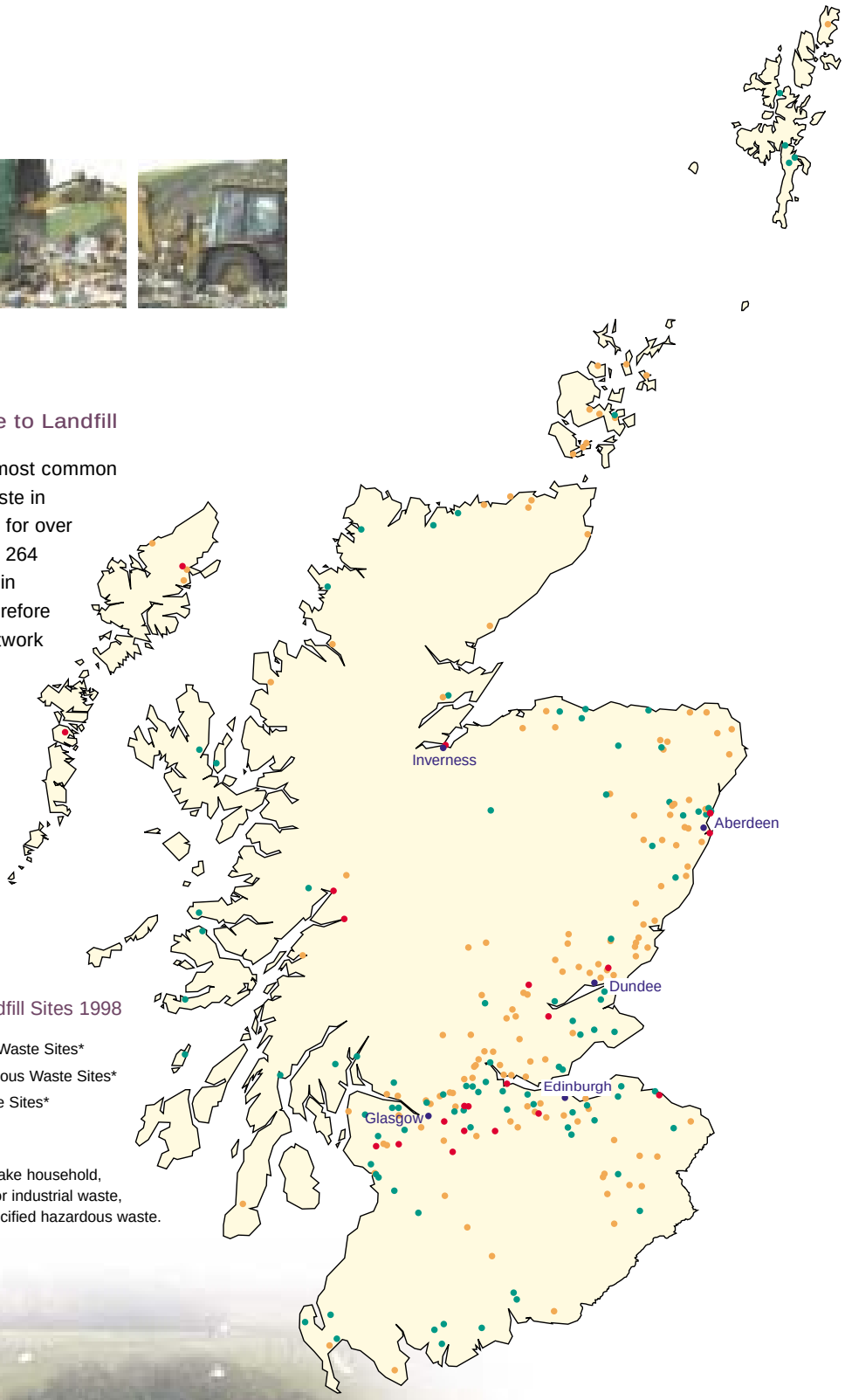


Figure 4 Landfill Sites 1998

- 25 Hazardous Waste Sites*
- 93 Non Hazardous Waste Sites*
- 146 Inert Waste Sites*
- Scottish Cities

* Sites which take household, commercial or industrial waste, including specified hazardous waste.

Waste Management Data

Registered Brokers and Carriers

Subject to a few exceptions, carriers and brokers of waste must be registered with SEPA or the Environment Agency. Registration is for a three year renewable period. Those registered may operate throughout the UK.

Table 20 Number of Carriers and Brokers in 1997 and 1998

Registrations	Total
1997	
Registered Carriers	6,654
Registered Brokers	11
Joint Registered Carriers and Brokers	55
Total	**6,720**
1998	
Registered Carriers	6,071
Registered Brokers	12
Joint Registered Carriers and Brokers	55
Total	**6,138**

Number of Licences

Under Part II of the Environmental Protection Act 1990, waste management licences are required for the keeping, treating and disposal of waste. In Scotland these are issued by SEPA.

Once a waste management site licence has been issued by SEPA, the licence holder is responsible for the licensed activity and the aftercare of the site until such time as SEPA accepts the surrender of the licence. In the case of a landfill this period could last for many years.

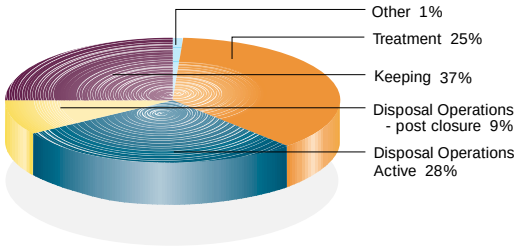
From Table 21 it can be seen that of the 962 licences in force during 1998, 353 (about 37%) were for disposal operations, 243 (about 25%) were for treatment operations and 361 (about 37%) were for keeping waste. These figures are illustrated in Figure 5.

Table 21 Number of Licences per Activity in 1998

Activity		Total
Treatment		
Recycling		197
Other		46
	Total	**243**
Keeping		
At Civic Amenity Sites		148
Registered Carriers		29
Registered Brokers		184
	Total	**361**
Disposal		
In or on land		264
Post closure sites		89
	Total	**353**
Miscellaneous		
Incinerators		3
Mobile Plant		2
	Totals	**962**

Civic amenity site, Fife

Figure 5 Waste Management Licences by Activity



Prior to SEPA being established in 1996, local authorities regulated their own sites under a permit known as a resolution. In 1996 they were required to apply to SEPA for a waste management licence. Twenty of these applications remained undetermined in 1998.

Licences Related to Recycling Activity

Table 22 Number of licensed recycling operation by capacity for 1998

Licensed Capacity (Thousand tonnes per year)	Total
75+	10
25 < 75	13
5 < 25	31
0 < 5	143
Total	**197**

Landfill Licences

Table 23 Waste Management Licences for Operational Landfills by charging band (1998 -1999)

Annual Throughput (Thousand tonnes per year)	Total
150 and above	13
75 to < 150	49
25 to < 75	44
0 to < 25	158
	264

Lined landfill site

Operational Controls

The ERM study specifically investigated two types of operational controls at landfill sites namely gas management and leachate management. The data below were collated from the 149 sites returning the survey questionnaire.

From the 149 returns, 39 used some form of gas management and 34 used some form of leachate management.

Table 24 Operational Controls

Operational Control	Total
No. of sites where gas is managed	39
Energy production	3
Flaring	8
Venting	32
No. of sites where leachate is managed	34
Recirculation	17
Aerobic Treatment	9
Waste Stabilisation Pond	6
Other	8

Note: Some sites employ more than one method of gas or leachate control.

Landfill gas pipes

Fly tipping

Post-Closure Licences

Table 25 below shows the number of licensed sites which ceased landfilling waste and were in their period of aftercare in 1998-1999.

