



Surrey Waste Capacity Management Needs Assessment 2022

Scoping of ‘Other’ Waste Streams

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Table of Contents

1. Introduction.....	1
Advice on Data	1
Principal Data Sources.....	2
Waste Data Interrogator	2
Data Presentation	2
2. Wastewater and Sewage Sludge	3
Context.....	3
Wastewater Treatment Capacity	4
Management of Sewage Sludge.....	4
Update.....	4
Sludge Storage Exemptions	5
Inputs of Other Waste to Wastewater Treatment Works in Surrey	5
Conclusion	5
3. Agricultural Waste	7
Context.....	7
The Nature of Different Agricultural Wastes	7
Natural Agricultural Waste Arisings.....	8
Non-Natural Agricultural Waste Arisings	8
Management Options	8
Delivery to a permitted facility	8
Applying for a permit.....	8
Registering an exemption	9
Agricultural Waste managed at Permitted Sites.....	9
Update.....	9
Agricultural Waste Managed via Exempt Activities	10
Conclusion	10
4. Low Level Radioactive Waste	11
Context.....	11
Context in Surrey	11
Policy Relevant to Surrey Arisings.....	11
Low Level Radioactive Waste from Non-Nuclear and Nuclear Sources.....	12
Nature.....	12

Non-Nuclear Sources	12
Management of VLLW and LLW	13
Very Low Level Waste (Exempt Waste)	13
Low Level Waste	13
Planning for the Management of LLW	14
LLW - The Proximity Principle	15
Production and Management of LLW in Surrey	15
Conclusion	18
5. Overall Conclusion	19

Table of Tables

Table 1: Principal permitted sites for Surrey sewage sludge outside Surrey	4
Table 2: Inputs to Permitted Wastewater Treatment Works in Surrey	5
Table 3: Permitted Sites Receiving Agricultural Waste from Surrey	9
Table 4: Landfill Sites Permitted to Receive LLW in the UK.....	14
Table 5: Radioactive Source Authorisations held within Surrey	16
Table 6: Permit involving Disposal of Radioactive Waste held within Surrey	18

Abbreviations

Abbreviations	Definition
AD	Anaerobic Digestion
AMP	Asset Management Plan
C & I	Commercial & Industrial Waste
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EfW	Energy from Waste
EWC	European Waste Catalogue
HLW	High Level Radioactive Waste
LACW	Local Authority Collected Waste
PPG	Planning Practice Guidance
STW	Sewage Treatment Works
VLLW	Very Low Level Radioactive Waste
WDF	WasteDataFlow
WDI	Waste Data Interrogator
WCNA	Waste Capacity Needs Assessment
WPA	Waste Planning Authority
WRMP	Water Resource Management Plan

Glossary of Terms

Term	Definition
Agricultural Waste	Waste produced on a 'farm' in the course of 'farming'. Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms e.g. plastics and metal.
Anaerobic Digestion	A process to manage organic matter including green waste and food waste broken down by bacteria in the absence of air, producing a gas (biogas) and nutrient rich solid or liquid (digestate). The biogas can be used to generate energy either in a furnace, gas engine, turbine or to power vehicles, and digestate can be applied to land as a fertiliser.
Asset Management Plan	An asset management plan produced by sewerage and water undertaking for approval by Ofwat includes an assessment of what assets make up the water, sewer or storm system in a particular area and plans to meet future needs within agreed budgets.
Biodegradable waste	Waste that can break down over time due to natural biological action/processes, such as food, garden waste and paper.
Commercial Waste	Waste from factories or premises used for the purpose of trade or business, sport, recreation or entertainment
Controlled Waste	Waste subject to controls emanating from the EU Waste Framework Directive.
Construction, Demolition & Excavation Waste	Waste arising from the building process comprising demolition and site clearance waste and builders' waste from the construction/demolition of buildings and infrastructure. Includes masonry, rubble and timber.
Defra	The UK Government department responsible for developing national waste management policy.
Energy from Waste (EfW)	The conversion of the calorific value of waste into energy, normally heat or electricity through applying thermal treatment of some sort. May also include the production of gas that can be used to generate energy.
Environment Agency	The body responsible for the regulation of waste management activities through issuing permits to control activities that handle or produce waste. It also provides up-to-date information on waste management matters and deals with other matters such as water issues including flood protection.
European Waste Catalogue (EWC)	Comprehensive listing of wastes divided into 20 chapters, most of which are industry-based, although some are based on materials and processes. Each waste type is assigned a unique six-digit code. Otherwise referred to as List of Waste (LoW).
Exemptions	Certain activities exempt from the need to obtain an environmental permit. Each exemption has specific limits and conditions that must be complied with to remain valid. Exemptions must be registered with the Environment Agency. Each registration lasts 3 years.
Green waste	Biodegradable plant waste from gardens and parks such as grass and hedge trimmings, from domestic and commercial sources suitable for composting.
Incineration	The controlled combustion of waste. Energy may also be recovered in the form of heat (see Energy from Waste).
Industrial Waste	Waste arising from any factory and from any premises occupied by an industry (excluding mines and quarries).

