

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Waste Recycling Limited

Lillyhall Landfill Site Joseph Noble Road Lillyhall Workington Cumbria CA14 4JH

Permit number CD7914

Lillyhall Landfill Site Permit number CD7914

Introductory note

This introductory note does not form a part of this permit

This Permit allows the Operator to receive and dispose of radioactive waste by burial on the specified premises.

The Permit is issued under the provisions of regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010. Those Regulations are concerned, amongst other things, with the control of radioactive material and the receipt, transfer, accumulation and disposal of radioactive waste.

The operator must also comply with other legislation to which the keeping or use of radioactive material and the transfer, accumulation and disposal of radioactive waste is subject. This includes legislation enforced by the Health and Safety Executive and by the Department for Transport.

The main features of the facility are as follows. The Lillyhall Landfill Site receives High Volume Very Low Level Waste from nuclear and non-nuclear sites for disposal. The Landfill Site receives and checks the waste, followed by disposal into waste cells designed, to standard landfill practice, for the purpose of waste disposal. The site also receives and disposes of other non-radioactive waste under a separate Environmental Permit.

This document is a newly issued Permit. The status log of the Permit sets out the permitting history, including any changes to the permit reference number.

Status Log of the permit		
Detail	Date	Response Date
Application CD7914	Received 22/05/2009	
Additional Information Received	Received 30/07/2009	
Additional Information Received	Received 05/10/2009	
Permit determined	06/04/2011	

End of Introductory Note

The Environmental Permitting (England and Wales) Regulations 2010

Permit

Permit number

CD7914

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Waste Recycling Limited ("the operator"),

whose registered office is

Ground Floor West, 900 Pavilion Drive, Northampton Business Park, Northampton, NN4 7RG

company registration number 2674166

to carry on radioactive substance activities described in Schedule 23 Part 2 paragraph 5(4)(a) and Schedule 23 Part 2 paragraph 5(2)(b) of the Environmental Permitting (England and Wales) Regulations 2010, being receipt and disposal of high volume very low level waste, on the premises used by the operator at

Lillyhall Landfill Site Joseph Noble Road Lillyhall Workington Cumbria CA14 4JH

to the extent authorised by and subject to the conditions of this permit.

Name Date

Mr Stephen Hardy 06/04/2011

Authorised on behalf of the Environment Agency

The permit shall take effect from 06/04/2011

Schedule 1

CONDITIONS AND LIMITATIONS

GENERAL MANAGEMENT

- 1.1.1 Subject to conditions 1.1.4, 1.1.6 and 1.1.7 the disposal of radioactive waste shall be managed:
 - (a) in accordance with a management system, which identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformances and those drawn to the attention of the operator as a result of complaints; and
 - (b) by sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the disposal of radioactive waste.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this Permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.
- 1.1.4 The operator shall make provision for consultation with such suitable RPAs, or other such qualified experts as the Agency may approve in writing, as are necessary for the purpose of advising the operator as to compliance with the limitations and conditions of this Permit.
- 1.1.5 The operator shall use the best available techniques to dispose of radioactive waste at times, in a form, and in a manner so as to minimise the radiological effects on the environment and members of the public.
- 1.1.6 The operator shall maintain in good repair the systems and equipment provided for the disposal of radioactive waste.
- 1.1.7 The operator shall check, at an appropriate frequency, the effectiveness of systems, equipment and procedures provided for the disposal of radioactive waste.
- 1.1.8 The operator shall post copies of this Permit on the premises, in such characters and in such positions to be conveniently read by persons who have duties on the premises which are or could be affected by the matters set out in this Permit.
- 1.1.9 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at Figure 1 to this Permit.

ACCIDENTS THAT MAY CAUSE POLLUTION

- 1.2.1 The operator shall:
 - (a) maintain and implement an accident management plan;
 - (b) review and record at least every 4 years or as soon as practicable after an accident, (whichever is the earlier) whether changes to the plan should be made;
 - (c) make any appropriate changes to the plan identified by a review.