Table 25 Number of Waste Management Licences for post-closure Landfill Sites (1998-1999)

Approximate amount of waste deposited (million tonnes)	Total
2.5+	0
1< 2.5	9
0.25 < 1	13
0 < 0.25	67
Total	**89**

Number of Inspections of Licensed Facilities

SEPA is required to undertake periodic inspections of all licensed facilities. In the the year 1997-1998 SEPA staff made 12,479 planned inspections of waste management facilities.

Number of Pollution Complaints

There were 2,728 pollution complaints recorded in 1998-1999, of which 82% were responded to within 24 hours.

Fly Tipping

During 1997-1998 1,434 incidents of fly tipping were reported to SEPA. SEPA inspectors conducted 1,391 investigations into fly tipping.

In addition to those incidents reported by the general public, SEPA inspectors may also come across such incidents in the course of their activities.

Enforcement

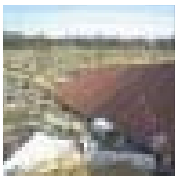
Tables 26 and 27 below record the formal enforcement proceedings instigated by SEPA during 1997-1998 and 1998-1999.

Table 26 Number of Cases 1998-1999

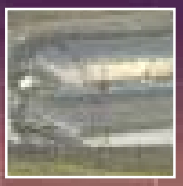
Nature of enforcement	Total
Enforcement Notices Issued	36
Prohibition Notices Issued	2
Reports to Procurator Fiscal	55
Total	**93**

Table 27 Number of Cases 1997-1998

Nature of enforcement	Total
Enforcement Notices Issued	32
Prohibition Notices Issued	17
Reports to Procurator Fiscal	26
Total	**75**



Conclusions



This chapter looks at emerging trends from currently available data. It only covers waste collection by and for local authorities and wastes disposed of to landfill as these are the most reliable and robust data for the period from which to draw conclusions. It has not been possible to draw conclusions for overall recycling and recovery figures for 1998 due to the many problems associated with collecting robust data. SEPA is undertaking a series of studies into specific waste streams to try to overcome some of these difficulties.

Waste Collection

Table 28 and Figure 6 show the available data for controlled waste collected by or for local authorities. They run from 1989 up to and including 1998. However data are not available for 1995 and 1996 and the figures for 1997 include some extrapolation from existing data since 24 of a total of 32 local authorities replied to the ERM questionnaire.

The table shows that the total amount of controlled waste, including civic amenity waste, collected by or for local authorities remains fairly constant at around 3 million tonnes per year. It is unlikely that the 1995 and 1996 figures would have been very different.

Changes in the local government boundaries and the distribution of populations within them make it impossible to identify any meaningful trend in household waste arisings in any particular area. Trend analysis of the overall household waste arisings and the total waste collected by authorities indicate that the rate of increase may range from 0% to around 2%. This is somewhat less than the 3% annual increase in household waste reported for England and Wales.

This difference may represent different economic circumstances in England and Wales compared to Scotland during the 1990s. Further investigation is therefore needed when 1999 and 2000 data are available.

Table 28 Controlled Waste Collected by or for Local Authorities 1989-1998 (tonnes)

Type of Waste	1989[14]	1990[14]	1991[14]	1992[14]	1993[14]	1994[14]	1995	1996	1997[15]	1998[15]
Household, Commercial & Industrial	2,567,359	2,818,757	2,403,358	2,427,880	2,392,904	2,471,018	n/k	n/k	2,661,000	2,511,045
Civic Amenity	441,696	510,644	466,549	515,172	507,050	518,106	n/k	n/k	340,000	385,728
Total	**3,009,055**	**3,329,401**	**2,869,907**	**2,943,052**	**2,899,954**	**2,989,124**			**3,001,000**	**2,896,773**

[14] Figures extracted from Table A1.2 of Scottish Office Bulletin for 1994 (refers to 1989-1994 inclusive).

[15] Figures taken from ERM study for SEPA and the Scottish Executive.

n/k not known

Figure 6 Controlled Waste Collected by or for Local Authorities

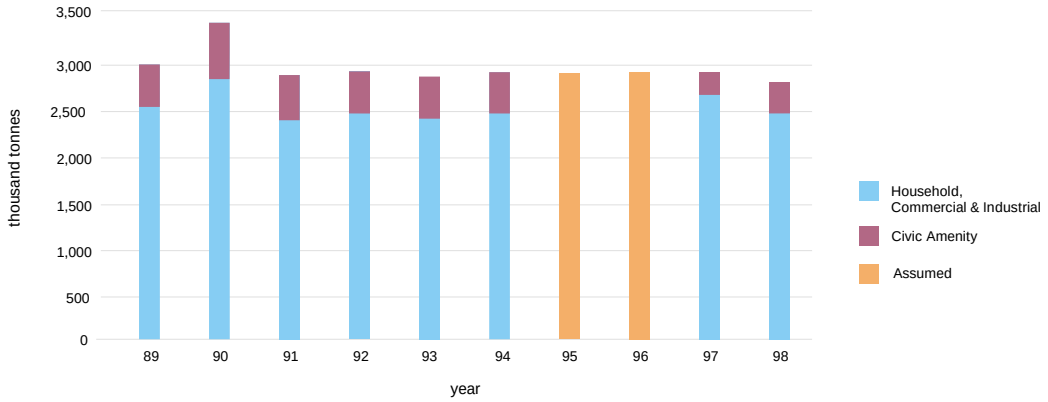


Table 29 Controlled Waste going to Landfill in Scotland 1989 -1998 (tonnes)

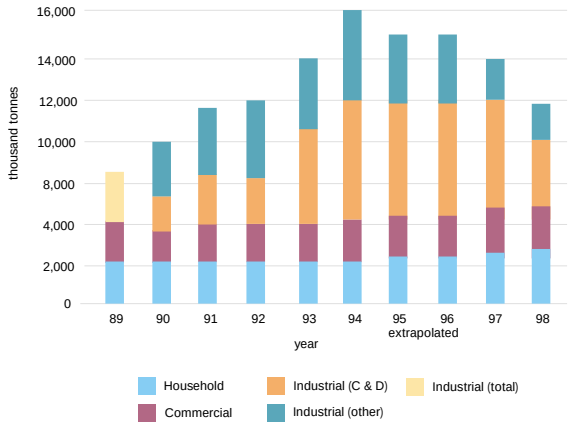
Type of Waste	1989[16]	1990[16]	1991[16]	1992[16]	1993[16]	1994[16]	1995	1996	1997[17]	1998[17]
Household	2,223,610	2,213,777	2,291,349	2,246,595	2,336,132	2,381,612	n/k	n/k	2,697,998	2,990,850
Commercial	1,948,878	1,437,013	1,667,467	1,733,786	1,790,568	1,873,534	n/k	n/k	2,218,026	2,023,982
Industrial (total)	**4,412,878**	**6,058,757**	**7,384,497**	**8,229,377**	**9,862,114**	**11,622,265**	n/k	n/k	**8,959,453**	**6,767,923**
other	-	-	-	-	-	-	n/k	n/k	103,067	90,673
Total	**8,585,366**	**9,709,547**	**11,343,313**	**12,209,758**	**13,998,814**	**15,877,411**	**n/k**	**n/k**	**13,978,544**	**11,873,428**
industrial (C & D)	n/k	*3,709,047*	*5,217,924*	*4,847,274*	*6,714,631*	*7,716,422*	n/k	n/k	*7,007,534*	*5,096,867*
industrial (other)	n/k	*2,349,710*	*2,166,573*	*3,382,103*	*3,147,483*	*3,905,843*	n/k	n/k	*1,951,919*	*1,671,056*
Industrial (total)	**4,412,878**	**6,058,757**	**7,384,497**	**8,229,377**	**9,862,114**	**11,622,265**	**n/k**	**n/k**	**8,959,453**	**6,767,923**

[16] Figures extracted from Table A1.3 of Scottish Office Bulletin for 1994 (refers to 1989-1994 inclusive).
[17] 1997-1998 figures taken from ERM Study for SEPA and the Scottish Executive.
n/k not known

Disposal of Waste to Landfill

Table 29 and Figure 7 show the total amount of waste going to landfill in Scotland over the period 1989 to 1998. There was a steady increase in the total amount of landfilling during the period 1989 to 1994. More recent studies indicate that from its apparent peak of about 16 million tonnes in 1994, the last two years clearly show a substantial fall to about 14 million tonnes in 1997 and about 12 million tonnes in 1998. From these figures the fall to total quantities of waste going to landfill can mainly be accounted for by reductions in the amount of construction and demolition waste going to landfill.

