



ENVIRONMENT  
AGENCY

# Variation notice with introductory note

Environmental Permitting (England & Wales) Regulations 2007

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**Rainham Landfill**

**Veolia ES Landfill Ltd  
Cold Harbour Lane  
Off Ferry Lane  
Rainham  
Essex  
RM13 9DA**

Variation Notice Number  
**EPR/EP3136GK/V002**

Permit number  
**EPR/JP3039SU**

# Rainham Landfill

## Permit Number EPR/JP3039SU

### Variation Notice Number EPR/EP3136GK/V002

### Introductory note

***This introductory note does not form a part of the permit***

The following notice, which is issued pursuant to regulation 20 and Part 1 of Schedule 5 of the Environmental Permitting (England and Wales) Regulations S.I.2007 No. 3538 (the Regulations), gives notice of the variation of an environmental permit to operate a regulated facility/facilities

The effect of this substantial variation is to delete all the existing conditions attached to the Permit and replace these with an entire new set of conditions. The new conditions are in line with the new Permit Template for landfill (version 5) which has been developed in consultation with the waste management industry having regard to the legal requirements of the Regulations and other relevant legislation.

The substantial variation allows the operator to change the pre-settlement profile of the landfill by over-tipping or 'surcharging' an additional 3.6 million tonnes of waste subject to a number of conditions in the permit. The variation also updates the status of the Improvement Programme at the installation.

<b>Status Log of the permit</b>		
<b>Detail</b>	<b>Date</b>	<b>Response Date</b>
Application JP3039SU duly made	03/11/04	01/12/04
Permit determined	9/11/05	
Company name change to Veolia ES Cleanaway (UK) Ltd	10/10/06	
Variation notice WP3839MM issued	23 /01/07	
Variation notice RP3535UW issued	30/03/2007	
Substantial Variation Application CP3231GJ (EPR/JP3039SU/V006) received	16 /03/09	
Application to transfer permit EPR/EP3136GK/T001	Duly made 25/03/09	
Substantial Variation Application CP3231GJ (EPR/JP3039SU/V006) Duly Made	17/04/09	
Transfer determined EPR/ EP3136GK/T001	15.00 hrs on 16/10/09	
Substantial Variation Determined EPR/EP3136GK/V002	16.00 hrs on 16/10/09	

<b>Other EPR permits relating to this installation</b>		
<b>Operator</b>	<b>Permit Number</b>	<b>Date of Issue</b>
EDL Operations (Rainham) Ltd	EPR/FB3038UB	11 May 2005

**Superseded or Partially Superseded Licences**

<b>Holder</b>	<b>Reference Number</b>	<b>Date of Issue</b>	<b>Fully or Partially Superseded</b>
Issued to Redland Purle Ltd and transferred to Cleanaway Ltd on 16 March 1981	GTL/CLE076*	3 July 1978	* Indicates that licences had been fully superseded by T/NE/CLE/122
Cleanaway Ltd	T/NE/CLE121*	3 June 1996	
Cleanaway Ltd	WML 80119 (T/NE/CLE122)	3 March 1998	Fully superseded

**Other existing Licences/Authorisations/Registrations relating to this site**

<b>Holder</b>	<b>Reference Number</b>	<b>Date of issue</b>
None	n/a	n/a

End of Introductory Note

Environmental Permitting  
(England and Wales) Regulations 2007

## Variation Notice

Permit number

**EPR/JP3039SU**

Variation number

**EPR/EP3136GK/V002**

The Environment Agency in exercise of its powers under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2007 (SI 2007 No 3538) varies the permit as set out below.

**Veolia ES Landfill Ltd** ("the operator"),

whose registered office is

**Veolia House**

**154A Pentonville Road**

**London**

**N1 9PE**

company registration number **00997695**

to operate an installation at

**Rainham Landfill**

**Coldharbour Lane**

**Off Ferry Lane**

**Rainham**

**Essex**

**RM13 9DA**

to the extent set out in schedules 1 to 3 of this variation notice .

The notice shall take effect from 16.00 hours on 16<sup>th</sup> October 2009

Signed

Date

	16h October 2009
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Martin Jenkins

Authorised on behalf of the Agency

## **SCHEDULE 1 TO EPR/EP3136GK/V002– CONDITIONS TO BE DELETED**

All conditions and schedules in Permit reference EPR/EP3136GK are deleted

**SCHEDULE 2 TO EPR/EP3136GK/V002 – CONDITIONS TO BE AMENDED**

No conditions in Permit reference EPR/EP3136GK are amended

## **SCHEDULE 3 TO EPR/EP3136GK/V002 – CONDITIONS TO BE ADDED**

The following conditions and schedules are added to Permit reference EPR/EP3136GK

### **1 Management**

#### **1.1 General management**

- 1.1.1 The activities shall be managed and operated:
- (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 operation of the activities.
- 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.

#### **1.2 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.

#### **1.3 Finance**

- 1.3.1 The financial provision for meeting the obligations under this permit set out in the agreement made between the operator and the Agency dated 16<sup>th</sup> October 2009 shall be maintained by the operator throughout the subsistence of this permit and the operator shall produce evidence of such provision whenever required by the Agency.
- 1.3.2 The operator shall ensure that the charges it makes for the disposal of waste in the landfill cover the cost of operating the landfill, as far as possible the cost of the financial provision required by condition 1.3.1 and the estimated costs for the closure and aftercare of the landfill.

#### **1.4 Energy efficiency**

- 1.4.1 The operator shall:
- (a) Review and record at least every 4 years whether there are suitable opportunities to improve the energy efficiency of the activities; and

- (b) Implement any appropriate measures identified by a review.

## **1.5 Site security**

- 1.5.1 Site security measures shall prevent unauthorised access to the site, as far as practicable.

## **1.6 Multiple operator installations**

- 1.6.1 Where the operator notifies the Agency under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operator(s) of the installation of the same information.



## **2 Operations**

### **2.1 Permitted activities**

2.1.1 The operator is authorised to carry out the activities specified in Schedule 1 table S1.1 (the “activities”).

### **2.2 The site**

2.2.1 The activities shall not extend beyond the site, the landfill part of the installation being the land shown edged in green on the site plan at schedule 2 to this permit and the gas utilisation part of the installation as defined in permit FB3038UB.

### **2.3 Operating techniques**

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1 table S1.2, unless otherwise agreed in writing by the Agency.

### **2.4 Improvement programme**

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Agency.

2.4.2 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.

### **2.5 Pre-operational conditions**

2.5.1 The operations specified in schedule 1 table S1.4 shall not commence until the measures specified in that table have been completed.

### **2.6 Engineering**

2.6.1 No construction of any new cell shall commence until the operator has submitted construction proposals and the Agency has confirmed that it is satisfied with the construction proposals.

2.6.2 The construction of a new cell shall take place only in accordance with the approved construction proposals unless:

- (a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or
- (b) a change has otherwise been agreed in writing by the Agency.

2.6.3 No disposal of waste shall take place in a new cell until the operator has submitted a CQA Validation Report and the Agency has confirmed that it is satisfied with the CQA Validation Report.