SITE SECURITY

1.3.1 Site security measures shall prevent unauthorised access to the radioactive waste, as far as practicable.

WASTE ACCEPTANCE AND DISPOSAL

- 1.4.1 Radioactive waste shall only be accepted for disposal if:
 - (a) it is high volume very low level waste;
 - (b) the radioactive waste is of a type which would be acceptable for disposal under the current variation of Environmental Permit EPR/GP3037SJ if that Permit applied to radioactive waste (except to requirements for treatment);
 - (c) all the relevant waste acceptance procedures have been completed as if the radioactive waste is subject to the current variation of Environmental Permit EPR/GP3037SJ (except to requirements for treatment);

- it fulfils the relevant waste acceptance criteria or basic characterisation requirements as if the radioactive waste is subject to the current variation of Environmental Permit EPR/GP3037SJ (except to requirements for treatment); and
- (e) it has not been diluted or mixed for the purpose of meeting the definition of high volume very low level waste or the relevant waste acceptance criteria.
- 1.4.2 The operator shall visually inspect radioactive waste:
 - (a) without unloading it, on arrival at the landfill; and
 - (b) at the point of deposit;

and shall satisfy himself as far as reasonably practicable that it conforms to the consignor's characterisation documentation provided for that radioactive waste.

- 1.4.3 Radioactive waste found not to meet the requirements of condition 1.4.1 shall be returned to the consignor as soon as practicable and within 24 hours of the quarantine area becoming full, and in any event within 5 days of receipt at the premises.
- 1.4.4 The operator shall use the best available techniques when taking samples and conducting measurements, tests, surveys, analyses and calculations, to determine compliance with the limitations and conditions of this Permit, unless particular means are specified in writing by the Agency.
- 1.4.5 Where the operator has taken samples or undertaken tests, surveys or measurements to establish that the radioactive waste is in conformity with the documentation submitted, then the samples taken shall be retained for at least one month and results of any analysis for at least two years.
- 1.4.6 The quantity of radioactive waste disposed of shall not exceed the relevant values specified in Table 2.
- 1.4.7 The operator shall calculate, for each radionuclide or group of radionuclides listed in Table 3, the ratio of the activity (in TBq) of the radioactive waste disposed of at the premises under this Permit, to the relevant value in Table 3. The sum of these ratios shall be less than 1.
- 1.4.8 The operator shall calculate, for each radionuclide or group of radionuclides listed in Table 4, the ratio of the specific activity by mass (in Bq/g) of all the radioactive waste disposed of to an individual disposal cell under this Permit, to the relevant value in Table 4. The sum of these ratios shall be less than 1.
- 1.4.9 The operator shall calculate, for each radionuclide listed in Table 5, the ratio of the specific activity by mass (in Bq/g) of the radioactive waste in an individual consignment, to the relevant value in Table 5. The sum of these ratios shall be less than 1.
- 1.4.10 The operator shall dispose of radioactive waste as specified in Table 6.
- 1.4.11 The operator shall, on accepting each delivery of radioactive waste, provide a receipt to the person delivering it. The receipt shall include the details specified in record numbers 2 to 8 of Table 9.
- 1.4.12 The operator shall not accept delivery of radioactive waste while landfill disposal activities under the current variation of Environmental Permit EPR/GP3037SJ have ceased.
- 1.4.13 The operator shall so far as is reasonably practicable prevent the loss or escape of any radioactive waste.
- 1.4.14 If the operator believes or has reasonable grounds for believing that any radioactive waste has been lost or stolen he shall:
 - (a) without delay inform the Police and the Agency;
 - (b) so far as is reasonably practicable recover the radioactive waste; and
 - (c) as soon as is practicable notify the Agency in writing of the circumstances of the occurrence and the means taken to recover the radioactive waste.
- 1.4.15 If the operator believes or has reasonable grounds for believing that any radioactive waste is escaping or has escaped from any container or location he shall:
 - (a) without delay inform the Agency;
 - (b) so far as is reasonably practicable:
 - (i) prevent any further escape; and
 - (ii) minimise the spread of any contamination; and
 - (c) as soon as is practicable report the circumstances in writing to the Agency.
- 1.4.16 The operator shall dispose of radioactive waste so as to prevent or where that is not practicable, to minimise, any pollution risk on closure.

- 1.4.17 Before the operator first receives radioactive waste from a consignor for the purpose of final disposal of that waste from or on the premises, the operator shall, at the earliest opportunity, inform the local authority, in whose area of responsibility the premises is situated, of the origin and nature of the radioactive waste.
- 1.4.18 The provisions of condition 1.4.17 do not apply:
 - (a) where the waste consignor is exempt from the requirement to hold an Environmental Permit for the disposal of radioactive waste;
 - (b) to the extent that it would require the disclosure of information relating to sealed radioactive sources:
 - (c) to low volume very low level waste.
- 1.4.19 The operator is only authorised to carry out the activities specified in Table 1 (the "activities").