Figure 7 Total Controlled Waste going to Landfill in Scotland 1998-1998 (thousand tonnes)



Annexes

Annex 1

Table 30 Controlled Waste Collected by or for Local Authorities in 1997

Type of waste	Tonnage	Percentage
Household	2,303,000	77%
Civic Amenity	340,000	11%
Commercial	322,000	11%
Industrial	36,000	1%
Total	**3,001,000**	**100%**

ERM extrapolated the figures by deriving a per capita collection rate from returned questionnaires.

Annex 2

Table 31 Controlled waste Collected by or for Local Authorities in 1998 (tonnes)

Local Authority	Waste Strategy Area	Population (30th June 1996)	Total Controlled Waste (collected by or on behalf of the local authorities)	Household Waste (including Commercial collected as part of the same collection round)	Waste Collected at Civic Amenity	Commercial Waste separately collected	Industrial Waste separately collected
Aberdeen City	4	217,260	122,276	98,761	12,265	11,250	0
Aberdeenshire	4	227,430	137,585	137,585	0	0	0
Angus	5	110,780	66,189	60,207	5,982	0	0
Argyll and Bute	11	90,840	59,524	31,293	10,969	5,262	12,000
Clackmannanshire	6	48,810	29,029	18,342	7,786	1,901	1,000
Dumfries and Galloway	9	147,600	77,683	64,682	13,001	0	0
Dundee City	5	150,250	93,515	57,574	11,202	18,301	6,438
East Ayrshire	9	122,350	61,249	55,494	5,755	0	0
East Dunbartonshire	10	110,750	55,442	51,957	3,485	0	0
East Lothian	8	88,140	52,515	49,060	3,455	0	0
East Renfrewshire	10	88,080	44,362	34,704	7,280	2,378	0
Edinburgh City	8	448,850	239,540	158,757	20,883	57,500	2,400
Falkirk	6	143,040	107,143	61,678	18,788	14,702	11,975
Fife	7	349,300	205,922	164,976	35,165	0	5,781
Glasgow City	10	616,430	299,371	197,950	19,135	82,286	0
Highland	3	208,700	155,953	130,953	25,000	0	0
Inverclyde	10	87,100	40,772	28,516	5,110	7,146	0
Midlothian	8	80,040	50,113	41,478	7,179	1,456	0
Moray	4	86,510	51,007	40,428	10,579	0	0
North Ayrshire	9	139,520	75,802	48,084	19,028	8,690	0
North Lanarkshire	10	325,940	164,923	113,602	19,543	31,778	0
Orkney Islands	1	19,800	6,670	3,913	2,757	0	0
Perth and Kinross	5	132,570	75,964	52,714	22,789	0	461
Renfrewshire	10	178,550	89,214	69,626	15,588	4,000	0
Scottish Borders	8	106,100	54,194	44,222	9,972	0	0
Shetland Islands	1	23,020	12,993	11,631	1,362	0	0
South Ayrshire	9	114,630	71,000	53,000	7,000	8,100	2,900
South Lanarkshire	10	307,450	189,108	132,435	30,639	26,034	0
Stirling	6	82,750	51,816	41,124	10,692	0	0
West Dunbartonshire	10	95,760	52,653	44,229	8,424	0	0
West Lothian	8	150,770	85,342	70,939	14,403	0	0
Western Isles	2	28,880	17,904	11,086	512	3,231	3,075
Total		**5,128,000**	**2,896,773**	**2,181,000**	**385,728**	**284,015**	**46,030**

Please note many local authorities do not have a separate collection for commercial waste and therefore the household waste reported is inclusive of commercial waste.

Please also note that the local authorities which have a separate collection of commercial waste also collect some commercial waste as part of their household collection round.

Annex 3

Table 32 Breakdown by material of waste recycled by local authorities 1998 (tonnes)

Local Authority	SUM	Paper	Card	Plastic	Glass	Ferrous	Non	Textiles	Batteries	Oil	Tyres	Other
Aberdeen City	8,004	4,780	670		2,451	76	-	-	4	23		
Aberdeenshire	4,884	1,187	974	-	1,693	773	20	91	95	51	-	-
Angus	3,281	938	694	17	1,003	442	-	57	-	10	-	120
Argyll and Bute	3,579	1,132	163	3	880	1,077	13	51	10	250		
Clackmannanshire	875	288	-	-	301	90	-	2	12	12	-	170
Dumfries and Galloway	1,597	325	-	5	982	245		28	5	7	-	-
Dundee City	4,162	1,482	519	-	1,763	367	12	10	3	6	-	-
East Ayrshire	1,249	-	191	-	820	159	6	50	9	9	-	5
East Dunbartonshire	2,872	2,500	-	-	335	1	1	26	3	6		
East Lothian	1,745	603	-	-	648	450	1	29	3	11	-	-
East Renfrewshire	2,720	2,246	-	-	345	98	-	21	4	-	3	3
Edinburgh City	7,934	4,680	-	-	2,882	290	-	7	50	25	-	-
Falkirk	3,970	2,210			1,026	683	28	4	4	15		
Fife	5,356	988	-	13	2,993	1,257	20	20	-	41	-	24
Glasgow City	6,037	2,180	58	-	3,200	499	4	66	14	9	-	7
Highland	2,349	-	800	-	1,397	15	20	105	-	12		
Inverclyde	1,228	393	-	-	627	165	5	38	-	-	-	-
Midlothian Council	1,165	258	-	-	680	185	14	9	-	19	-	-
Moray	2,041	350	540	-	1,018	90	-	34	4	5		
North Ayrshire	1,668	540	100	-	602	349	8	49	-	15		5
North Lanarkshire	2,135	228	1,094	-	260	-	496	32	-	25	-	-
Orkney Islands	1,457				310	821				44		282
Perth and Kinross	2,625	1,240	-	-	1,077	243	6	29	12	18	-	
Renfrewshire	1,964	330	59		807	754	1			13	-	
Scottish Borders	3,443	2,015	-	-	1,154	198	-	14	19	10		33
Shetland Islands	515	-	-	1	96	162	4	40	30	8	-	174
South Ayrshire	1,867	928	-	-	495	378	-	36	9	21	-	-
South Lanarkshire	3,188	1,148	-	27	772	999	-	124	17	19	-	82
Stirling	3,538	1,440	503	-	1,297	51	23	26	20	8	-	170
West Dunbartonshire	1,844	1,618	-	3	123	5	8	8	-	0	-	79
West Lothian	3,048	1,810	861	-	345	8	-	14	-	10	-	-
Western Isles	188	-	-	-	-	96	-	-	-	-	92	-
Total	**92,528**	**37,837**	**7,226**	**69**	**32,382**	**11,026**	**690**	**1,020**	**327**	**702**	**95**	**1,154**