Term	Definition
Landfill (including land raising)	The permanent disposal of waste to land, by the filling of voids or similar features, or the construction of landforms above ground level (land-raising).
Local Authority Collected Waste	Waste collected by or on behalf of a local authority. Includes household waste and business waste where collected by a local authority and non-municipal fractions such as construction and demolition waste delivered to HWRCs. LACW is the definition used in statistical publications, which previously referred to municipal waste.
Ofwat	The regulatory body responsible for overseeing the privatised water and sewage industry in England and Wales.
Recovery	Subjecting waste to processes that recover value including recycling, composting or thermal treatment to recover energy.
Recycling	The reprocessing of materials extracted from the waste stream either into the same product or a different one.
The Plan area	The area subject to the Waste Local Plan to which this study relates. In this case the county of Surrey.
Waste Planning Authority	The authority responsible for planning for waste within a specific administrative area. In this case Surrey County Council.
Waste Transfer Station	A site to which waste is delivered for sorting or baling prior to transfer to another place for recycling, treatment or disposal.
Water Resources Management Plans	Statutory documents that all water companies must produce at least every 5 years intended to set out how they will achieve a secure water supply while also enhancing the environment.

1. Introduction

Surrey County Council has contracted BPP Consulting to produce the Surrey Waste Capacity Needs Assessment (WCNA) that underpins the preparation of its Minerals & Waste Local Plan.

The WCNA 2022 consists of the following documents:

1. Review of Management Requirements for Local Authority Collected Waste;
2. Review of Management Requirements for Commercial & Industrial Waste;
3. Review of Management Requirements for Construction, Demolition & Excavation Waste;
4. Review of Management Requirements for Hazardous Waste;
5. Scoping Review of Management Requirements for Other Waste;
6. Review of waste flows.

This report is concerned with a scoping review of ‘other’ waste streams as follows:

- Wastewater
- Agricultural Waste
- Low Level Radioactive waste

National Planning Practice Guidance (PPG)¹ is the principal source of advice with respect to the production of a Waste Local Plan evidence base. This advises that Waste Planning Authorities (WPAs) should seek to plan for the above streams. Hence, this report is intended to determine if it is necessary to expressly provide for the future management needs of these streams in the updated Minerals & Waste Local Plan for Surrey to 2042.

Advice on Data

The national PPG states that:

"Assessing waste management needs for Local Plan making is likely to involve:

- *understanding waste arisings from within the planning authority area, including imports and exports*
- *identifying the waste management capacity gaps in total and by particular waste streams*
- *forecasting the waste arisings both at the end of the period that is being planned for and interim dates*
- *assessing the waste management capacity required to deal with forecast arisings at the interim dates and end of the plan period."*

Paragraph: 022 Reference ID: 28-022-20141016

¹ available at: <https://www.gov.uk/guidance/waste>.

It includes a section entitled "Using data to monitor and forecast waste needs", which articulates the following principles waste planning authorities should adopt when using data to plan for the management of waste arising in their respective administrative i.e. Plan area:

- *Make clear assumptions on how data were handled, as well as their impact (including on forecasting)*
- *Provide data to an appropriate level of significance, based on their explicit assumptions. In practice, data quoted to more than 2 or 3 significant figures will not be helpful and spurious accuracy stemming from precise figures should be avoided*
- *Plan for a range of each type of waste rather than a specific single figure."*

Paragraph: 036 Reference ID: 28-036-20141016 Revision date: 16 10 2014

Principal Data Sources

The principal data sources used to generate this WCNA are as follows:

Waste Data Interrogator

Operators of all sites permitted to manage waste submit quarterly returns on the quantities, types and origin of waste received and, where applicable, destination of waste removed at their sites. These returns are collated by the Environment Agency (EA) and are included in a national database known as the Waste Data Interrogator (WDI). This is released approximately nine months after the end of the calendar year to which the data relates. The 2021 WDI (version 1 released Sep 2022) consisting of data for the calendar year 2021 is the most current version available at the time of writing².

While the WDI may be used to inform the generation of estimations for the principal waste streams, the data to estimate arisings of 'Other' waste streams is less readily available and as a result quantifying and forecasting arisings is more problematic.

Nevertheless, the PPG does advise that Waste Planning Authorities (WPAs) should seek to plan for these streams so the following is an initial overview of the quantities of each of these waste streams that may arise in Surrey and whether any specific capacity ought to be provided for to ensure their future safe management.

Data Presentation

In order to respect the need to avoid "spurious accuracy", the following approach has been taken:

1. Where actual tonnage data has been accessed, this has been used in the computations.
2. Where data has been subject to computation, this has been included to 3 sf. Final values discussed in the text are rounded to the nearest 500.
3. Where percentages have been used to generate data, the percentages are presented as whole numbers, however the computations actually use the full value. This means that values presented may not always precisely correspond to the values computed when applying the percentage value presented in this report.
4. Certain computations apply a threshold of >500 tonnes.

² Note that version 3 released Jan 2023 is now available to download

2. Wastewater and Sewage Sludge

Context

In Surrey, Thames Water Utilities and Southern Water are the designated sewerage and water undertakers with responsibility for providing wastewater treatment capacity³.