- 2.6.4 No construction of landfill infrastructure shall commence until the operator has submitted relevant construction proposals or a written request to use previous construction proposals and the Agency has confirmed that it is satisfied with the construction proposals.
- 2.6.5 The construction of the landfill infrastructure shall take place only in accordance with the approved construction proposals unless:
- (a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or
  - (b) a change has otherwise been agreed in writing by the Agency.
- 2.6.6 The operator shall submit a CQA Validation Report as soon as practicable following the construction of the relevant landfill Infrastructure.
- 2.6.7 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.6.4 and 2.6.5 do not apply and the relevant landfill Infrastructure may be constructed, provided that the construction proposals are submitted to the Agency as soon as practicable.
- 2.6.8 For the purposes of conditions 2.6.1, 2.6.3 and 2.6.4, the Agency shall be deemed to be satisfied where it has not, within the period of 4 weeks from the date of receipt of the relevant construction proposals or CQA Validation Report, either:
- (a) confirmed whether or not it is satisfied; or
  - (b) informed the operator that it requires further information.

## **2.7 Waste acceptance**

- 2.7.1 Wastes shall only be accepted for disposal if:
- (a) they are listed in schedule 3, and
  - (b) they are non-hazardous waste, and
  - (c) they are not whole used tyres (other than bicycle tyres and tyres with an outside diameter of more than 1400mm), and
  - (d) they are not shredded used tyres, and
  - (e) from 30<sup>th</sup> October 2007 they are not liquid waste (including waste waters but excluding sludge and excluding liquid waste accepted at the leachate treatment plant), and
  - (f) they are not chemical substances from research and development or teaching activities, for example laboratory residues, which are unidentified and/or which are new and whose effects on man and/or the environment are unknown, and
  - (g) all the relevant waste acceptance procedures set out in schedule 1 of the Landfill Regulations have been completed, and
  - (h) they fulfil the relevant waste acceptance criteria, and
  - (i) they have not been diluted or mixed solely to meet the relevant waste acceptance criteria, and
  - (j) from 30<sup>th</sup> October 2007 they are wastes which have been treated, except for: inert wastes for which treatment is not technically feasible; or it is waste other than inert waste and treatment would not reduce its quantity or the hazards which it poses to human health or the environment, or it is liquid waste accepted at the leachate treatment plant.
  - (k) any code beginning with 07 05 and 16 03 shall exclude waste medicinal products and pharmaceutically active waste materials arising from their manufacture

- 2.7.2 The operator shall visually inspect:
- (a) without unloading it, waste that is not in an enclosed container or enclosed vehicle on arrival at the landfill; and
  - (b) waste at the point of deposit;
- and shall satisfy itself that it conforms to the basic characterisation documentation submitted by the holder.
- 2.7.3 Where the operator has taken samples to establish that the waste is in conformity with the documentation submitted by the holder then the samples taken shall be retained for at least one month and results of any analysis for at least two years.
- 2.7.4 The operator on accepting each delivery of waste shall provide a receipt to the person delivering it.
- 2.7.5 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels presented in Figure 9 of the Stability Risk Assessment (Halcrow Group Ltd, 2009).
- 2.7.6 The quantity of waste that is deposited in the landfill in any year shall not exceed the limits in schedule 1 table S1.5.
- 2.7.7 The operator shall maintain and implement a system which ensures that a record is made of the quantity, characteristics, date of delivery and, where practicable, origin of any waste that is received for disposal or recovery and of the identity of the producer, or in the case of municipal waste and multiple collection vehicles, of the collector of such waste. Any information regarded by the operator as commercially confidential shall be clearly identified in the record.

## **2.8 Leachate levels**

- 2.8.1 The limits for the level of leachate listed in schedule 4 table S4.1 shall not be exceeded.

## **2.9 Closure, aftercare and decommissioning**

- 2.9.1 The operator shall maintain and operate the activities so as to prevent or where that is not practicable, to minimise, any pollution risk on closure and decommissioning.
- 2.9.2 The operator shall maintain a site closure plan which demonstrates how the activities can be decommissioned to avoid any pollution risk and return the site of operation to a satisfactory state.
- 2.9.3 The operator shall carry out and record a review of the site closure plan at least every 4 years.
- 2.9.4 The site closure plan (or relevant part thereof) shall be implemented on final cessation or decommissioning of the activities or part thereof.

## **2.10 Over-tipping of waste on existing waste deposits**

- 2.10.1 Placement of waste in all phases
- (a) Waste shall not be placed in lifts exceeding 4m in height.
  - (b) The landform from the placement of waste shall not exceed the contours in Figure 9 of Substantial Variation Application CP3231GJ (EPR/JP3039SU/V006).

- (c) The calibrated post restoration settlement prediction curves detailed in Substantial Variation Application CP3231GJ (EPR/JP3039SU/V006) shall be assessed prior to each phase of remedial waste placement. No waste deposit shall commence until the operator has submitted details of the assessment to the Agency and the Agency has confirmed that it is satisfied with the proposals.
- (d) Where leachate levels in the Hydro-geological Risk Assessment (HRA) are lower than the Stability Risk Assessment, the leachate levels in the HRA shall not be exceeded.

#### 2.10.2 Placement of waste in Phases 1, 2, 3 and 5

- (a) The landform resulting from the placement of waste in Phases 2 and 3 shall not exceed the contours presented in Figure 9 of the Stability Risk Assessment (Halcrow Group Ltd, 2009), including the capping / restoration materials.
- (b) Should leachate levels rise above 18maOD in phases 1, 2, 3 or 5 further stability analysis should be undertaken to confirm the stability of the waste mass. The stability analysis should be sent to the Agency within 6 weeks of the exceedence.
- (c) Should leachate levels rise above of 20maOD in phases 1, 3 or 5, or 18 maOD in Phase 2, placement of waste in Phase 2 must cease until a reduction in leachate levels below 18m AOD has taken place

#### 2.10.3 Placement of Waste in Phases 7 and 8

- (a) No alterations shall be made to the proposed toe perimeter ditch in the vicinity of Phases 7 and 8 unless an assessment of the implications for stability has been made and forwarded to the Agency detailing mitigating measures. The mitigation measures shall not be implemented unless agreed otherwise in writing by the Agency.
- (b) Should leachate levels rise above 5maOD further stability analysis should be undertaken to confirm the stability of the waste mass and this shall be forwarded to the Agency within 28 days of the increase becoming apparent to the operator.

#### 2.10.4 Placement of Waste in Phase 4

- (a) Should leachate levels rise above 15maOD further stability analysis should be undertaken by the operator to confirm the stability of the waste mass. This stability analysis should be submitted to the Agency within 28 days of the increase above 15mAOD being apparent to the operator.

#### 2.10.5 Placement of Waste in Phases 6, 10, 11 and 12

- (a) Should leachate levels rise above 15maOD further stability analysis should be undertaken by the operator to confirm the stability of the waste mass. This stability analysis should be submitted to the Agency within 28 days of the increase above 15mAOD being apparent to the operator.