Annex 4

Table 33 Waste Composted by local authorities in Scotland in 1998 (tonnes)

Local Authority	Separate Collection for green waste Yes=1 No=0	Total waste	Household	Commercial composted	Other
Aberdeen City	0				
Aberdeenshire	0				
Angus	1	3,601	2,930		671
Argyll and Bute	0	325	200	125	
Clackmannanshire	0				
Dumfries and Galloway	0	662	662		
Dundee City	1	6,416	3,057	3,259	100
East Ayrshire	0				
East Dunbartonshire					
East Lothian	0				
East Renfrewshire	0				
Edinburgh City	0	160	160		
Falkirk	0	2,659	2,659		
Fife	0				
Glasgow City	0				
Highland	0	10	10		
Inverclyde	0				
Midlothian	0				
Moray	0	173			173
North Ayrshire	0				
North Lanarkshire					
Orkney Islands	1				
Perth and Kinross	1	4,720	3,989	731	
Renfrewshire	1	26	26		
Scottish Borders	0				
Shetland Islands	1				
South Ayrshire	0	887	887		
South Lanarkshire	1	2,199	2,199		
Stirling	0	692	346	346	
West Dunbartonshire	0				
West Lothian	0				
Western Isles	0				
		22,530	**17,125**	**4,461**	**944**

Falkirk Council did not specify whether composting is household or commercial so their figure is entered as household.

Annex 5

Table 34 Companies registered with SEPA or are members of Wastepack.

	1999 Registrations	1999 Total Businesses[18]	Recovery Obligation (tonnes)
SEPA	114	205	15,687
SEPA Registered Compliance Scheme Members	177	430	209,875
TOTAL	**291**	**635**	**225,562**

[18] The figure for total businesses is different to the number of registrations. This is because company groups can include all their subsidiary companies in one registration.

Table 35 Total Packaging and Packaging Materials Supplied (tonnes)

Activity	Paper	Glass	Aluminium	Steel	Plastic	Wood	Others
Manufacturer	16,684	0	1,293	0	0	87,194	0
Converter	30,068	0	156	46,431	65,539	6,396	90
Packer or filler	129,283	63,327	1,825	83,035	68,648	47,732	283
Selling	259,747	205,839	9,895	90,589	186,956	37,277	613

Table 36 Packaging and Packaging Materials Supplied by Special Producer (tonnes)

Activity	Paper	Glass	Aluminium	Steel	Plastic	Wood	Others
Converter	2	24	-	65	3	-	6
Packer or filler	142	-	-	3	-	-	-
Selling	136	311	3	456	435	-	130
Imported transit - packaging	40	-	-	372	414	59	-

From 1999, special producers must enter the quantities of packaging and packaging materials they handled in the previous year for which they were special producers.

Table 37 Packaging and Packaging Materials Exported from the UK (tonnes)

Activity	Paper	Glass	Aluminium	Steel	Plastic	Wood	Others
Manufacturer	10,399	3	26	24	718	10,854	1
Converter	2,942	3	59	2,804	7,192	1,812	0
Packer or filler	40,799	5,233	285	5,712	14,388	12,666	8
Selling	22,508	81	48	2,790	6,250	15,215	15

Table 38 Packaging and Packaging Materials Imported (tonnes)

Activity	Paper	Glass	Aluminium	Steel	Plastic	Wood	Others
Converter	1,657	0	1	10,664	40,494	40	89
Packer or filler	12,319	1,356	875	12,082	10,009	873	36
Selling	22,141	5,400	387	5,900	8,984	2,338	19
Imported transit packaging	31,322	12	56	1,555	5,186	7,312	6

Table 39 Statement of Obligations for companies registered with SEPA and members of Wastepack

Obligation	Material	Tonnage
Gross Recovery	-	225,562
Recycling	Paper	19,196
	Glass	12,072
	Aluminium	568
	Steel	8,127
	Plastic	12,491

Reprocessing in Scotland

The table below shows the number of SEPA accredited reprocessors and the packaging waste reprocessed in Scotland during 1999. Please note that there is no correlation between the packaging handled by SEPA registered companies/compliance schemes and packaging waste recovered and recycled by SEPA accredited reprocessors. These figures can only be correlated once they are aggregated to UK level i.e. once total UK packaging handled and total packaging waste reprocessed in the UK is assessed.

Table 40 Reprocessors/Exporters

	1999
Number of SEPA accredited reprocessors	24
Packaging waste reprocessed by accredited companies in Scotland	365,000
Total Number of Reprocessor in the UK	234
Total Packaging Waste reprocessed by accredited reprocessors in the UK	3,600,000

Reprocessing of Packaging Waste in 1999

Table 41 shows the quantity of packaging waste reprocessed by material (paper, plastic, glass, paper composting, energy from waste).

Material	Packaging Waste Reprocessed (tonnes) (1999)
Paper	206,280
Plastic	4,161
Glass	113,496
Energy from Waste	2,296
	326,233

In 1999 there were no accredited reprocessors for steel or aluminium in Scotland. The requirement to recover wood packaging waste did not come into force until 2000 therefore there was no need to accredit wood reprocessing plants.

Annex 6

* sites licensed to accept special waste.

Licence Holder	Site	National Grid Reference
Incinerators		
Borders General Hospital	Huntlyburn, Melrose	NT534338
ChiRex (Annan) Ltd	Newbie, Annan	NY644187
Crosshouse Hospital	Crosshouse, Kilmarnock	NS403384
Glaxo Wellcome Operations	Montrose, Angus	NO574723
Hamilton (Irvine) Ltd	Shewalton, Irvine	NS339367
Hamilton Clinical Waste Ltd	Irvine	NS339367
Inveresk Research	Tranent, East Lothian	NT405711
Moredun Research Institute	Penicuik, Midlothian	NT243634
North Ayrshire & Arran National Health Service Trust	Crosshouse Hospital, Kilmarnock	NS403384
Orkney Health Board	Kirkwall, Orkney	NY456105
Orkney Islands Council	St. Ola, Orkney	HY437091
SAC Vet Services	Bucksburn	NJ882106
SAC Veterinary Science	Perth	NO 94 231
Sacone Environmental Ltd	Brechin	NO614596
Scottish Agricultural College	Auchincruive, Ayr	NS238662
Scottish Agricultural College	Greycrook, St Boswells	NT599304
University of Edinburgh	Edinburgh	NT258731
Wascot Hides	Shettleston, Glasgow	NS638645
Elf Exploration UK plc	Flotta Oil Terminal, Flotta	ND355945
Landfill Sites		
*Aberdeen City Council	Ness Farm, Aberdeen	NJ967037
*Alcan	Alcan, Lochaber Works	NN125753
*Alcan	Alcan, Kinlochleven	NN180619
*Angus Council	Lochhead Landfill, Forfar	NO480510
*British Steel plc	Secure Containment Facility, Ravenscraig, Motherwell	NS768578
*Caird Environmental Ltd	Hartlouphill, Airdrie	NS770699
*Comhairle nan Eilean Siar	Bennadrove, Stornoway	NB386345
*Falkirk Council	Kinneil Kerse, Bo'ness	NS975810
*Hanson Waste Management	Kaimes Quarry, Kirknewton	NT130665
*Haul Waste	South Quarry, Dunbar	NT720755
*Highland Council	Longman, Inverness	NH675468
*Highland Council	Seater Landfill Site, By Wick	ND248603
*I & H Brown (Plant) Ltd	Battleby, Perth	NO082295
*Levenseat Ltd	Muldron Quarry, near Fauldhouse	NS915575
*Mr G Kerr	Pumpherston Works	NT074695
*Northumbrian Environmental Management Ltd	Binn Farm, Glenfarg	NO178142
*Patersons of Greenoakhill Ltd	Greenoakhill, Glasgow	NS666627
*Shanks & McEwan (Northern) Ltd	Tarbothill, Murcar	NJ957138
*Shanks & McEwan Northern Ltd	Greengairs, Airdrie	NS789698
*Stirling Council	Lower Polmaise, Stirling	NS834931
*Tarmac Heavy Building Materials UK Ltd	Craignaught Quarry, Dunlop	NS444516
*UK Waste Management	Wellbank Quarry, Dundee	NO473378
*West of Scotland Water	Glassford Water Treatment Works	NS708478
*William Tracey Ltd	Barkip Landfill	NS335505
A & M Smith	Bankhead, Portlethen	NO928996
A B Hendry	Beam Quarry, Bonnybridge	NS836771
Aberdeen City Council	Hill of Tramaud, Aberdeen	NJ 948133
Aberdeenshire Council	Crows Nest Landfill, Banchory	NO688973
Aberdeenshire Council	Pitdrichie Landfill, Drumlithie	NJ798 819
Aberdeenshire Council	Millmoss Landfill, Turriff	NJ 728493
Aberdeenshire Council	Brandon Howe Landfill, Banff	NJ 667638
Aberdeenshire Council	Burnside Quarry, Kintore	NJ774127
Aberdeenshire Council	Govals Quarry, Lumsden	NJ477232
Aggregate Industries UK Ltd	Fledmyre, Montrose Rd, Forfar (Site 2)	NO487516
Alcan Chemicals Europe	Whinneyhall Landfill, Burntisland	NT248874
Alexander Couper & Co	Denny	NS808836
Alexander Sandison & Sons Ltd	Hagdale Quarry, Shetland	HP638101
Alexander Thomson & Co Ltd	Home Farm, Kingswells	NJ863063
Andrew Cook (Containers) Ltd	Devon Quarry, Kennoway	NO337048
Andrew Cook (Containers) Ltd	Belliston Quarry, Arncroach	NO498063
Angus Council	Arrats Mill, Brechin	NO646587
Angus Council	Restenneth Landfill Site, Forfar	NO483515
Angus M Howie	Millhouse Farm, Dunning	NO020143
ANI Bradken	Bathgate	NS974682