IMPROVEMENT PROGRAMME

- 1.5.1 The operator shall complete the improvements specified in Table 7 by the date specified in that table unless otherwise agreed in writing by the Agency.
- 1.5.2 Except in the case of an improvement which consists only of a submission to the Agency, the operator shall notify the Agency within 14 days of completion of each improvement.

SAMPLING AND MONITORING

- 1.7.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake the sampling and monitoring specified in Table 8.
- 1.7.2 If required by the Environment Agency, the operator shall keep samples, provide samples, or dispatch samples for tests at a laboratory, as the Environment Agency specifies, and ensure that the samples or residues thereof are collected from the laboratory within three months of receiving written notification that testing and repackaging in accordance with the relevant legislation are complete.

RECORDS

- 1.8.1 The operator shall make records as specified in Table 9. Any information regarded by the operator as commercially confidential shall be clearly identified in the record.
- 1.8.2 All records required to be made by this Permit shall:
 - (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed in writing by the Agency, for at least 2 years from the date when the records were made, or as specified in Table 10.
- 1.8.3 Records of acceptance and disposal of each radioactive waste consignment required to be made by this Permit shall be made on the day of acceptance and disposal.
- 1.8.4 The operator shall supply within 14 days and without charge such copies or copies of all or part of records kept as referred to in this certificate as the Agency may reasonably require.
- 1.8.5 All records required to be made by this Permit shall be held on the premises and shall be available for inspection by the Agency at any reasonable time.

REPORTING

- 1.9.1 Within 28 days of the end of the relevant reporting period or by the date specified in Table 11 the operator shall, unless otherwise agreed in writing by the Agency, submit reports as specified in that Table.
- 1.9.2 All reports and notifications required by this Permit shall be sent to the Agency using the contact details supplied in writing by the Agency.

NOTIFICATIONS

- 1.10.1 The Agency shall be notified without delay following the detection of:
 - (a) any malfunction, breakdown or failure of equipment or techniques, accident, or release of radioactive waste which has caused, is causing or may cause significant pollution from radioactive waste:
 - (b) the breach of a limit or condition specified in this Permit; or
 - (c) any significant adverse environmental effects.
- 1.10.2 If the operator believes or has reasonable grounds for believing that the acceptance or disposal of radioactive waste is occurring, has occurred or might occur which does not comply with the limitations and conditions of this Permit he shall:
 - (a) without delay inform the Agency;
 - so far as is reasonably practicable prevent the further acceptance or disposal of radioactive waste; and
 - (c) as soon as is practicable report the circumstances in writing to the Agency.
- 1.10.3 Written notification shall be given to the Agency of the following events and in the specified timescales:
 - (a) as soon as practicable prior to the permanent cessation of disposal of radioactive waste; and
 - (b) at least 28 days prior to a change of name of the operator; and
 - (c) as soon as practicable after the date of the first disposal of radioactive waste under this Permit.
- 1.10.4 Where the Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Agency when the relevant monitoring is to take place. The operator shall provide this information to the Agency at least 14 days before the date the monitoring is to be undertaken.

INTERPRETATION

1.11.1 In this Permit -

"activity", expressed in becquerels, means the number of spontaneous nuclear transformations occurring in a period of one second in a radioactive substance;

"Bq and TBq" are used as abbreviations meaning becquerels and terabecquerels respectively;

"calendar year" means a period of 12 consecutive months beginning on 1 January.

"consignment" means an individual shipment of radioactive waste not greater in volume than 40 cubic metres or such volume as specified by the Agency in writing;

"high volume very low level waste" means radioactive waste in which the maximum activity is 4 MBq/te of total activity. For radioactive waste containing tritium, the concentration limit for tritium is 40MBq/te;

"low volume very low level waste" means solid radioactive waste, each 0.1m³ containing less than 400 kBg of total activity or single items containing less than 40 kBg of total activity;

"quarter" means any period of three consecutive months;

"RPA" means a Radiation Protection Adviser appointed under Regulation 13 of the Ionising Radiations Regulations 1999;

"samples" includes samples that have been prepared or treated to enable measurements of activity to be made:

"sealed radioactive source" means a source whose structure is such as to prevent, under normal conditions of use, any dispersion of radioactive material into the environment;

"techniques" include both the technology used and the way in which the installation is designed, built, maintained, operated and dismantled;

"the Agency" means the Environment Agency;

"year" means any period of 12 consecutive months.