## **3 Emissions and monitoring**

### **3.1 Emissions to water, air or land**

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 4 tables S4.2.
- 3.1.2 The limits given in that schedule shall not be exceeded, save that compliance with an emission limit shall include incorporation of the uncertainty allowance stated in Agency guidance LFTGN 05 and LFTGN 08.

### **3.2 Emissions to groundwater**

- 3.2.1 There shall be no emission from the activities into groundwater of any substance in List I (as defined by the Groundwater Regulations) contrary to those regulations.
- 3.2.2 There shall be no emission from the activities into groundwater of any substance in List II (as defined in the Groundwater Regulations) so as to cause pollution (as defined in those regulations).
- 3.2.3 The trigger levels for emissions into groundwater for the parameter(s) and monitoring point(s) set out in schedule 4 table S4.3 shall not be exceeded.
- 3.2.4 The operator shall submit to the Agency a review of the Hydrogeological Risk Assessment:
  - (a) between 9 and 6 months prior to the fourth anniversary of the granting of the permit, and
  - (b) between 9 and 6 months prior to every subsequent 4 years after the fourth anniversary of the granting of the permit.

### **3.3 Fugitive emissions of substances**

- 3.3.1 Fugitive emissions of substances (excluding odour, noise and vibration) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.3.2 Litter or mud arising from the activities shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures have been used to prevent or where that is not practicable to minimise, the litter and mud.
- 3.3.3 Litter or mud arising from the activities shall be cleared from affected areas outside the site as soon as practicable.
- 3.3.4 All liquids, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.
- 3.3.5 The limits for landfill gas arising from the installation set out in schedule 4, table S4.4 shall not be exceeded.

### **3.4 Odour**

- 3.4.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in an approved odour management plan, to prevent or where that is not practicable to minimise the odour.

### **3.5 Noise and vibration**

- 3.5.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures to prevent or where that is not practicable to minimise the noise and vibration.

### **3.6 Monitoring**

- 3.6.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake the monitoring specified in the following tables in schedule 4 to this permit:
- (a) Leachate specified in tables S4.1 and S4.7;
  - (b) Point source emissions specified in tables S4.2;
  - (c) Groundwater specified in tables S4.3 and S4.9;
  - (d) Landfill gas specified in tables S4.4, S4.5, S4.6;
  - (e) Surface water specified in table S4.8.
- 3.6.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.6.3 A topographical survey of the site referenced to ordnance datum shall be carried out:
- (a) annually, and
  - (b) prior to the disposal of waste in any new cell or new development area of the landfill, and
  - (c) following closure of the landfill or part of the landfill.

The topographical survey shall be used to produce a plan of a scale adequate to show the surveyed features of the site.

### **3.7 Transfers off-site**

- 3.7.1 Records of all the wastes sent off site from the activities, for either disposal or recovery, shall be maintained.

## 4 Information

### 4.1 Records

- 4.1.1 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 6 years from the date when the records were made, or in the case of the following records until permit surrender:
    - (i) the results of groundwater monitoring;
    - (ii) sub-surface landfill gas monitoring;
    - (iii) leachate levels, quality and quantities;
    - (iv) landfill gas generation and collection;
    - (v) waste types and quantities; and
    - (vi) the specification and as built drawings of the basal, sidewall and capping engineering systems
- 4.1.2 Any records required to be made by this permit shall be supplied to the Agency within 14 days where the records have been requested in writing by the Agency.
- 4.1.3 All records required to be held by this permit shall be held on the site where practicable, or other location agreed in writing and available for inspection by the Agency at any reasonable time.

### 4.2 Reporting

- 4.2.1 A report or reports on the performance of the activities over the previous year shall be submitted to the Agency by 31 January (or other date agreed in writing by the Agency) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the risk assessments submitted in relation to this installation and any agreed amendments thereto;
  - (b) where the operator's management system encompasses annual improvement targets, a summary report of the previous year's progress against such targets;
  - (c) the energy consumed at the site, reported in the format set out in schedule 5 table S5.3
  - (d) the annual production/treatment set out in schedule 5 table S5.2.
  - (e) details of any contamination or decontamination of the site which has occurred;
  - (f) the topographical surveys required by condition 3.6.3 other than those submitted as part of a CQA validation report;

- (g) the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographical survey i.e. the additional volume of the landfill void that is occupied by waste;
- (h) an assessment of the settlement behavior of the landfill body based on the difference between the most recent topographical survey and previous annual topographical survey for the areas of the landfill which did not receive waste between the surveys;
- (i) An assessment of the type of waste accepted over the previous 12 months to confirm that there is no significant change in waste density that could affect the stability of the waste mass. Should any significant change in waste density be apparent, then the stability assessments should be reviewed.
- (j) a calculation of the remaining capacity (reported in cubic metres) derived from the pre-settlement contours and the most recent topographical survey;
- (k) the compliance testing undertaken in the period;

4.2.2 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

- (a) in respect of the parameters and emission points specified in schedule 5 table S5.1;
- (b) for the reporting periods specified in schedule 5 table S5.1 and using the forms specified in schedule 5 table S5.4 ; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.3 A summary report of the waste types and quantities accepted and removed from the site shall be made for each quarter. It shall be submitted to the Agency within one month of the end of the quarter and shall be in the format required by the Agency.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding 4 years, submit to the Agency, within 6 months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 All reports and notifications required by the permit shall be sent to the Agency using the contact details supplied in writing by the Agency

### **4.3 Notifications**

4.3.1 The Agency shall be notified without delay following the detection of:

- (a) any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution;
- (b) the breach of a limit specified in the permit;
- (c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 6 to this permit within the time period specified in that schedule.

4.3.3 Prior 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 any of the permitted activities;
  - (b) as soon as practicable prior to the cessation of the landfill disposal activities, for a period likely to exceed 1 month; and
  - (c) at least 7 days prior to the resumption of the landfill disposal activities after a cessation notified under (b) above.
- 4.3.4 The Agency shall be given at least 14 days notice before implementation of any part of the site closure plan in respect of any activities other than the disposal of waste in the landfill.
- 4.3.5 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.
- 4.3.6 The Agency shall be notified within 7 days of any changes in technically competent management and the name of any incoming person together with evidence that such person has the required technical competence.
- 4.3.7 The Agency shall be provided, within 14 days of the operator or any relevant person being convicted of a relevant offence, (unless such information has already been notified to the Agency), with details of the nature of the offence, the place and date of conviction, and the sentence imposed.
- 4.3.8 The Agency shall be notified within 14 days of the operator and/or any relevant person lodging an appeal against a conviction for any relevant offence and of the outcome when the appeal is decided.
- 4.3.9 The Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- (a) any change in the operator's trading name, registered name or registered office address;
  - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

## **4.4 Interpretation**

- 4.4.1 In this permit the expressions listed in Schedule 7 shall have the meaning given in that schedule.