Licence Holder	Site	National Grid Reference
Argyll and Bute Council	Glengorm Landfill Site, Isle of Mull	NM488558
Argyll and Bute Council	Achadaphail, Isle of Mull	NM400225
Argyll and Bute Council	Bonaveh Landfill Site, Isle of Colonsay	NR398955
Argyll and Bute Council	Lingerton Landfill Site, Lochgilphead	NR867853
Arjo Wiggins Fine Papers Ltd	Little Clinterty Quarry, Clinterty	NJ836123
Armstrong Waste Management Ltd	Auchenlosh Quarry, Dalbeattie (Phase II)	NX851612
Balfour Beatty	Creagan Bridge, Balcardine, Argyll	NM977441
Banchory Contractions Ltd	South Hirn, Crathes	NJ737002
Barr Limited	Clayshant, Sandhead	NX110525
Barr Ltd	Garlaff Quarry, Cumnock	NS542176
Blue Circle Industries plc	North Quarry, Dunbar	NT700775
Borderland Reclamation Ltd	Meigle Potts, Clovenfords	NT453365
British Petroleum	Caldback Ness, Sullom Voe	HU403765
British Waterways	Almond Aquaduct, near Livingston	NT104706
Bruce Plant Hire	Arnhall Quarry, Edzell	NO608697
Bruce Plant Hire	Lochburn Quarry, Stonehaven	NO854832
Bruce Plant Hire	Ury Quarry, Stonehaven	NO860874
Burnthills Demolition	Summerston Farm, Glasgow	NS581725
C & S Smith	Drumsleed, Fordoun	NO733777
C A Duguid & Sons	Knapps of Thernie, Turriff	NK738446
Caird Environment Ltd	Leys Quarry, Mintlaw	NK005526
Caird Environmental Ltd	Cambusbeg, Callander	NN662049
Central Scotland Water Development Board	Craggans Hill, Glenturret	NN856243
Chap Quarries (Aberdeen) Ltd	Park Quarry, Durris	NO804979
Clackmannanshire Council	Black Devon, Alloa	NS895913
Colin Stewart	Lochaber, Arbroath	NO604433
Comhairle nan Eilean Siar	Raoinavat, Isle of Lewis	NB243459
Comhairle nan Eilean Siar	Rueval, Isle of Benbecula	NF 811535
D Cochrane	Catmoss Quarry, Greenlaw	NT713451
D Geddes (Contractors) Ltd	Border Quarry, Leysmill	NO600485
D Geddes (Contractors) Ltd	Kinnell, Friockheim	NO607503
D Geddes (Contractors) Ltd	Ardownie Quarry, Monifieth	NO493345
D Geddes (Contractors) Ltd	Prettycur, Montrose	NO698608
D J Laing (Contractors) Ltd	Gallowflats, Errol	NO209213
D J Laing (Contracts) Ltd	Petterden Land Reclaimation, Dundee	NO424398
D Skene (Plant Hire)	Freelands Farm, Ratho	NT140710
Derek Milne	Dyce Quarry, Aberdeen	NJ966137
Dr & Mrs H Riffkin	Teuchats Farm, By Leven, Fife	NO403075
Drum Environmental Ltd	Torphin Quarry	NT028597
Dumfries & Galloway Council	Corsehill, Annan	NY206697
Dumfries & Galloway Council	St Mary's, Sanquhar	NS782104
Dumfries & Galloway Council	Gatelawbridge, Thornhill	NX 902965
Dumfries & Galloway Council	Blacks Plantation Landfill, Whithorn	NX428406
Dumfries & Galloway Council	Galdenoch, Leswalt, Stranraer	NW988644
Dundee City Council	Longhaugh Landfill, Dundee	NO433329
Dundee City Council	Riverside Landfill, Dundee	NO037029
E W G Dickey & Co	Kingsdale, Firth, Orkney	HY378115
E. Bowman	Kinlochiel	NN009767
East Coast Skips	Hope Quarry Near Pathhead	NT403630
East Lothian Council	Carberry, East Lothian	NT364701
East of Scotland Water	Broadside Reservoir, Denny	NS769831
East of Scotland Water Authority	Upperside Quarry, Near Temple	NT291559
Elf Exploration uk plc	Golta Tip, Flotta	ND365948
Fife Council	Lower Melville Wood , By Ladybank	NO300117
G & A Munn & Son Landfill Ltd	Mid Auchencarroch Farm, Jamestown	NS421815
G & F Milne	Bodychell, Memsie, Fraserburgh	NJ954629
G B & A M Anderson	West Staney Hill, Lerwick	HU448422
G R Service Co Ltd	West Carron, Falkirk	NS875820
G S Brown Construction Ltd	North Ballo Quarry	NO247359
G.W. Young & Sons	Flex Railway Cutting	NT502124
Glasgow City Council	Kilgarth Cartgill Road, Coatbridge	NS719675
Glasgow City Council	Summerston Landfill, Glasgow	NS579718
Grant Construction Services (Fife) Ltd	Dodhead Links, Burntisland	NT247869
Henry Boot Scotland	Marchbanks WTW, Balerno	NT166 646
Henry Gilles Haulage Contr	Drumshoreland Bing, Pumpherston	NT074700
Hepworth Refactories	Haining Wood,Whitecross	NS955774
Highland Council	Stoneyfield, Invergordon	NH690713
Highland Council	Ardachu Landfill Site, Brora	NC893047
Highland Council	Granish Landfill, Aviemore	NH900148
Highland Council	Raasay Waste Disposal Site, Creachan	NG554379
Highland Council	Brackletter	NN190828
Highland Council	Portree	NG471447
Highland Council	Bettyhill Landfill, Sutherland	NC737603