- 1.11.2 "best available techniques" means the latest stage of development (state of the art) of processes, of facilities or of methods of operation which indicate the practical suitability of a particular measure for limiting discharges, emissions and waste. In determining whether a set of processes, facilities and methods of operation constitute the best available techniques in general or individual cases, special consideration shall be given to:
 - (a) comparable processes, facilities or methods of operation which have recently been successfully tried out;
 - (b) technological advances and changes in scientific knowledge and understanding;
 - (c) the economic feasibility of such techniques;
 - (d) time limits for installation in both new and existing plants; and
 - (e) the nature and volume of the discharges and emissions concerned.

OPERATIONS

Activity reference	Activity listed in Schedule 23 of the Environmental Permitting Regulations	Description of specified activity
A1	Sch 23 Part 2 para 5(2)(b)	Disposal of radioactive waste on or from the premises
A2	Sch 23 Part 2 para 5(4)(a)	Receipt of radioactive waste for the purpose of disposal

DISPOSAL OF RADIOACTIVE WASTE

Table 2

Time Period	Volumetric Limit
Annual limit	26000 cubic metres
Lifetime of the landfill	582000 cubic metres

Table 3: Relevant values to be used in Condition 1.4.7 for calculating limitation of total disposals

Radionuclide or Group of Radionuclides	Relevant Value
H-3	1900
C-14	84
CI-36	0.82
Mn-54	3.6
Fe-55	650
Co-60	0.31
Ni-63	4000
Zn-65	4.9
Sr-90	2.6
Zr-95	72
Nb-95	150
Tc-99	0.02
Ru-103	430
Ru-106	78
Ag-108m	1.3
Ag-110m	1.3
Sb-125	2.2
I-129	0.15
Cs-134	9.8
Cs-137	12
Ce-144	610
Pm-147	4000
Eu-152	3.8
Eu-154	3.8
Po-210	2.9
Pb-210	2.2
Ra-226	3.7
Th-230	990
Th-232	9.2
U-234	120
U-235	19
U-238	71
Np-237	0.31
Pu-238	120
Pu-239	100
Pu-240	100
Pu-241	4000
Pu-242	100
Am-241	220
Am-243	76
Cm-242	4000
Cm-243	250
Cm-244	950
Other radionuclides ¹	4.0

[&]quot;Other radionuclides" means any radionuclide not listed in this table and with a half-life greater than three months, or as specified in writing by the Agency

Table 4: Relevant values to be used in Condition 1.4.8 for calculating limitation of radionuclide concentration per disposal cell

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Radionuclide or Group of Radionuclides	Relevant Value	
H-3	1800	
C-14	21	
CI-36	1.8	
Ni-63	4000	
Sr-90	7.6	
Tc-99	0.33	
I-129	1.8	
Cs-137	18	
Ce-144	4000	
Sm-147	49	
Sm-151	4000	
Eu-154	240	
Pb-210	1.9	
Ra-226	0.31	
Ac-227	5.2	
Th-229	3.9	
Th-230	33	
Th-232	0.88	
Pa-231	0.4	
U-233	130	
U-234	130	
U-235	21	
U-236	140	
U-238	61	
Np-237	8.9	
Pu-238	17	
Pu-239	9.4	
Pu-240	9.5	
Pu-241	4000	
Am-241	12	
Cm-244	170	
Other radionuclides ¹	4.0	

[&]quot;Other radionuclides" means any radionuclide not listed in this table and with a half-life greater than three months, or as specified in writing by the Agency

Table 5: Relevant values to be used in Condition 1.4.9 for calculating limitation of radionuclide concentration per consignment

Radionuclide	Relevant Value
C-14	0.9
Ra-226	1.0

Table 6

Requirement	Specification
Requirements for coverage by non-radioactive material or waste	Adequate cover to prevent the dispersal of any disposed waste by the wind or scavenging
Maximum delay before disposal of radioactive waste	8 hours
Maximum delay before coverage after disposal	8 hours, or by the end of that working day, whichever is the soonest
Containment of wastes	All wastes should be contained so as not to contaminate vehicles or handling equipment
Radioactive waste shall only be disposed of in the parts of the landfill specified	Asbestos into an asbestos cell as agreed under the current variation of Environmental Permit EPR/GP3037SJ