Every five years water and sewerage undertakers are required to submit to the water regulator, Ofwat, business plans known as Asset Management Plans (AMPs) that set out the services and infrastructure improvements the undertaker is planning to make and how these are to be funded. Ofwat sets price limits for the next five years based around these AMPs. Certainty of infrastructure provision over the medium and long terms can only be gained when future funding is secured through Ofwat's asset management plan review process. The current AMP period (known as AMP7) runs from 1 April 2020 to 31 March 2025 and does not therefore cover the whole Plan period to 2042⁴.

Water companies also produce Water Resources Management Plans (WRMP) which cover a 25-year period to maintain sufficient water supply for customers whilst ensuring enough water remains in the environment to achieve environmental targets. Thames Water Utilities current WRMP19 covers a 80-year period from 2020-2100⁵. The draft WRMP24 is to undergo consultation in 2023. Southern Water current WRMP covers a 50-year period from 2020-70. The draft WRMP24 is undergoing consultation which looks ahead to 2075.

While wastewater treatment plants are considered to be waste developments and therefore planning applications relating to their provision are handled by the Waste Planning Authority, the assessment of the need for future wastewater management is managed through the asset management plan process informed by requirements for improvements in the water environment regulated by the Environment Agency. Therefore, PPG advises that early discussions take place between local planning authorities and water and sewerage undertakers⁶, so that proposed growth and environmental objectives, set out in the AMP's, are reflected in local plans. This in turn should help ensure that the necessary infrastructure is funded through the water industry price review mechanism regulated by Ofwat.

There are two aspects of wastewater treatment that need to be addressed:

1. The provision of capacity to treat wastewater itself; and
2. the provision of capacity to manage the resultant solid wastes (sewage sludge) that arise from the treatment process.

Each is covered in the following sections.

³ Thames Water operate 18 and Southern Water operate 9 of the 27 WWTWs in Surrey.

⁴ AMP8 will cover the period from 1st April 2025 to 31st March 2030. The Price Review in 2024 is where water companies' will agree the AMP8 Business Plan with Ofwat for the following 5-year period.

⁵ They have also recently consulted on their 2019 WRMP for the period 2015-2045

⁶ Thames Water and Southern Water have responded to the consultation on the issues and options document as part of the preparation process of the new minerals and waste local plan but have not advised of any apparent shortfalls in wastewater/ sewerage infrastructure.

Wastewater Treatment Capacity

The Surrey WNA 2019 concluded that:

“The provision of treatment facilities is usually considered on a case-by-case basis in discussion with developers. Consequently it is not considered necessary to make strategic provision for such facilities.”

Management of Sewage Sludge

Sludge resulting from the treatment of wastewater is termed sewage sludge. Sewage sludge undergoes three stages of treatment, whereby primary treatment is the first phase of sewage treatment, followed by secondary and finally tertiary treatment. Some sites only offer primary treatment capacity and so the sludge may then be moved on to sites that offer secondary and tertiary treatment capacity. This section looks at the current capacity of wastewater treatment works for the management of sludge and requirements for future capacity.

Update

The WDI 2021 shows that a total of 154,686 tonnes of sewage sludge (EWC code 19 08 05 ‘*sludges from treatment of urban waste water*’) from Surrey was managed at permitted Waste water Treatment Works (WwTW) reporting through the WDI. Of this 68,903 tonnes were managed within Surrey at the Chertsey Sewage Treatment Works operated by Thames Water Utilities. This site also received digestate from anaerobic treatment as discussed in Section 2.3 from various WPAs.

The remaining tonnage of sewage sludge produced by WwTW in Surrey managed at permitted facilities was managed at four facilities outside Surrey, as shown in Table 1 below.

Table 1: Principal permitted sites outside Surrey receiving Surrey sewage sludge (>500 tonnes)

Source: WDI 2021

Facility WPA	Operator	Facility Name	Tonnes Received
Hampshire	Southern Water Services Ltd	Budds Farm WwTW	942
West Sussex	Southern Water Services Ltd	Goddards Green WwTW	22,294
Hertfordshire	Thames Water Utilities Limited	Rye Meads Waste Import Facility	7,425
Kent	Thames Water Utilities Limited	Long Reach WwTW	7,254
Oxfordshire	Thames Water Utilities Limited	Oxford STW Sludge Import Facility	2,744
Slough	Thames Water Utilities Limited	Slough WwTW	5,117
Hounslow	Thames Water Utilities Limited	Mogden WwTW	37,136
Swindon	Thames Water Utilities Limited	Swindon WwTW	2,527

The WDI 2021 reports outputs of sludges from the sites listed in Table 1 of c1,500 tonnes, all of which was sent for treatment outside Surrey⁷.

Sludge Storage Exemptions

Review of the exempt site listing provided by the EA indicates that a total of 510 locations were registered to Thames Water Utilities under the following exemption from permitting:

S3: Storing sludge at a place where it is to be used in accordance with the Sludge (Use in Agriculture) Regulations 1989.

This exemption allows up to 1,250 tonnes of sludge to be stored at each location at any one time. Material may be stored for up to 12 months before being applied to agricultural land as a fertiliser in accordance with Sludge (Use in Agriculture) Regulations 1989 & associated best practice guidance.