Licence Holder	Site	National Grid Reference
Highland Council	Melvich Landfill, Sutherland	NC866645
Highland Council	Ullapool Waste Transfer Station, Ullapool	NH122964
Highland Council	Gairloch Site C, Gairloch	NG819778
Highland Council	Torbreck, Lochinver	NC097241
Highland Council	Kilchoan Landfill, Argyll	NM469649
Highland Council	Rhiconich Landfill, Sutherland	NC262526
Highland Council	Tongue Landfill, Sutherland	NC612547
Highland Council	Old Quarry, Wick	ND372501
Holt Drainage	Achscrabster, near Thurso	ND080633
Home Options Limited	Lynturk Tough, Alford	NJ595124
Howegarden Ltd	Hospital Wood, Turriff	NJ735458
International Paper (UK) Ltd	Broomend, Inverurie	NJ770190
J & A Plant Services in liquidation	Beithglass Quarry, Skelmorlie	NS200672
J & L Spence (Waste Away) Ltd	Easter Hatton Farm, Balmedie	NJ965157
J & S Mackie	South House, Tankerness	HY507076
J H Connon Limited	Greendams, Newmachar	NJ868202
J H Connon Ltd	Cairnhall, Kintore	NJ787178
J Haig Hamilton	West Fortune Farm, Drem	NT534801
J M Kennie(Demolitions) Ltd	Auldcathie, Winchburgh	NT075755
J M Murdoch & Sons Ltd	Capellie Landfill, Neilston	NS472583
J.D.H. Gordon, Esq	Railway Cutting, Whitehill Farm, St Boswells	NT578310
James Rae	Auchenstarry Farm, Innerwick	NS712765
John Fyfe (Contractors) Ltd	West Quarry, Charlestown	NT065840
John Fyfe Limited	Upper Townhead Farm, Kintore	NJ782170
John Gibbons	Middle Essie, St Fergus	NK076546
John Marshall & Son	Dalreoch Farm, Dunning	NO003173
John Wilson	Auchterhouse Shooting Ground	NO327381
Johnston Controls Ltd	Dounreay near Thurso	NC993683
Joss (Aberdeen) Ltd	Loch-hills, Dyce	NJ914144
King Contractors (Perth) Ltd	Huntingtower Quarry, Perth	NO076247
Kirkmyres Sand & Gravel	Pitnacalder Quarry, New Aberdour	NJ873628
Kirkmyres Sand & Gravel	Balquhindachy Farm, Turriff	NJ761486
Kirkton Barns Reclamation Account	Kirktonbarns Landfill, Tayport	NO452261
KMS (Fife) Ltd	Tolliehill Landfill, Cowdenbeath	NT165930
L H Spence & Sons	Brackmont Mill, St Michaels, Leuchars	NO437224
Les Taylor Contractors Ltd	Savoch Quarry, Peterhead	NK066425
Lothian Recycling 1996 Ltd	Pentland Mains Landfill, Midlothian	NT254654
Luddon Construction Ltd	Birdston Tip, Kirkintilloch	NS649751
Luddon Construction Ltd	East Mavis Valley, Bishopbriggs	NS597714
Luddon Construction Ltd	Dalreoch Quarry, Dumbarton	NS388761
M & J Ballantyne	Broomhouse Quarry, Maxton	NT633309
M Ridgeway, Esq	Railway Cutting, Nether Howden Farm, Oxton	NT499532
Mardon Plant Hire Ltd	Hillhouse Farm	NT117674
Marshall Farms	Balquharn No 2, By Alva	NS866966
McFadyens Contractors Ltd	Dhurrie Quarry, Campbeltown	NR684223
McIntosh Plant Hire (Aberdeen) Ltd	Cairdhillock Landfill, Kingswells	NJ847 068
McIntosh Plant Hire (Aberdeen) Ltd	Easter Beltie, Torphins	NJ644004
McTaggart Construction Ltd	Giffenmill Railway Cutting, Barrmill, by Beith	NS372514
Messrs D Menzies & Partners	Mains of Taymouth, Kenmore	NN789477
Messrs George Raeburn	Auchentibber, East Kilbride	NS667527
Messrs J & R Mitchell	Old Pairney Quarry, Auchterarder	NN977130
Messrs Swanson and Gunn	Heathfield Quarry Janetstown	ND096667
Midlothian Council	Drummond Moor Landfill, Penicuik	NT273 597
Moray Council	Newtyle Landfill, near Forres	NJ054552
Moray Council	Nether Dallachy Landfill, near Buckie	NJ361643
Moray Council	Kirkhill Landfill, Elgin	NJ234634
Morris Young (Perth) Ltd	Loanleven Farm, Perth	NO055258
Mr A P Anderson	Anderson, Kinbuck Quarry	NN795050
Mr Alex Stewart	Tarbolton Moss Landfill	NS426283
Mr Angus Macleod	Marybank Quarry, Stornoway	NB408328
Mr B Paterson	Barclosh, Dalbeattie	NX851612
Mr Gavin Craig	Avonside, Drumclog	NS630370
Mr George Adam	Cowie Road, Bannockburn	NS822901
Mr George Adam	Muirton Park Cottage, Bannockburn	NS818896
Mr Ian Ross	Cousland, By Dalkeith	NT375688
Mr J Halliday	Campbelton Farm, Twynholm	NX657538
Mr J Muir	Inverqueich Farm, Alyth	NO274499
Mr Robert Drummond	Straid Farm, Lendalfoot	NS139907
Murray & Burrell Ltd	Hartwoodburn Farm, Selkirk	NT467269
N.C. Law Construction & Demolition	Burnside Phase 2, By Tillicoultry	NS907968
Norman Jamieson	Gagie Quarries, near Monikie	NO468367
North Ayrshire Council	Shewalton Landfill, Irvine	NS333365