IMPROVEMENTS

Reference	Improvement	Due Date	
1. The operator shall provide the Agency with a report of a review of the activities undertaken to demonstrate compliance with the limits and conditions specified within Permit for the disposal of radioactivity (e.g. checks, monitoring, sampling and audits). The review shall consider whether best available techniques are being applied. A programme for carrying out any necessary changes identified by the review should be included			
2.	The operator shall update the Environmental Safety Case for the site	Every 5 years from the effective date of this Permit or as otherwise agreed in writing by the Agency	

SAMPLING AND MONITORING

Table 8

Sample / Monitoring Type	Location / Frequency	Sampling / Monitoring Method and Analysis
Groundwater	Quarterly at downstream boreholes WMBH2 (Easting 302532, Northing 524693) and WMBH11 (Easting 302321, Northing 524920). Annually at upstream boreholes WMBH9 (Easting 303081, Northing 524685) and WMBH12 (easting 302902, Northing 525187).	Spot sample. Each sample to be analysed for total alpha and beta, tritium, gamma spec (report all detected radionuclides).
Leachate	Annual at the main combined flow of leachate into the treatment plant (pretreatment) (Easting 302438, Northing 524963).	Spot sample. Each sample to be analysed for total alpha and beta, tritium, gamma spec (report all detected radionuclides).
Treatment plant sludge	Annual sample from the treatment plant, representative of the bulk sludge, samples points at: Easting 302438, Northing 524934 and Easting 302353, Northing 524925	Composite sample. Each sample to be analysed for total alpha and beta, tritium, gamma spec (report all detected radionuclides).
Discharge to sewer	Quarterly sample from the treatment plant final discharge point to sewer (Easting 302360, Northing 5240908).	24- hour flow proportional sample. Each sample to be analysed for total alpha and beta, tritium, gamma spec (report all detected radionuclides).
Surface water within the site	Bi-annual sample from the lagoon receiving water from the vehicle wheel wash facility (Easting 302417, Northing 524868).	Spot sample. Each sample to be analysed for total alpha and beta, tritium, gamma spec (report all detected radionuclides).
Surface water	Bi-annual sample from Distington Beck downstream of the site, Ref LIWP00PD (Easting 302500, Northing 524669).	Spot sample. Each sample to be analysed for total alpha and beta, tritium, gamma spec (report all detected radionuclides).
Grass / Herbage	Annual sample (in quarter 3) to be taken at 4 locations adjacent to the site boundary, WMBH12 (North) (Easting 302902, Northing 525187) WMBH9 (East) (Easting 303081, Northing 524685) WMBH3 (South) (Easting 302574, Northing 524516) GBH13 (West) (Easting 302562, Northing 525067).	Sample of trimmed unwashed grass/herbage to within 10mm of the soil surface from a known area. Sampling of leaf litter and soil should be avoided and areas of poor vegetation cover or dominance of woody species should be avoided. Each sample to be bulked and analysed for total alpha and beta, tritium, gamma spec (report all detected radionuclides). Results shall be reported as activity concentration and
Gamma dose rate monitoring	Quarterly dose rate monitoring at: (i) four locations where the public can gain closest access to the waste to the NE, NW, SE and SW of the premises at points: A (Easting 302568, Northing 525077) B (Easting 303027, Northing 525065) C (Easting 303100, Northing 524665) D (Easting 302589, Northing 524665) (ii) at the premises exit to Joseph Noble Road (monitoring point E as defined in drawing 153M2671 Dated 14/03/11).	loading (Bq/kg and Bq/m²). Using continuous measurement with a thermoluminescent dosimeter (measurement of TLD by Approved Dosimetry Service). Or a spot dose rate measurement made in accordance with TGN-M5 (Her Majesty's Inspectorate of Pollution, Technical Guidance Note (Monitoring) M5, Routine Measurement of Gamma Ray Air Kerma Rate in the Environment. HMSO, September 1995.). Measurements to be made at 1 metre above ground level.