Of the 510 exemptions registered under Thames Water, 123 are S3 exemptions registered under the EA Thames area. As the listing does not include the addresses associated with each exemption it is not possible to identify the number that relate to locations in Surrey.

It should however be noted that these exemptions only provide interim storage for the sludge that has undergone treatment at the WwTW's in an area prior to application to land so are complementary to, rather than alternative or additional to, wastewater sludge treatment capacity itself.

Inputs of Other Waste to Wastewater Treatment Works in Surrey

WwTWs can provide a valuable function in managing wastes, other than wastewater, that arise in liquid and sludge form such as septic tank emptyings. WwTWs that receive such waste normally require an environmental permit. Review of the data presented in the WDI 2021 indicates that Chertsey STW in Surrey is permitted to receive and treat waste other than wastewater and sludges as shown in Table 2.

Table 2: Inputs to Permitted Wastewater Treatment Works in Surrey >500 tonnes (excluding EWC code 19 08 05)

Source: WDI 2021

Waste Code	EWC Waste Description	Total Tonnes
19 06 06	Digestate from anaerobic treatment of animal and vegetable waste	45,082
	Total	45,082

Conclusion

As stated in the adopted Surrey Waste Local Plan:

“One of the sites allocated under Policy 11a of this Plan (land to the north east of Slyfield Industrial Estate, Guildford) includes an area that will be developed as a new WWTW by Thames Water as

⁷ Note that if outputs of sludges were found to be sent for treatment within Surrey, this has been deducted from the inputs to sites outside Surrey to avoid double counting.

part of the Slyfield Area Regeneration Project (SARP)...Thames Water and the county council are working in partnership to deliver the SARP.”

Having reviewed the evidence, it is considered that the findings of the WNA 2019 and consequential policy in the adopted Waste Local Plan still hold in regards to wastewater and sewage waste needs given consultation with Thames Water and Southern Water advised no apparent shortfalls in infrastructure.

3. Agricultural Waste

Context

The Waste Management (England and Wales) Regulations 2006 brought the management of agricultural waste under legislative control for the first time. Prior to this, a significant proportion was managed on farms by burning or disposal into farm tips. These practices became illegal under the 2006 Regulations.

In advance of the introduction of the regulations a number of research projects were undertaken to establish quantities and composition of arisings from this stream⁸ and understand management arrangements in place at the time with a view to identifying management needs at national level:

- 1998 survey reported in a 2001 EA report
- Agricultural Waste Survey reported in a 2003 EA report

These remain the most current sources of data available for the agricultural waste stream as a whole and therefore continue to be relied upon when seeking to generate local estimates for planning purposes.

Following the introduction of the regulations, certain agricultural waste is considered more likely to be managed in the same way as the commercial and industrial waste stream, thus placing some additional capacity requirements on the management network that manages the Commercial and Industrial (C&I) waste stream.

In order to identify whether waste produced by agricultural sources in Surrey needs separate consideration in any updated Plan, the following three aspects have been considered:

1. The nature of different agricultural wastes in relation to types of agricultural holdings in Surrey;
2. the likely current level of arisings;
3. the way in which the arisings are managed.

The Nature of Different Agricultural Wastes

To be regarded as agricultural, waste must have been produced on a 'farm' in the course of 'farming'. Therefore, waste arising from activities that happen to be located on a farm, such as crop processing for food consumption, would fall outside this definition and be considered as commercial and industrial waste.

Agricultural waste takes both 'natural' (or organic) and 'non- natural' forms.

⁸ Environment Agency (2001). Towards Sustainable Agricultural Waste Management. Environment Agency R&D Technical Report P1-339. <https://www.gov.uk/government/uploads/.../geho0003bio-e-e.pdf>

Natural Agricultural Waste Arisings

This is the predominant waste stream produced by farming with the most commonly produced natural waste being those from livestock farming such as slurries and manure. In the UK, if manures and slurries are used as a fertiliser on agricultural land they are technically not seen as a controlled waste and are excluded from waste management regulation (although there are controls on the application through other means). Since natural wastes are outside formal control it is considered that they are unlikely to enter the formal waste management system which needs to be planned for⁹. Therefore, this report focuses on non-natural waste arisings.

Non-Natural Agricultural Waste Arisings

'Non-natural' agricultural waste is waste other than 'natural' organic waste arising from farming activities. This includes discarded pesticide containers, plastics, tyres, batteries, clinical waste, old machinery, waste oil and packaging waste. Non-natural waste arisings may also include organic waste such as crop residues. The only recognised source of national estimates for arisings of non-natural agricultural waste available is the 2001 EA Report entitled 'Towards Sustainable Agricultural Waste Management'. This report presents estimates of arisings down to English region level for 1998. For the South East region as a whole, the report estimated that approximately 40,039 tonnes of non-natural agricultural waste was produced on an annual basis.

Management Options

The 2006 DEFRA 'Waste Minimisation Manual: A Practical Guide For Farmers & Growers'¹⁰ identifies three principal routes for managing agricultural waste as follows:

1. Remove waste from the farm and deliver to an appropriately permitted facility.
2. Apply to the EA for a permit to manage certain waste on-farm¹¹.
3. Register an appropriate exemption to recover or dispose of some waste on-farm.