# Schedule 1 - Operations

**Table S1.1 Activities**

Activity listed in Schedule 1 of the EPR Regulations	Description of specified activity	Limits of specified activity
Section 5.2, Part A(1)(a), The disposal of waste in a landfill.	Landfill for non-hazardous waste (landfill classification under the Landfill Regulations 2002)	Receipt, handling, storage and disposal of wastes, consisting of the types and quantities specified in conditions 2.8, as an integral part of landfilling.
Section 5.3, Part A(1)(c)(i), Biological treatment.	Storage and treatment of non-hazardous liquid wastes in a facility with a capacity of >50 tonnes/ day	Leachate arising from the landfill and other permitted liquid wastes listed in schedule 3.
<b>Directly Associated Activity</b>		
Landfill gas management	Management of landfill gas through collection and delivery for utilisation or flaring. This includes the collection and disposal of condensate.	Landfill gas collection system.
Leachate management	Controlled re-circulation of leachate.	Leachate arising from the landfill.
Leachate discharges to foul sewer.	Discharge of untreated leachate and permitted liquid waste from the leachate treatment plant.	From leachate management system to point of entry to sewer.
Water discharges to controlled waters.	Discharges of surface water drainage from restored parts of the landfill and other suitable areas within the installation boundary.	From surface water management system to point of entry to controlled waters.
Fuel storage.	Storage of fuel and oil for the operation of plant and equipment.	Fuel storage to point of discharge.

**Table S1.2 Operating techniques**

	Parts	Date Received
Original PPC Application	The response to questions 2.1, 2.2, 2.3, 2.4, 2.5 and 9.0.1 in part B of the application for the landfill. <u>Excluding</u> the control and trigger levels for groundwater submitted in response to part of question 2.2.41 in part B of the application. <u>Excluding</u> the control ranges for landfill gas submitted in response to part of question 2.2.47 in part B of the application. The response to questions B2 and B3 in part B of the application for the leachate treatment plant. Other documents subsequently agreed in writing with the Agency between 2004 and 2009.	3 November 2004
Substantial Variation Application	Application CP3231GJ (EPR/JP3039SU/V006) received – all parts	16 March 2009

**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
IC1	The operator shall undertake a study of the impact on the bird reserve by the type of birds attracted to the landfill operation. An assessment shall be carried out of the need and extent of bird control measures at the installation which shall be submitted and agreed in writing by the Agency. The operator shall incorporate any agreed changes from the assessment into a revised Bird Management Plan.	31/01/10
IC2	<p>The operator shall submit a written report regarding landfill gas monitoring of external boreholes 843, 854-866, 867G, 868, 869, 870G, 871, 872G, 873G, 874G, 875, 877, 880, 881, 883, 922. The report shall propose a monitoring regime for the above boreholes to demonstrate landfill gas is not escaping from the installation boundary. The report shall include:</p> <ol style="list-style-type: none"> <li>1. A review of the existing landfill gas monitoring infrastructure on the Freightmaster estate and within the permitted boundary of the operational site.</li> <li>2. A review of the landfill gas monitoring results either side of the boundary .</li> <li>3. Recommendations for improvements to the landfill gas infrastructure and management systems where appropriate and modifications to the landfill gas monitoring regime.</li> <li>4. Where possible, propose appropriate compliance limits for the above boreholes. These proposed limits shall be based on environmental risk, pre-filling monitoring data, or other relevant monitoring data not influenced by landfill gas. Parameters other than methane and carbon dioxide can be considered. Should the setting of compliance limits for the above boreholes not be appropriate the justification for this should be detailed and a revised quarterly reporting regime should be implemented. This revised quarterly reporting regime should present the data for external landfill gas monitoring boreholes 855-866, 867G, 868, 869, 870G, 871, 872G, 873G, 874G, 875, 877, 880, 881, 883, 922 and analyse it in contrast to the monitoring data from within the permitted installation. This data must include - valve operation, suction pressure, flow rate and dip data and the report shall interpret any trends in data reported .</li> <li>5. Timescales for the implementation of any recommendations made</li> </ol> <p>Once the Environment Agency are satisfied that the above requirements have been met, this will be confirmed in writing. Then this document and the compliance limits will then become part of the sites operational management systems. .</p>	30/03/10
IC3	The operator shall submit proposals for the installation of three additional leachate monitoring points (audit wells, one of which will replace LAP354) in the central area of phase two. LAP 354 will henceforth be used as an extraction well. In addition the operator shall investigate and report on the integrity of all other leachate audit wells under Table S4.1 and submit proposals for any redrilling / replacement as appropriate. The installation of the monitoring points shall be implemented by the operator after the date of approval by the Agency and within a timescale to be agreed with the Agency.	28/02/10

**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
IC4	The operator shall provide confirmation to the Agency whether the waste settlement predictions in the settlement report submitted with Application CP3231GJ (EA/EPR/JP3039SU/V006). were refined to a further degree of accuracy by calibration with the most recent survey data available. This information should be used to explain to the differences between Drawing 8 (March 2006) and Figure 5 (December, 2008), in particular the notable increase in the peak of the north western area.	31/12/09
IC5	The operator shall correct the labelling on Figures 3 and 5 submitted with Application CP3231GJ (EA/EPR/JP3039SU/V006) and provide four correct copies to the Agency. The notification requirements of condition 2.4.2 will be deemed to have been complied with on submission of the plan.	30/11/09
IC6	The operator shall submit a report to the Agency reviewing compliance limits for leachate monitoring points LAP929, LAP930, LAP931, LAP932, LAP933, LAP934 along the sea wall. The compliance limits should consider the acceptability of a limit of 3.2mAOD for all of the above boreholes. Where 3.2mAOD is not appropriate the reasons should be outlined in the report and alternative compliance limits shall be proposed.	30/06/10
IC7	The operator must provide further information to the Agency about the site's HRA. The information must contain details as follows: (a) Present, discuss and justify control and trigger levels for groundwater for the parameters indicated by * including List 1 substances required by Table S4.3 (b) The details must include a thorough and full review of groundwater and leachate quality, and of EALs and control and trigger levels.	30/06/10
IC8	The peripheral containment bund, between Phase 8C and Liquid Transfer Location (LTL) 221, shall be constructed in accordance with the details shown on drawing no. RAI/PPC/954 entitled 'Containment Details'.	31/03/10

**Table S1.4 Pre-operational measures for future development**

Reference	Operation	Pre-operational Measures
1	Liquid waste accepted at the leachate treatment plant	One month prior to the acceptance of liquid waste from sources other than Rainham landfill at the leachate treatment plant, the operator shall submit detailed proposals for the acceptance and handling of such wastes for approval in writing by the Agency. The operator shall implement any measures as agreed in writing with the Agency.
2	Stability of temporary slopes	Prior to the operation of any over tipping or surcharging activity as a result of the 2009 application (EPR/JP3039SU/V006) the operator shall provide confirmation to the Agency that temporary waste slopes constructed during the re-contouring process are designed with adequate factors of safety. If the previous PLAXIS modelling is being relied upon, confirmation is required that this remains applicable to the revised pre-settlement contours. No over tipping or surcharging shall take place until the operator has received written confirmation from the Agency that this pre-operational condition has been complied with satisfactorily.