RECORDS

Table 9

Record Number	Record	Frequency of making record
1	A report stating the current environmental safety case for disposal of radioactive waste and summarising how the operator has met the requirements of this Permit	Each year
2	Date of delivery	Each consignment
3	Identity of the waste consignor	Each consignment
4	Site of origin of the waste	Each consignment
5	Quantity of radioactive waste (m ³ and tonnes)	Each consignment
6	Activity of each radionuclide or group of radionuclides listed in Table 3	Each consignment
7	Concentration of each radionuclide or group of radionuclides listed in Table 4	Each consignment
8	General description of the physical and chemical form of the radioactive waste	Each consignment
9	The cell used for disposals of radioactive waste	Each consignment
10	The sum of ratios calculated in condition 1.4.9	Each consignment
11	Total activity of each radionuclide or group of radionuclides listed in Table 3 disposed of under this Permit: (a) for the whole site (b) for each disposal cell since the Permit came into effect.	Each consignment
12	The sum of the ratios calculated in condition 1.4.7	Each consignment
13	Total specific activity by mass of the radioactive waste, of each radionuclide or group of radionuclides listed in Table 4 disposed of to each individual disposal cell under this Permit.	Each consignment
14	The sum of the ratios calculated in condition 1.4.8	Each consignment
15	Quantity of radioactive waste disposed of under this Permit (m³ and tonnes): (a) this calendar year (b) since the Permit came into effect	Each year
16	Total activity of each radionuclide or group of radionuclides listed in Table 3 disposed of under this Permit: (a) for the whole site (b) for each disposal cell since the Permit came into effect.	Each year
17	The sum of the ratios calculated in condition 1.4.7	Each year
18	Total specific activity by mass of the radioactive waste, of each radionuclide or group of radionuclides listed in Table 4 disposed of to each individual disposal cell under this Permit.	Each year
19	The sum of the ratios calculated in condition 1.4.8	Each year
20	Results from sampling and monitoring specified in Table 8.	As completed
21	Fingerprint of each wastestream received	As received
22	Tests, measurements, surveys or audits undertaken to demonstrate compliance with this Permit.	As completed
23	Assessments or evaluations based on samples, measurements, tests and surveys	As completed

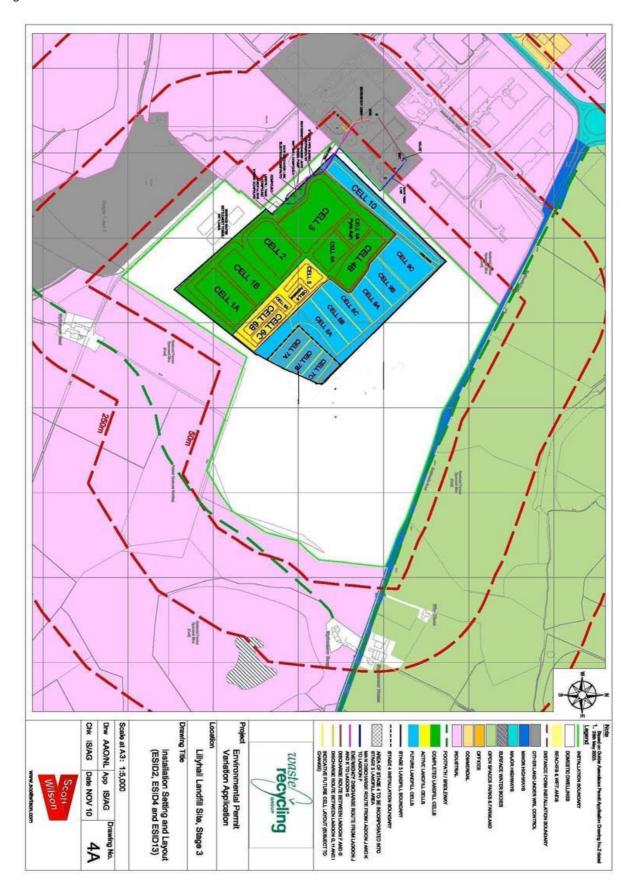
Record Number within Table 9	Length of time for retention of record
1-10, 15-21	Until surrender of the Permit for the site

REPORTING

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Parameters	Reporting Period or Date for reporting
Records 1, 15-19 in Table 8	By 28 February each year
A statement of the maximum ratio identified in Record	By 28 February each year
10 in Table 8 for the previous year	
Consignors identified in Record 3 in Table 8	By 28 February each year
Cells identified in Record 9 in Table 8	By 28 February each year
Results from Record 20 in Table 8 for each quarter of	For each quarter results should be provided within two
a calendar year	month of the end of that quarter

SITE PLAN

Figure 1



END OF PERMIT