Each route is considered below.

Delivery to a permitted facility

This route would mean that any waste produced will be recorded at the permitted facility and hence reported through the WDI. Agricultural waste is coded under EWC 01 and EWC sub chapter codes 02 01. In the WDI 2021 the amount of waste reported under these codes from Surrey was c11,500 tonnes.

Applying for a permit

Where agricultural waste is being managed on a farm in sufficient quantities or on an ongoing basis an environmental permit may be required. Where a permit is granted by the EA the quantities of waste managed through such facilities would be reported through the WDI and hence captured for the

⁹ It should be noted that some on farm waste management facilities such as lagoons and AD plants may make provision for this waste stream, sometime in conjunction with other wastes counted under other streams.

¹⁰ DEFRA 2006 Product code PB 11674

¹¹ Intensive farming units such as pig or poultry farms are subject to environmental permitting.

purposes of quantifying this waste stream. Permitted facilities may also require express planning consent. Note that only two such facilities exist within Surrey as identified in Table 3.

Registering an exemption

Typical exemptions that farmers apply for include the ability to burn waste in the open (D7), spreading waste to benefit agricultural land (U10) and the use of waste in construction (U1), which covers the use of waste hardcore to maintain farm tracks and roads. However, these exemptions may also be used to cover activities taking place on farmland involving the import of waste from non-agricultural sources. The specific exemptions that relate solely to the management of agricultural waste are as follows:

- Deposit of agricultural waste consisting of plant tissue under a Plant Health notice.
- Treatment of sheep dip for disposal.
- Treatment of non-hazardous pesticide washings by carbon filtration for disposal.
- Spreading pig and poultry ash mixed with manure on farmland.

Agricultural Waste managed at Permitted Sites

The previous WNA (2019) reported c35,000 tonnes of agricultural waste arose in Surrey in 2017. However, the Surrey Waste Local Plan (2020) took the position that:

“The amounts of those wastes produced in Surrey are not sufficient to warrant specific provision in terms of site allocations. The policies in the Plan are sufficiently flexible to guide any decisions that may need to be taken in respect of proposals for new management facilities capable of handling any specialised waste streams (excepting C,D&E wastes)¹².”

Update

Analysis of the WDI 2021 identified c11,500 tonnes of waste from agricultural sources in Surrey was managed at permitted sites in 2021. This was composed of c9,500 tonnes of non-natural waste and c2,000 tonnes of natural waste. This compares to c35,000¹³ tonnes in 2017 which was primarily composed of organic waste. The primary recipients of the waste are displayed in Table 3 below.

Table 3: Permitted Sites Receiving Agricultural Waste from Surrey (>500 tonnes)

Source: WDI 2021

WPA	Site Name + Operator	Transfer	Treatment	Composting	Grand Total
Surrey	R H S Garden Wisley, The Royal Horticultural Society	0	0	880	880
Surrey	The Compost Centre, Harrington & Jessup Ltd	0	0	611	611
	Total Managed in Plan Area	0	0	1,491	1,491
Windsor and Maidenhead	St. George's Lane, Shorts Group Ltd	6,486	0	0	6,486
Sutton	H C L House, Hydro Cleansing Ltd	0	1,462	0	1,462

¹² It is noted the reference to ‘excepting C, D & E waste’ highlights the need for specialised facilities to manage C, D & E waste unlike waste from household and businesses which can often be managed at similar types of facilities

¹³ Taken from the WDI 2017

WPA	Site Name + Operator	Transfer	Treatment	Composting	Grand Total
Bracknell Forest	Planners Farm, Gary Short	0	0	684	684
	Total Managed outside Plan Area	6,486	1,462	684	8,632
	Grand Total	6,486	1,462	2,175	10,123

Agricultural Waste Managed via Exempt Activities

Due to the imprecise and non-specific nature of registered exemptions it is not possible to attribute tonnages managed through these routes. However, it may be reasonable to assume that some of the waste managed through some exemptions that don't involve the final fate (S, T and U categories) eventually ends up at permitted facilities and the tonnages of waste are therefore recorded in the WDI. It may have been mixed with non-agricultural waste at that point and is therefore never declared as coming from agricultural sources. Due to this, no attempt to calculate the total agricultural waste managed at exempt sites has been made.

Conclusion

The estimated agricultural waste arising from Surrey in 2021 that may require formal management is c11,500 tonnes. The tonnages managed through exemptions may add to the arisings figure but the quantities are unknown and it is likely that some is reported in the WDI at 'next step' sites. Given the position of the adopted Waste Local Plan (2020) it is considered that it is not justified to plan for additional management capacity for this stream alone.