**Table S1.4 Pre-operational measures for future development**

<b>Reference</b>	<b>Operation</b>	<b>Pre-operational Measures</b>
3	Leachate recirculation	<p>Prior to the commencement of any leachate recirculation at the site, the operator shall submit in writing a detailed method statement and impact assessment for approval by the Environment Agency.</p> <p>This should include but not be limited to;</p> <ul style="list-style-type: none"><li>(a) An assessment of the quantity of leachate to be recirculated and the methodology proposed to be used for reintroduction of the leachate to the waste;</li><li>(b) A detailed assessment of the potential impact upon stability of the waste mass and final landform as a result of recirculation and increased waste moisture content.</li><li>(c) An assessment of the rise in leachate heads likely to be observed across the site and appropriate updating of the HRA as required.</li><li>(d) An assessment of the likely impact on gas production at the site and appropriate updating of the LFGRA as / if required.</li></ul>
4	Stripping back the cap or restoration layer above previously deposited waste	<p>Prior to the commencement of any stripping back of the cap or restoration layer above previously deposited waste the operator shall submit a method statement to be approved in writing by the Agency detailing the following:</p> <ul style="list-style-type: none"><li>(a) the proposed gas management strategies and contingency actions in relation to the cap stripping and its implications for gas management and in-waste fire risk.</li><li>(b) proposals detailing how the operator will manage and observe the results of carbon monoxide monitoring for evidence of deep seated or shallow fires elsewhere and manage and observe monitoring results of differential pressures to gauge inward flux of air.</li><li>(c) proposals for an olfactory survey which shall be undertaken at regular intervals during the cap stripping process, as proposed in Section 1.5.2 of the Variation Application. The findings shall be reported to the Agency on a timescale to be agreed prior to the commencement of the works.</li><li>(d) proposals for additional mitigating measures in the event of problematic odour releases occurring</li><li>(e) The cap stripping proposals shall state that they will be reviewed annually and any changes must be given Agency approval (subject to permit conditions 2.6.8) before commencing the work</li></ul>

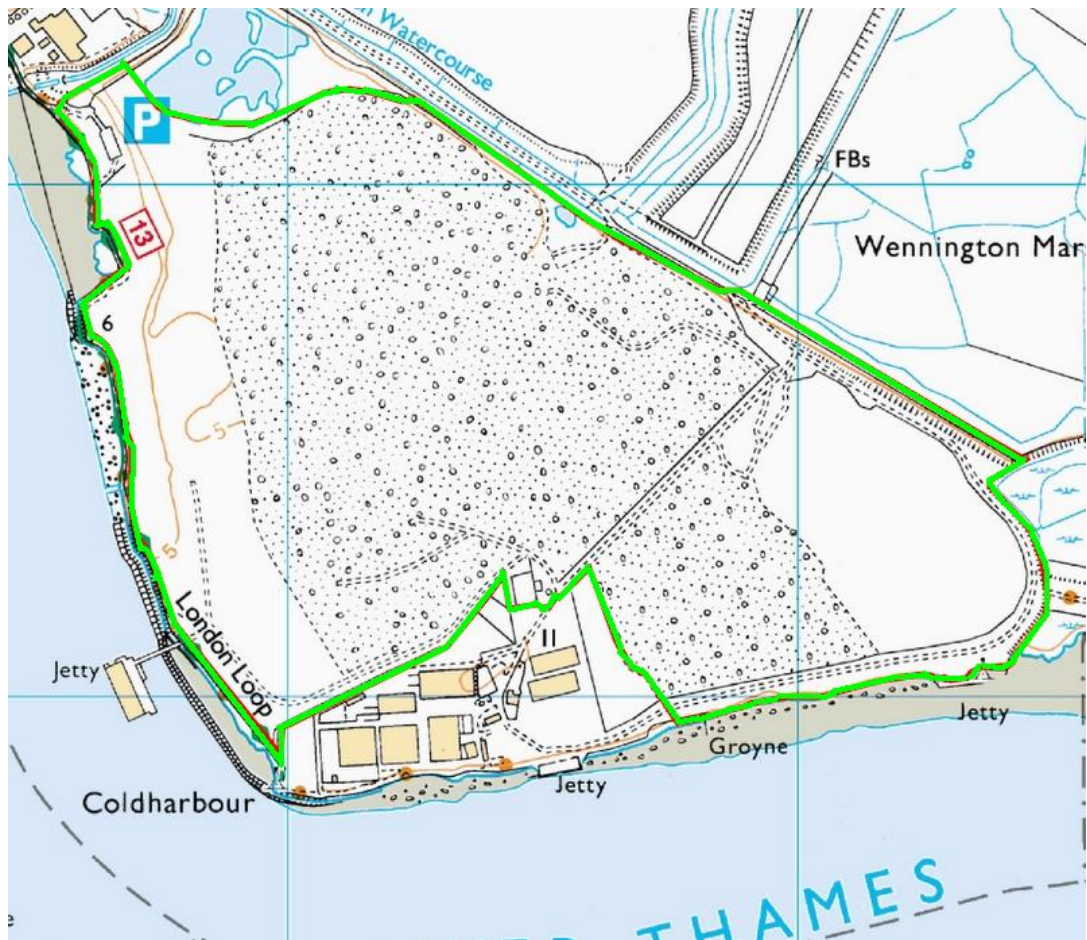
**Table S1.4 Pre-operational measures for future development**

Reference	Operation	Pre-operational Measures
5	Over tipping or Surcharging Activity	<p>Prior to the operation of any over tipping or surcharging activity as a result of the 2009 application (EPR/JP3039SU/V006) the operator must provide further information to the Agency on the site's HRA. The information must be forwarded to the Agency and agreed in writing before any over tip or surcharging commences. The information must contain details as follows:</p> <ul style="list-style-type: none"> <li>(a) Justification of the leachate source term concentrations used in the HRA detailed in Application CP3231GJ (EA/EPR/JP3039SU/V006).</li> <li>(b) Details of which boreholes have been considered representative of background water quality in the HRA detailed in Application CP3231GJ (EA/EPR/JP3039SU/V006) and justification of values presented in Table 5 and Appendix 4.</li> <li>(c) An updated plan detailing environmental monitoring infrastructure.</li> <li>(d) Proposals for appropriate Environmental Assessment Levels (EALs) for the HRA. The proposals must provide a commentary and justification of the derivation of appropriate EALs for comparison against modelling results, and review the modelling results in light of these including List 1 substances required by Table S4.3</li> <li>(e) Present, discuss and justify control and trigger levels for groundwater including List 1 substances required by Table S4.3</li> <li>(f) The details must include a thorough and full review of groundwater and leachate quality, and of EALs and control and trigger levels.</li> </ul>
6	Prior to capping of the northern part of the site	<p>Prior to capping of the northern part of the site, in the vicinity of the proposed visitor car parking area, shown on Figure 6 of Application CP3231GJ (EPR/JP3039SU/V006) the operator shall submit to the Environment Agency for approval a revised surface water management plan, detailing the proposed surface water drainage systems to be implemented in this area of the site.</p>
7	Prior to commencing capping works in accordance with the Varied Restoration profiles detailed in the Substantial Variation Application CP3231GJ (EPR/JP3039SU/V006)	<p>The operator shall submit a report to the Agency to be agreed in writing. The report shall include:</p> <ul style="list-style-type: none"> <li>(a) Justification of parameters used in relation to the capping/restoration layer profiles in figures 5 and 6 of the Stability Risk Assessment. The justification shall consider the input parameters (unit weight, undrained cohesion) used in the SRA and confirm the reasons for using the same input parameters for the different materials in the two profiles.</li> <li>(b) he operator shall assess the stability and integrity of the capping scheme for the entire site in light of the difference in cap specification between phases 2, 7, 8 and the remainder of the site.</li> </ul>