Licence Holder	Site	National Grid Reference
North Ayrshire Council	Nethermains Landfill, Bartonholm, Irvine	NS309415
North Lanarkshire Council	Auchinlea Landfill, Cleland	NS280658
North Lanarkshire Council	Dalmacoulter Landfill, Airdrie	NS765678
North of Scotland Water Authority	Lochcraigs Wood, Lintrathen	NO280543
North of Scotland Water Authority	Lumsden, Rhynie	NJ468224
North of Scotland Water Authority	Ruthven	NJ517467
North of Scotland Water Authority	Elf Hill Quarry, Elgin	NJ211557
Orkney Islands Councils	Peat Road Landfill, Flotta	ND347926
Orkney Islands Councils	Gallowtuag Quarry, South Walls, Hoy	ND304896
Orkney Islands Councils	Chinglebraes Quarry, St Ola, Orkney	HY427090
Orkney Islands Councils	Mitchell's Quarry, Stronsay, Orkney	HY657281
Orkney Islands Councils	Westside Road Quarry, Eday, Orkney	HY562334
Orkney Islands Councils	Blossom Quarry, Rousay, Orkney	HY424932
Orkney Islands Councils	Bossack Quarry, Tankerness, Orkney	HY504084
P.S. Nelson & Sons	Lower Polmaise, Fallin	NS834931
Pat Munro (Alness) Ltd	Caplich Quarry, Alness	NH668704
Pennant Plant Ltd	Prestonholm, Dalhousie	NT324627
Perth & Kinross Council	North Forr Landfill, By Crieff	NN871202
Pure Malt Products Ltd	Haddington	NT518744
R Garrick	The Old Lime Quarry, Girlsta	HU430504
R W & P Millican	Heughhead, Reston	NT877626
Railtrack PLC	Shewalton Moss Tip, Irvine	NS344352
Realm Construction	Lathalmond Tip, near Dunfermline	NT090920
Reclaim (Helensburgh) Ltd	Finnart Landfill, Garelochhead	NS242944
Renfrewshire Council	Moss Road, Linwood	NS443656
Richard Lees (Scotland) Ltd	Addiewell, near West Calder	NS992626
Robert Russell	Wester Seamores Farm, Dennyloanhead	NS805794
Robertson Contracting	Newton Toll, Elgin	NJ166632
Robinson & Davidson Ltd	Townhead Farm, Collin	NY025755
Russell Coal Limited	Gartshore, Twechar	NS702763
S McAlister	West Thomaston Farm, Banknock	NS778798
Scottish Borders Council	Corsbie Dean	NT623455
Scottish Borders Council	SBC Roads DLO, Caddonlee Farm, Clovenfords	NT447357
Scottish Borders Council	Easter Langlee Landfill, Galashiels	NT518367
Scottish Borders Council	Dunion Hill Landfill, Jedburgh	NT625189
Scottish Borders Council	Cleugh Landfill, Preston	NT792592
Scottish Power	Foreshore, W.Pans/Musselburgh	NT360735
Scottish Power	Valleyfield (Torry Bay)	NT000850
Scottish Power	Longannet	NS960850
Shetland Islands Council	Rova Head, Lerwick	HU471452
Smith Skip Ltd	Knowes Farm, Beith	NS342553
T Muir (Haulage) Ltd	Balbie Farm, Kirkcaldy	NT232892
Tarmac Building Materials Ltd	Coltness Factory, Wishaw	NS825553
Tarmac Heavy Building Materials UK Ltd	Melville No 2, Lasswade	NT298667
Tawse Ellon (Haulage) Ltd	Wester Hatton Farm, Balmedie	NJ948153
Taylors Industrial Services Ltd	Gregness, Aberdeen	NJ968037
Tayside Contracts	Bolshan Quarry, Friockheim	NO621527
Tayside Contracts	Cultullich, Aberfeldy	NN873504
Tayside Contracts	Isla Bank, By Coupar Angus	NO213414
Tillicoultry Quarries Ltd	Tulliallan Quarry	NS939898
Toffolo Jackson	Glasgow	NS557598
Torith Ltd	Baldragon Farm, Dundee	NO378352
Tullis Russell & Co Ltd	East Forthar Farm, Ladybank	NO296059
Uist Builders (Construction) Ltd	Grimshader Quarry	NB394275
W Forrest & Son	Omoa Works, Bellshill	NS798598
W H Malcolm Ltd	Inchbelle, Kirkintilloch	NS668756
W H Malcolm Ltd	Mavis Valley, Bishopbriggs	NS593714
W H Malcolm Ltd	Giffen Quarry, By Beith	NS379507
W H Malcolm Ltd	Overgree Farm, Burnhouse	NS385510
W H Malcolm Ltd	Shewalton Road Sand Quarry, Irvine	NS330371
W H Malcolm Ltd	Reilly Quarry, Renfrewshire	NS418695
W H Malcolm Ltd	Southbar Landfill, Inchinnan	NS447693
W H Malcolm Ltd	Medrox Quarry, Glenboig	NS726699
W J & R Morgan	Anniston, Inverkeilor, Arbroath	NO663478
W M Tracey Ltd	Griffenmill Quarry	NS373510
West of Scotland Water	Dryfield STW, Kirkintilloch	NS 673263
West of Scotland Water	Jellyhill STW, Bishopbriggs	NS671260
West of Scotland Water	Penwhirn, Stranraer	NX114676
West of Scotland Water	Bareagle Forest, Dunragit	NX143563
West of Scotland Water	Gatehouse of Fleet, Lochwhinyeon	NX620605
West of Scotland Water	Laurieston Forest	NX665635
West of Scotland Water	Locharmoss, Dumfries	NY010785
William Hamilton & Sons (Contractors) Ltd	Dovesdale Farm, Stonehouse	NS770460

Licence Holder	Site	National Grid Reference
Wm Baxter & Son	Baxter's Food Factory, Fochabers	NJ339601
Wm Thompson & Son (Dumbarton) Ltd	Riggangower Quarry, Midton	NS438752
Mobile Plants		
Bio-logic Remediation Limited	N/A as Mobile Plant	
Bio-logic Remediation Limited	N/A as Mobile Plant	
Treatment Plants		
*Aberdeenshire Council	Inverboyndie Treatment Plant, Banff	NJ664643
*Alcan	Kinlochleven	NN180619
*Burgess & Garrick	Graven Depot, Sellaness, Sullom Voe	HU402729
*Caird Environmental Ltd	Greenbank Road, East Tullos	NJ950038
*Champion Technologies Inc	Minto Avenue, Altens	NJ955030
*Clearwater DC	Glasgow	NS601625
*Dundee City Council	Riverside Landfill, Dundee	NG037029
*Glasgow City Council	Dawsholm Disposal Works, Glasgow	NS555693
*Glasgow City Council	Glasgow	NS664658
*J Burgess & J Garrick	Broonies Taing, Sandwick	HU425230
*Kilbride Industrial Services Ltd	Flemington, Cambuslang	NS266659
*Lanstar (Scotland) Ltd	Transfer Station (Solvent Processing) Paisley	NS476647
*Leigh Environmental Ltd	Bankside Ind Est, Falkirk	NS897815
*Ministry of Defence (N)	Faslane	NS242901
*Mitchell Thompson	Thornliebank	NS557596
*Northburn Services	Coatbridge	NS741661
*Orcol Fuels Ltd	Tannochside, Uddingston	NS703625
*Shanks & McEwan (Northern) Ltd	East Tullos	NJ952037
*Sureclean Ltd	Teannich Ind Est, Alness	NH652692
*Taylors Industrial Services Ltd	Hareness Circle, Altens	NJ 945 027
*UK AEA	Dounreay near Thurso	NC992679
*UK Waste Management Ltd	Twechar	NS701762
*Walsh Brothers	Alloa	NS883924
Aberdeen City Council	Sclattie Refuse Treatment Plant, Bucksburn	NJ893100
Aberdeen City Council	Refuse Treatment Plant, East Tullos	NJ953039
Burgess & Garrick	Vaster, Gott, Tingwall	HU432483
D Geddes (Contractors) Ltd	Dundee Auto Salvage, Kellas	NO469365
D.J. Laing (Contractors) Ltd	Petterden, Dundee	NO424398
D.W. Martin	South Camp, Creca	NY227704
East of Scotland Water Authority	Cupar Trading Est, Cupar	NO392147
East of Scotland Water Authority	Marine Esplanade	NT288760
Eurocare Environmental Services Ltd	Elliot Ind Est, Arbroath	NO618403
Ferro Carbon Ltd	Green Bing	NT070710
J.J. Walker	Annan	NY201664
John W. Hannay & Co LTD	Dundee	NO400310
Morris Young (Perth) Ltd	Loanleven Farm, Perth	NO051258
North Ayrshire Council	Shewalton Landfill, Irvine	NS333365
North of Scotland Water Authority	Nigg, Aberdeen	NJ964045
Northumbrian Environmental Management Ltd	Binn Farm, Glenfarg	NO178142
Perth & Kinross Council	Dunkeld	NO027418
Ramsay McBain	Kirk Street	NO377316
Scot's Organics Ltd	Fearn, Ross-shire	NH869775
Scottish and Southern Energy plc	Strichen, Fraserburgh	NJ947555
Synthomer Ltd	East kilbride	NS618553
UK Waste Management Ltd	Aberdeen	NJ948038
West of Scotland Water	Broomhouse, Uddingston	NS672621
West of Scotland Water	Glasgow	NS537661
West of Scotland Water	Shieldhall STW, Glasgow	NS535662
William Tracey Ltd	Linwood	NS432643
Wm Tracey Ltd	Barrhead	NS500592
Reprocessors Accredited in 1998		
Adam Robertson & Co Ltd	Newcalder Paper Mill, West Lothian	NT063672
Armstrong Waste Management Ltd	Auchentosh Landfill Site, Dumfries & Galloway	NX896591
BPB Paperboard	Davidson Mill, Aberdeen	NJ903100
BPI Recycled Products	College Road, Dumfries	NX969773
British Polythene Industries plc	96 Port Glasgow Road, Greenock	NS306750
John W Hannay & Co Ltd	Linwood Avenue, East Kilbride	NS612547
Mac-Glass Recycling	52 Easthouses Road, Dalkeith	NT342655
Rockware Glass Ltd	Portland Plant, Irvine	NS319387
Smith Anderson & Sons Ltd	Fettykil Mills, Fife	NO259018
Smith Anderson & Sons Ltd	St John's Works, Fife	NO254072
United Glass Ltd	Glasshouse Loan, Clackmannanshire	NS881924
Vencel Resil Ltd	Parkhead, Glasgow	NS628643