4. Low Level Radioactive Waste

Context

Solid radioactive waste is categorised into three principal categories (and a sub category) according to its level of radioactivity and the heat it produces. These categories are:

- **High-level radioactive waste (HLW)** waste which can generate significant heat as a result of its radioactivity, and so this factor has to be taken into account in the design of storage or disposal facilities.
- **Intermediate level radioactive waste (ILW)** has lower levels of radioactivity than HLW and does not generate sufficient heat for this to determine the design of storage or disposal facilities.
- **Low level radioactive waste (LLW)** is radioactive waste having a low radioactive content. LLW makes up more than 90% of the UK's radioactive waste by volume but contains less than 0.1% of the total radioactivity. Within the definition of LLW, there is a sub-classification, known as Very Low Level radioactive waste (VLLW).
 - Very low level waste (VLLW) may either be low volume VLLW or high volume VLLW. The principal difference between the two types is the need for total volumes of high volume VLLW deposited at any one particular landfill or other waste management facilities being subject to control.

Context in Surrey

The previous WNA (2019) stated the following:

“Surrey has no major nuclear waste producers identified within it. However, there are many hospitals and industrial, educational and research establishments that produce small quantities of low or very low level radioactive wastes. Most of this waste is safely disposed of with municipal, commercial or industrial wastes.”

The Surrey Waste Local Plan (2020) took the position that:

“The amounts of those wastes produced in Surrey are not sufficient to warrant specific provision in terms of site allocations. The policies in the Plan are sufficiently flexible to guide any decisions that may need to be taken in respect of proposals for new management facilities capable of handling any specialised waste streams (excepting C,D&E wastes).”

Policy Relevant to Surrey Arisings

In the absence of any nuclear sector facilities within Surrey, the primary national Government policy document that still affects the management of radioactive waste that may arise within Surrey is the

*UK Strategy for The Management Of Solid LLW Arising From The Non-Nuclear Industry*¹⁴
(hereinafter referred to as 'the LLW strategy').

The LLW strategy is primarily aimed at non-nuclear industry waste producers, the environment agencies and waste planning bodies and:

- Provides guidance and background information to enable planning authorities to make informed decisions on planning applications and to respond to concerns from their communities;
- clarifies the respective roles of waste producers, the environment agencies, planning authorities and the Nuclear Decommissioning Authority to enable decisions to be made that properly recognise the responsibilities of others; and,
- informs waste producers and regulators of how the regulatory framework applies to LLW, particularly the need for producers of LLW to produce waste management plans, consider waste minimisation at source and apply the waste hierarchy.

Low Level Radioactive Waste from Non-Nuclear and Nuclear Sources

Nature

The majority of radioactive waste that is not classed as high or intermediate level is produced by sectors outside the nuclear industry and hence is termed 'non-nuclear'. Most radioactive waste produced by non-nuclear sources contains very small levels of radioactivity and is therefore classed as VLLW. The majority of this material is similar in its physical and chemical nature to general wastes from household, commercial or industrial sources.

Non-Nuclear Sources

Non-nuclear sources of radioactive waste include hospitals, the pharmaceutical sector, and research and education establishments, all of which use radioactive materials which ultimately leads to the generation of radioactive waste. Individually these sources generate relatively small volumes of radioactive waste. Further information regarding these sources is provided below.

- **Hospitals** - Solid low level radioactive wastes arise as a result of traces of radiopharmaceuticals in used syringes, needles, vials from which radiopharmaceuticals have been withdrawn and absorbent or protective materials (e.g. swabs, dressings, sheets and plastic film) which may be contaminated with small amounts of radiopharmaceutical. Traditionally, most hospital waste has been designated as clinical waste, much of which is incinerated. However, hospitals are now segregating wastes at source distinguishing between that waste that requires management as clinical and that which can be managed as 'general' waste. This may result in some LLW being managed as general waste.
- **Industry** - The pharmaceutical industry carries out drug and technology development in specific areas of disease research and, in doing so, makes wide use of radiopharmaceuticals. Solid LLW from the pharmaceutical industry comprises general laboratory plastics, vials,

¹⁴ <https://www.gov.uk/government/publications/strategy-for-the-management-of-solid-low-level-radioactive-waste-from-the-non-nuclear-industry-part-1-anthropogenic-radionuclides>

sharps (i.e. needles and blades), gloves and any material which may be contaminated. LLW from biotechnology companies includes equipment to count the radioactivity, gloves, protective overalls and vials, and the waste is treated as either clinical or general waste

- **Research** - Radioactive tracers are used in universities, colleges and other research laboratories, to study the incorporation of chemical compounds into cells and organisms and also to study their transfer and metabolism. LLW arising at medical schools and biomedical research laboratories is similar to that from hospital laboratories and the pharmaceutical and biotechnology industries. The waste typically includes disposable plasticware, sample tubes, paper and plastic coverings, paper tissues, and organic liquids that are used to count certain types of radioactivity (called scintillation fluids). Agricultural and animal research will result in rather more bulky wastes (for example plant matter and animal bedding).
- **Contaminated Land** - Whilst waste arisings from the remediation of land contaminated with radioactivity from non-nuclear sources are potentially significant in terms of volumes, their ad hoc nature makes it difficult to undertake any meaningful long term planning for disposal of associated soils. In its strategy, the Government does not therefore expect planning authorities to make specific provision for this within their planning frameworks. However, it does consider it prudent for waste planning authorities to make reference in their planning documents to the possibility that radioactively contaminated soil might arise where historical activities involving radioactive sources may have taken place, and that such waste might require disposal to specially authorised landfills.