**Table S1.5 Annual waste input**

Category	Limit Tonnes/ Year
<b>Non-hazardous waste</b>	1,000,000
<b>Inert waste</b>	700,000

## Schedule 2 - Site plan



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## Schedule 3 - List of permitted wastes

Wastes for disposal to landfill

<b>Waste Code</b>	<b>Waste Description</b>
<b>01</b>	<b>WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS</b>
<b>01 01</b>	<b>wastes from mineral excavation</b>
01 01 01	wastes from mineral metalliferous excavation
01 01 02	wastes from mineral non-metalliferous excavation
<b>01 03</b>	<b>wastes from physical and chemical processing of metalliferous minerals</b>
01 03 08	dusty and powdery wastes other than those mentioned in 01 03 07
01 03 09	red mud from alumina production other than the wastes mentioned in 01 03 07
<b>01 04</b>	<b>wastes from physical and chemical processing of non-metalliferous minerals</b>
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
01 04 10	dusty and powdery wastes other than those mentioned in 01 04 07
01 04 11	wastes from potash and rock salt processing other than those mentioned in 01 04 07
01 04 12	tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11
01 04 13	wastes from stone cutting and sawing other than those mentioned in 01 04 07
<b>01 05</b>	<b>drilling muds and other drilling wastes</b>
01 05 04	freshwater drilling muds and wastes
01 05 07	barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
01 05 08	chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
<b>02</b>	<b>WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING</b>
<b>02 01</b>	<b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site
02 01 07	wastes from forestry
02 01 10	waste metal
<b>02 02</b>	<b>wastes from the preparation and processing of meat, fish and other foods of animal origin</b>
02 02 01	sludges from washing and cleaning
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
<b>02 03</b>	<b>wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation</b>
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	materials unsuitable for consumption or processing



<b>Waste Code</b>	<b>Waste Description</b>
02 03 05	sludges from on-site effluent treatment
<b>02 05</b>	<b>wastes from the dairy products industry</b>
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
<b>02 06</b>	<b>wastes from the baking and confectionery industry</b>
02 06 01	materials unsuitable for consumption or processing
02 06 02	wastes from preserving agents
02 06 03	sludges from on-site effluent treatment
<b>02 07</b>	<b>wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)</b>
02 07 03	wastes from chemical treatment
02 07 04	materials unsuitable for consumption or processing
02 07 05	sludges from on-site effluent treatment
<b>03</b>	<b>WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD</b>
<b>03 01</b>	<b>wastes from wood processing and the production of panels and furniture</b>
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
<b>03 03</b>	<b>wastes from pulp, paper and cardboard production and processing</b>
03 03 01	waste bark and wood
03 03 05	de-inking sludges from paper recycling
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 09	lime mud waste
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
<b>04</b>	<b>WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES</b>
<b>04 01</b>	<b>wastes from the leather and fur industry</b>
04 01 01	fleshings and lime split wastes
04 01 02	liming waste
04 01 08	waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium
04 01 09	wastes from dressing and finishing
<b>04 02</b>	<b>wastes from the textile industry</b>
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 10	organic matter from natural products (for example grease, wax)
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 17	dyestuffs and pigments other than those mentioned in 04 02 16
04 02 20	sludges from on-site effluent treatment other than those mentioned in 04 02 19
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres

<b>Waste Code</b>	<b>Waste Description</b>
<b>05</b>	<b>WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC TREATMENT OF COAL</b>
<b>05 01</b>	<b>wastes from petroleum refining</b>
05 01 16	sulphur-containing wastes from petroleum desulphurisation
05 01 17	bitumen
<b>05 06</b>	<b>wastes from the pyrolytic treatment of coal</b>
05 06 04	waste from cooling columns
<b>05 07</b>	<b>wastes from natural gas purification and transportation</b>
05 07 02	wastes containing sulphur
<b>06</b>	<b>WASTES FROM INORGANIC CHEMICAL PROCESSES</b>
<b>06 03</b>	<b>wastes from the MFSU of salts and their solutions and metallic oxides</b>
06 03 14	solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13
06 03 16	metallic oxides other than those mentioned in 06 03 15
<b>06 05</b>	<b>sludges from on-site effluent treatment</b>
06 05 03	sludges from on-site effluent treatment other than those mentioned in 06 05 02
<b>06 06</b>	<b>wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes</b>
06 06 03	wastes containing sulphides other than those mentioned in 06 06 02
<b>06 09</b>	<b>wastes from the MFSU of phosphorous chemicals and phosphorous chemical processes</b>
06 09 02	phosphorous slag
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03
<b>06 11</b>	<b>wastes from the manufacture of inorganic pigments and opacifiers</b>
06 11 01	calcium-based reaction wastes from titanium dioxide production
<b>06 13</b>	<b>wastes from inorganic chemical processes not otherwise specified</b>
06 13 03	carbon black
<b>07</b>	<b>WASTES FROM ORGANIC CHEMICAL PROCESSES</b>
<b>07 01</b>	<b>wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals</b>
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01 11
<b>07 02</b>	<b>wastes from the MFSU of plastics, synthetic rubber and man-made fibres</b>
07 02 13	waste plastic
<b>07 05</b>	<b>wastes from the MFSU of pharmaceuticals</b>
07 05 14	solid wastes other than those mentioned in 07 05 13