Annex 7

Table 42 Controlled Waste going to landfill in Scotland in 1997

Waste Description	Tonnes	Percentage
Household waste	2,697,998	19.3
Commercial	2,218,027	15.9
Industrial -		
Construction & Demolition	7,007,534	50.1
Other Industrial	1,951,919	14.0
Other	103,066	0.7
Total Controlled Waste	13,978,544	100

This total has been taken from the ERM study. The data reported refer to the final figures provided by ERM after extrapolation.

Annex 8

Table 43 Sewage Sludge Diposal Routes 1996-1997

Outlet	Water Authority			Totals	Percentage
	NoSWA	ESWA	WoSWA		
	Tonnes of dry solids (1997)				
Sea	1,500	15,700	71,300	88,500	76%
Agricultural / Land Reclamation	8,200	9,700	5,700	23,600	20%
Landfill	100	4,900	-	5,000	4%
Totals	**9,800**	**30,300**	**77,000**	**117,000**	**100%**

Annex 9

Guidance on general technical requirements

Guidance on general technical requirements on waste prior to SEPA being established in 1996 was in the form of a series of Waste Management Papers produced by the government in consultation with industry. After 1996 the task of leading the production of guidance fell to the Environment Agency and SEPA. A list of the Waste Management Papers current during 1998 is given below together with other guidance prepared or in preparation during 1998.

Waste Management Papers	Title/Reference	Status (Statutory/ Non-statutory)
1	A Review of Options, 2nd Edition (1992)	Non-statutory
2	Waste Disposal Surveys (1976)	Non-statutory
3	Guidelines for the Preparation of a Waste Disposal Plan (1976)	Non-statutory
4	The Licensing of Waste Disposal Sites, 3rd Edition (1994)	Statutory
4A	Licensing of Metal Recycling Sites (1995)	Statutory
5	The Relationship Between Waste Disposal Authorities and Private Industry (1976)	Non-statutory
6	Polychlorinated Biphenyl (PCB) Wastes - A Technical Memorandum on Reclamation, Treatment and Disposal (1994)	Non-statutory
7	Mineral Oil Wastes - A Technical Memorandum on Arisings, Treatment and Disposal (1976)	Non-statutory
8	Heat Treatment Cyanide Wastes - A Technical Memorandum on Arisings, Treatment and Disposal, 2nd Edition (1985)	Non-statutory
9	Halogenated Hydrocarbon Solvent Wastes from Cleaning Processes - A Technical Memorandum on Reclamation and Disposal (1976)	Non-statutory
10	Local Authority Waste Disposal Statistics 1974/1975 (1976)	Non-statutory
11	Metal Finishing Wastes - A Technical Memorandum on Arisings, Treatment and Disposal (1976)	Non-statutory
12	Mercury Bearing Wastes - A Technical Memorandum on Storage, Handling, Treatment, Disposal and Recovery (1977)	Non-statutory
13	Tarry and Distillation Wastes and Other Chemical Based Wastes - A Technical memorandum on Arisings, Treatment and Disposal (1977)	Non-statutory
14	Solvent Wastes (excluding Halogenated Hydrocarbons) - A Technical Memorandum on Reclamation and Disposal (1977)	Non-statutory
15	Halogenated Organic Wastes - A Technical Memorandum on Arisings, Treatment and Disposal (1978)	Non-statutory
16	Wood Preserving Wastes - A Technical Memorandum on Arisings, Treatment and Disposal (1980)	Non-statutory
17	Wastes from Tanning, Leather Dressing and Fellmongering - A Technical Memorandum on Recovery, treatment and Disposal (1978)	Non-statutory
18	Asbestos Wastes - A Technical Memorandum on Arisings and Disposal (1979)	Non-statutory

Waste Management Papers	Title/Reference	Status (Statutory/ Non-statutory)
19	Wastes from Manufacturing of Pharmaceuticals, Toiletries and Cosmetics - A Technical Memorandum on Recovery, Treatment and Disposal (1978)	Non-statutory
20	Arsenic Bearing Wastes - A Technical Memorandum on Recovery, Treatment and Disposal (1980)	Non-statutory
21	Pesticide Wastes - A Technical Memorandum on Arisings and Disposal (1980)	Non-statutory
22	Local Authority Waste Disposal Statistics 1974/75 to 1977/78 (1979)	Non-statutory
23	Special Wastes - A Technical Memorandum Providing Guidance on their Definition (1982)	Non-statutory
24	Cadmium Bearing Wastes - A Technical Memorandum on Arisings, Treatment and Disposal (1984)	Non-statutory
25	Clinical Wastes - A technical Memorandum on Arisings, Treatment and Disposal (1983)	Non-statutory
26	Landfilling Wastes - A technical Memorandum for the Disposal of Wastes on Landfill Sites (1986)	Non-statutory
26A	Landfill Completion - A Technical Memorandum Providing Guidance on Assessing the Completion of Licensed Landfill Sites (1993)	Statutory
26B	Landfill Design, Construction and Operation (1995)	Non-statutory
27	Landfill Gas - a Technical Memorandum Providing Guidance on the Monitoring and Control of Landfill Gas (1991)	Non-statutory
28	Recycling - A memorandum Providing Guidance to Local Authorities on Recycling (1991)	Non-statutory

Other Guidance

Producer Responsibility Obligations 1997
Guidance on evidence of compliance and voluntary accreditation of reprocessors (1st Edition) (SEPA/EA)

Producer Responsibility Obligations (Packaging Waste) Regulations 1997
The Agencies' Interpretation of 'Packaging' (2nd Edition) (SEPA/EA)

Producer Responsibility Obligations (Packaging Waste) Regulations 1997
SEPA Monitoring Strategy Report (Published annually) (SEPA)

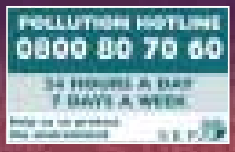
Producer Responsibility Obligations (Packaging Waste) Regulations 1997
'Are You Obligated' (SEPA/EA)

Special Wastes: A technical guidance note on their definition and classification (EA/SEPA/ Environment and Heritage Service, Northern Ireland

Safe Disposal of Clinical Waste (Health and Safety Commission Health Services Advisory Committee)

SEPA Internet address:
www.sepa.org.uk

Email:
publicrelations@sepa.org.uk



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