Management of VLLW and LLW

Very Low Level Waste (Exempt Waste)

A site producing or managing less than 50 m³ of VLLW per year is classed as a low volume VLLW source and as such is exempt from reporting quantities of waste produced and managed. VLLW from such sources is not required to be managed separately and so is expected to be managed in the same manner as general waste produced on the source site. As a result, any waste management facility in the UK may accept small volumes of VLLW mixed in with the other wastes depending on whether source sites fall within their catchment. However, VLLW is rarely (if ever) declared as such in any waste returns submitted so there are no specific records of its management to draw on. The LLW strategy states that Government considers that the present arrangements for low volumes of exempt VLLW are satisfactory and does not expect WPAs to make specific provision for the management of VLLW in their waste plans.

Low Level Waste

When considered on its own, the small quantity of LLW produced in the UK is insufficient to drive the provision of dedicated management facilities via the market. Therefore, the LLW Strategy concludes that producers of these wastes will nearly always have to rely on waste management networks provided for other large volume wastes. This can be problematic as the public perception of the risks associated with the management of LLW can deter waste facility operators from providing such a disposal service.

Most disposal of LLW requires a permit to be held by both the waste producer and the operator of the waste management facility that receives it. LLW can go either to a landfill as a 'controlled burial', the national Low Level Waste Repository (LLWR) located in Cumbria at Drigg, or may be dealt with by

incineration (with or without energy recovery). To extend its life, use of the national LLWR is reserved for particular types of LLW, so LLW disposal usually takes place at specially authorised facilities used for the management of other types of waste. Unlike the network of existing waste management facilities available to take VLLW there are considerably fewer facilities across the UK that currently take LLW. While operators of appropriate facilities may apply to take LLW at any time, in England there are currently only three landfill sites granted permits to do so. These are shown in Table 4. The closest site to Surrey is the East Northants Resource Management Facility (ENRMF), so current and future arrangements at this site may be of greatest relevance. The ENRMF has development consent including provision for disposal of LLW up to 2026 and a decision of a DCO application to extend its capacity and life is imminent. However, there is nothing to indicate that any LLW that would not be managed as VLLW is produced in Surrey.

Table 4: Landfill Sites Permitted to Receive LLW in the UK

Site Name	Operator	Waste Type	Source Specific	Host WPA
East Northants Resource Management Facility	Augean South PLC	LLW	Waste mainly generated from the decommissioning and cleanup of nuclear industry sites ¹⁵	Northants
Clifton Marsh	Sita (Lancashire) Ltd	LLW	Small quantities of lower activity low level radioactive wastes ¹⁶ .	Lancashire
Lillyhall Landfill Site	Waste Recycling Group Ltd	High Volume -VLLW	No more than 26,000 m ³ of HV-VLLW per year and if the landfill remains operational until 2031 no more than 582,000 m ³ of HV-VLLW in total. ¹⁷	Cumbria

Planning for the Management of LLW

The LLW strategy exhorts producers of LLW to work with planning authorities, to ensure that such wastes may be effectively handled through the preparation of local plans and in determining planning applications. It also suggests that any waste management plans produced by LLW producers should take account of the proximity principle alongside other considerations. It states that:

*“Waste planning authorities should consider how to manage LLW and VLLW arising in their areas as part of the preparation of their local waste plans. They should seek advice from waste producers and the environment agencies to ensure that the waste is being sent to a suitable waste management facility. If necessary and feasible, they should work with other waste planning authorities to share facilities.”*¹⁸

¹⁵ <https://www.augeanplc.com/enrmf-planning/>

¹⁶ Sita Ltd 2020 <http://www.sita.co.uk/>

¹⁷ Environment Agency. 2011. Environmental Permitting (England and Wales) Regulations 2010 Decision Document. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/303034/WRG_Decision_Document.pdf

¹⁸ LLW Strategy key point page 18

LLW - The Proximity Principle

The LLW strategy recognises that planning, by waste producers, for the disposal of VLLW and LLW involves balancing regulatory and policy requirements with what appropriate disposal routes are actually available. In the case of most low volume VLLW from non-nuclear sources, its management route/fate is purely dependent on that of general waste with which it is mixed at the point of production i.e. waste producers have little influence on choice of destination at which the waste is ultimately disposed unless they segregate it at source.

In the case of deciding on disposal routes for LLW, the LLW strategy states that the Government wishes to see “appropriate and explicit consideration” of the proximity principle. “Appropriate and explicit consideration” means that proximity must be a feature of any options assessment process which supports a proposed waste management plan. “Appropriate” consideration means that the proximity principle will assume a different importance in an options assessment for, say, a site producing large volumes of contaminated steel, for which only a limited number of decontamination facilities are available, compared to a hospital generating low volumes of radioactive waste suitable for (local) incineration or landfill.

The LLW Strategy also states that:

“Communities which benefit from the beneficial uses of radioactive materials (including direct benefit such as the use of radiopharmaceuticals, and indirect benefits such as contributions to a local economy from commercial bodies using radioactive materials) should take a share in the responsibility for managing the radioactive wastes which inevitably arise from their use, where possible”

It does however go on to recognise that “...each and every local authority cannot necessarily be self-sufficient in the matter of waste management.”¹⁹

Production and Management of LLW in Surrey

A review of radioactive source permits records granted by the EA indicates that there are 15 authorisations held by 12 entities within Surrey as shown in Table 5 below.