<b>Waste Code</b>	<b>Waste Description</b>
<b>08</b>	<b>WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS</b>
<b>08 01</b>	<b>wastes from MFSU and removal of paint and varnish</b>
08 01 14	sludges from paint or varnish other than those mentioned in 08 01 13
<b>08 02</b>	<b>wastes from MFSU of other coatings (including ceramic materials)</b>
08 02 01	waste coating powders
<b>08 03</b>	<b>wastes from MFSU of printing inks</b>
08 03 13	waste ink other than those mentioned in 08 03 12
08 03 15	ink sludges other than those mentioned in 08 03 14
08 03 18	waste printing toner other than those mentioned in 08 03 17
<b>08 04</b>	<b>wastes from MFSU of adhesives and sealants (including waterproofing products)</b>
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09
08 04 12	adhesive and sealant sludges other than those mentioned in 08 04 11
<b>09</b>	<b>WASTES FROM THE PHOTOGRAPHIC INDUSTRY</b>
<b>09 01</b>	<b>wastes from the photographic industry</b>
09 01 07	photographic film and paper containing silver or silver compounds
09 01 08	photographic film and paper free of silver or silver compounds
<b>10</b>	<b>WASTES FROM THERMAL PROCESSES</b>
<b>10 01</b>	<b>wastes from power stations and other combustion plants (except 19)</b>
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
10 01 15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01 21	sludges from on-site effluent treatment other than those mentioned in 10 01 20
10 01 24	sands from fluidised beds
<b>10 02</b>	<b>wastes from the iron and steel industry</b>
10 02 01	wastes from the processing of slag
10 02 02	unprocessed slag
10 02 10	mill scales
<b>10 03</b>	<b>wastes from aluminium thermal metallurgy</b>
10 03 05	waste alumina
10 03 18	carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17
10 03 20	flue-gas dust other than those mentioned in 10 03 19
10 03 22	other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21
10 03 24	solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 26	sludges and filter cakes from gas treatment other than those mentioned in 10 03 25
10 03 28	wastes from cooling-water treatment other than those mentioned in 10 03 27
10 03 30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29

<b>Waste Code</b>	<b>Waste Description</b>
<b>10 04</b>	<b>wastes from lead thermal metallurgy</b>
10 04 10	wastes from cooling-water treatment other than those mentioned in 10 04 09
<b>10 05</b>	<b>wastes from zinc thermal metallurgy</b>
10 05 01	slags from primary and secondary production
10 05 04	other particulates and dust
10 05 11	dross and skimmings other than those mentioned in 10 05 10
<b>10 06</b>	<b>wastes from copper thermal metallurgy</b>
10 06 01	slags from primary and secondary production
10 06 02	dross and skimmings from primary and secondary production
10 06 04	other particulates and dust
<b>10 07</b>	<b>wastes from silver, gold and platinum thermal metallurgy</b>
10 07 01	slags from primary and secondary production
10 07 02	dross and skimmings from primary and secondary production
10 07 03	solid wastes from gas treatment
10 07 04	other particulates and dust
10 07 05	sludges and filter cakes from gas treatment
<b>10 08</b>	<b>wastes from other non-ferrous thermal metallurgy</b>
10 08 04	particulates and dust
10 08 09	other slags
10 08 11	dross and skimmings other than those mentioned in 10 08 10
10 08 13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12
10 08 16	flue-gas dust other than those mentioned in 10 08 15
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
<b>10 09</b>	<b>wastes from casting of ferrous pieces</b>
10 09 03	furnace slag
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 10	flue-gas dust other than those mentioned in 10 09 09
10 09 12	other particulates other than those mentioned in 10 09 11
<b>10 10</b>	<b>wastes from casting of non-ferrous pieces</b>
10 10 03	furnace slag
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 10 10	flue-gas dust other than those mentioned in 10 10 09
10 10 12	other particulates other than those mentioned in 10 10 11
<b>10 11</b>	<b>wastes from manufacture of glass and glass products</b>
10 11 03	waste glass-based fibrous materials
10 11 05	particulates and dust
10 11 10	waste preparation mixture before thermal processing, other than those mentioned in 10 11 09
10 11 12	waste glass other than those mentioned in 10 11 11

<b>Waste Code</b>	<b>Waste Description</b>
10 11 14	glass-polishing and -grinding sludge other than those mentioned in 10 11 13
10 11 16	solid wastes from flue-gas treatment other than those mentioned in 10 11 15
10 11 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17
10 11 20	solid wastes from on-site effluent treatment other than those mentioned in 10 11 19
<b>10 12</b>	<b>wastes from manufacture of ceramic goods, bricks, tiles and construction products</b>
10 12 01	waste preparation mixture before thermal processing
10 12 03	particulates and dust
10 12 05	sludges and filter cakes from gas treatment
10 12 06	discarded moulds
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 12 10	solid wastes from gas treatment other than those mentioned in 10 12 09
10 12 12	wastes from glazing other than those mentioned in 10 12 11
10 12 13	sludge from on-site effluent treatment
<b>10 13</b>	<b>wastes from manufacture of cement, lime and plaster and articles and products made from them</b>
10 13 01	waste preparation mixture before thermal processing
10 13 04	wastes from calcination and hydration of lime
10 13 06	particulates and dust (except 10 13 12 and 10 13 13)
10 13 07	sludges and filter cakes from gas treatment
10 13 11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
10 13 13	solid wastes from gas treatment other than those mentioned in 10 13 12
10 13 14	waste concrete and concrete sludge
<b>11</b>	<b>WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY</b>
<b>11 01</b>	<b>wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphatising, alkaline degreasing, anodising)</b>
11 01 10	sludges and filter cakes other than those mentioned in 11 01 09
11 01 14	degreasing wastes other than those mentioned in 11 01 13
<b>11 02</b>	<b>wastes from non-ferrous hydrometallurgical processes</b>
11 02 03	wastes from the production of anodes for aqueous electrolytical processes
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05
<b>11 05</b>	<b>wastes from hot galvanising processes</b>
11 05 01	hard zinc
11 05 02	zinc ash
<b>12</b>	<b>WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS</b>
<b>12 01</b>	<b>wastes from shaping and physical and mechanical surface treatment of metals and plastics</b>
12 01 01	ferrous metal filings and turnings
12 01 02	ferrous metal dust and particles
12 01 03	non-ferrous metal filings and turnings

<b>Waste Code</b>	<b>Waste Description</b>
12 01 04	non-ferrous metal dust and particles
12 01 05	plastics shavings and turnings
12 01 13	welding wastes
12 01 15	machining sludges other than those mentioned in 12 01 14
12 01 17	waste blasting material other than those mentioned in 12 01 16
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20
<b>15</b>	<b>WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED</b>
<b>15 01</b>	<b>packaging (including separately collected municipal packaging waste)</b>
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
15 01 09	textile packaging
<b>15 02</b>	<b>absorbents, filter materials, wiping cloths and protective clothing</b>
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
<b>16</b>	<b>WASTES NOT OTHERWISE SPECIFIED IN THE LIST</b>
<b>16 01</b>	<b>end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)</b>
16 01 03	end-of-life tyres
16 01 12	brake pads other than those mentioned in 16 01 11
16 01 16	tanks for liquefied gas
16 01 17	ferrous metal
16 01 18	non-ferrous metal
16 01 19	plastic
16 01 20	glass
16 01 22	components not otherwise specified
<b>16 02</b>	<b>wastes from electrical and electronic equipment</b>
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15
<b>16 03</b>	<b>off-specification batches and unused products</b>
16 03 04	inorganic wastes other than those mentioned in 16 03 03
16 03 06	organic wastes other than those mentioned in 16 03 05
<b>16 06</b>	<b>batteries and accumulators</b>
16 06 04	alkaline batteries (except 16 06 03)
16 06 05	other batteries and accumulators