¹⁹ LLW Strategy key point page 17

Table 5: Radioactive Source Authorisations held within Surrey
Source: EA Public Register accessed December 2022

Activity	Entity	Date Approved (most recent)	Location	Number of permits registered
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	NE Surrey College of Technology	08/09/2006	Reigate Road, Ewell, Epsom, KT17 3DS	2
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Alliance Medical Ltd	14/04/2022	Guildford Diagnostic Imaging, Egerton Road, Guildford, GU2 7XU	3
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	The Pirbright Institute	26/10/2016	The Pirbright Institute, Ash Road, Pirbright, Woking, GU24 0NF	1
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	University of Surrey	17/01/2012	University Site, Stag Hill, Guildford, GU2 7XH	1
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Surrey and Sussex Healthcare NHS Trust	20/12/2018	East Surrey Hospital, Canada Avenue, Redhill, RH1 5RH	1
Keeping & Use of Radioactive Materials and Disposal of	Animal and Plant Health Agency	09/05/2016	Central Veterinary Laboratory, Woodham Lane, New Haw, Addlestone, KT15 3NB	1

Activity	Entity	Date Approved (most recent)	Location	Number of permits registered
Radioactive Waste				
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Royal Holloway & Bedford New College	07/04/2016	Egham Hill, Egham, TW20 0EX	1
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Alliance Medical Radiopharmacy Ltd	01/04/2018	Unit 19 Quadrum Park, Old Portsmouth Road, Peasmarsh, Guildford, GU3 1LU	1
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Frimley Health NHS Foundation Trust	01/04/2018	Frimley Park Hospital, Portsmouth Road, Frimley, Camberley, GU16 7UJ	1
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Royal Surrey NHS Foundation Trust	23/12/2019	Royal Surrey County Hospital, Egerton Road, Guildford, GU2 7XX	1
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	Angus Energy Weald Basin No 3 Ltd	28/11/2022	Betchworth wellsite, Feltons Farm, Old School Lane, Betchworth, RH3 7AU	1
Keeping & Use of Radioactive Materials and Disposal of Radioactive Waste	IGAS Energy Production Ltd	01/04/2019	Palmers Wood, Rookes Next Farm, Godstone, RH9 8BY	1

These permits are issued to establishments which use radioactive substances and it is possible therefore, that as part of their activities, they will generate some LLW or VLLW requiring disposal offsite.

In addition to the establishments authorised to hold radioactive sources listed in Table 5, there are a number of entities that hold permits for the disposal of radioactive waste within Surrey. It is noted that given the purpose of the WNA is to identify possible sources of waste that might require off-site management and so might result in a possible need for management capacity, locations where radioactive waste produced would be dealt with on site would not normally be considered. However, they have been included in Table 6 for the purpose of comprehensiveness.

There are 4 entities holding permits in Surrey as shown in Table 6.

Table 6: Radioactive Substances Permit involving Disposal of Radioactive Waste held within Surrey

Source: EA Public Register accessed December 2022

Activity	Entity	Data Approved	Location
Disposal of Radioactive Waste (O)	Island Gas Ltd	20/03/2018	Albury Wellsite, East of New Road Surrey, Albury, GU5 9DA
Disposal of Radioactive Waste (O)	Island Gas Ltd	13/12/2018	Bletchingley Well Site 5, Tilburstow Hill Road, South Godstone, RH9 8LJ
Disposal of Radioactive Waste (O)	Horse Hill Developments Ltd	15/10/2019	Horse Hill Wellsite, Horse Hill, Hookwood, Horley, RH6 0HN
Disposal of Radioactive Waste (O)	UKOG (234) Ltd	10/11/2020	Loxley Wellsite, Land South of Dunsfold Road & East of High Loxley Road, Dunsfold GU8 4BW

Conclusion

This review has found that nothing substantial has changed regarding sources of radioactive waste in Surrey and therefore the findings of the WNA 2019 and consequential policy in the adopted Waste Local Plan still hold.

5. Overall Conclusion

Review of the above data sources allows the following conclusions to be reached about the need to plan for ‘other wastes’ in the preparation of the Surrey Minerals and Waste Local Plan:

1. Wastewater and the associated sludge appear to be catered for adequately through arrangements made by Thames Water Utilities and Southern Water, the statutory sewerage undertakers. It is considered that the findings of the Surrey WNA 2019 remain valid and the associated policies still hold in relation to wastewater and sewage waste.
2. Agricultural waste – Surrey is not considered to generate sufficient quantities of waste that would warrant specific separate provision assuming the continuation of the existing arrangements including the exemption regime.
3. Radioactive waste – This review has found only a small number of permitted sources of non-nuclear radioactive waste within Surrey. This strongly suggests that there is no critical mass of material requiring specialist capacity provision that needs to be planned for within the county and therefore the conclusions made in the WNA 2019 still hold and the current policy in the Waste Local Plan is still relevant.