<b>Waste Code</b>	<b>Waste Description</b>
<b>16 11</b>	<b>waste linings and refractories</b>
16 11 02	carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 06	linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05
<b>17</b>	<b>CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)</b>
<b>17 01</b>	<b>concrete, bricks, tiles and ceramics</b>
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
<b>17 02</b>	<b>wood, glass and plastic</b>
17 02 01	wood
17 02 02	glass
17 02 03	plastic
<b>17 03</b>	<b>bituminous mixtures, coal tar and tarred products</b>
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
<b>17 04</b>	<b>metals (including their alloys)</b>
17 04 01	copper, bronze, brass
17 04 02	aluminium
17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 11	cables other than those mentioned in 17 04 10
<b>17 05</b>	<b>soil (including excavated soil from contaminated sites), stones and dredging spoil</b>
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
<b>17 06</b>	<b>insulation materials and asbestos-containing construction materials</b>
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03
<b>17 09</b>	<b>other construction and demolition wastes</b>
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03

<b>Waste Code</b>	<b>Waste Description</b>
<b>18</b>	<b>WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (except kitchen and restaurant wastes not arising from immediate health care)</b>
<b>18 01</b>	<b>wastes from natal care, diagnosis, treatment or prevention of disease in humans</b>
18 01 04	wastes whose collection and disposal is not subject to special requirements in order to prevent infection(for example dressings, plaster casts, linen, disposable clothing, diapers)
<b>18 02</b>	<b>wastes from research, diagnosis, treatment or prevention of disease involving animals</b>
18 02 03	wastes whose collection and disposal is not subject to special requirements in order to prevent infection
<b>19</b>	<b>WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE</b>
<b>19 01</b>	<b>wastes from incineration or pyrolysis of waste</b>
19 01 02	ferrous materials removed from bottom ash
19 01 12	bottom ash and slag other than those mentioned in 19 01 11
19 01 16	boiler dust other than those mentioned in 19 01 15
19 01 19	sands from fluidised beds
<b>19 02</b>	<b>wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)</b>
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
<b>19 03</b>	<b>stabilised/solidified wastes</b>
19 03 05	stabilised wastes other than those mentioned in 19 03 04
19 03 07	solidified wastes other than those mentioned in 19 03 06
<b>19 04</b>	<b>vitrified waste and wastes from vitrification</b>
19 04 01	vitrified waste
<b>19 05</b>	<b>wastes from aerobic treatment of solid wastes</b>
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost
<b>19 06</b>	<b>wastes from anaerobic treatment of waste</b>
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
<b>19 08</b>	<b>wastes from waste water treatment plants not otherwise specified</b>
19 08 01	screenings
19 08 02	waste from desanding
19 08 05	sludges from treatment of urban waste water
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13



<b>Waste Code</b>	<b>Waste Description</b>
<b>19 09</b>	<b>wastes from the preparation of water intended for human consumption or water for industrial use</b>
19 09 01	solid waste from primary filtration and screenings
19 09 02	sludges from water clarification
19 09 03	sludges from decarbonation
19 09 04	spent activated carbon
19 09 05	saturated or spent ion exchange resins
19 09 06	solutions and sludges from regeneration of ion exchangers
<b>19 10</b>	<b>wastes from shredding of metal-containing wastes</b>
19 10 01	iron and steel waste
19 10 02	non-ferrous waste
19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03
19 10 06	other fractions other than those mentioned in 19 10 05
<b>19 11</b>	<b>wastes from oil regeneration</b>
19 11 06	sludges from on-site effluent treatment other than those mentioned in 19 11 05
<b>19 12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>
19 12 01	paper and cardboard
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	glass
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 09	minerals (for example sand, stones)
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
<b>19 13</b>	<b>wastes from soil and groundwater remediation</b>
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
19 13 06	sludges from groundwater remediation other than those mentioned in 19 13 05
<b>20</b>	<b>MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS</b>
<b>20 01</b>	<b>separately collected fractions (except 15 01)</b>
20 01 01	paper and cardboard
20 01 02	glass
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 25	edible oil and fat
20 01 28	paint, inks, adhesives and resins other than those mentioned in 20 01 27
20 01 30	detergents other than those mentioned in 20 01 29

<b>Waste Code</b>	<b>Waste Description</b>
20 01 32	medicines other than those mentioned 20 01 31
20 01 34	batteries and accumulators other than those mentioned in 20 01 33
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 01 40	metals
20 01 41	wastes from chimney sweeping
<b>20 02</b>	<b>garden and park wastes (including cemetery waste)</b>
20 02 01	biodegradable waste
20 02 02	soil and stones
20 02 03	other non-biodegradable wastes
<b>20 03</b>	<b>other municipal wastes</b>
20 03 01	mixed municipal waste
20 03 02	waste from markets
20 03 03	street-cleaning residues
20 03 04	septic tank sludge
20 03 06	waste from sewage cleaning
20 03 07	bulky waste

Wastes for disposal at the leachate treatment plant

<b>Waste Code</b>	<b>Waste Description</b>
<b>16</b>	<b>WASTES NOT OTHERWISE SPECIFIED IN THE LIST</b>
<b>16 10</b>	<b>aqueous liquid wastes destined for off-site treatment</b>
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01
<b>19</b>	<b>WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE</b>
<b>19 06</b>	<b>wastes from anaerobic treatment of waste</b>
19 06 03	liquor from anaerobic treatment of municipal waste
19 06 05	liquor from anaerobic treatment of animal and vegetable waste
<b>19 07</b>	<b>landfill leachate</b>
19 07 03	landfill leachate other than those mentioned in 19 07 02
<b>19 13</b>	<b>wastes from soil and groundwater remediation</b>
19 13 08	aqueous liquid wastes and aqueous concentrates from groundwater other than those mentioned in 19 13 07

## Schedule 4 – Emissions and monitoring

**Table S4.1 Leachate level limits and monitoring requirements**

Monitoring point reference/ Description	Limit / mAOD	Monitoring frequency	Monitoring method
Phase 1 – Foreshore North LAP205, LAP207, LAP925, LAP926	4.20	Monthly	Monitoring to be carried out in accordance with Environment Agency Document 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water (LFTGN02)', unless otherwise agreed in writing with the Agency.
Phase 1 – Foreshore North LAP498	3.00	Monthly	
Phase 1 – Foreshore North LAP499	3.50	Monthly	
Phase 1 – LAP272, LAP279, LAP717, LAP721, LAP725, LAP735, LAP740	18.04	Monthly	
Phase 2 – Foreshore South LAP569, LAP571, LAP573, LAP578, LAP927	4.20	Monthly	
Phase 2 – Foreshore South LAP575	4.40	Monthly	
Phase 2 – Foreshore South LAP814	4.90	Monthly	
Phase 2 – Foreshore South LAP820	5.60	Monthly	
Phase 2 – Foreshore South LAP824	6.62	Monthly	
Phase 2 – LAP218, LAP234, LAP235, LAP239, LAP241, LAP243, LAP240, LAP482	18.00	Monthly	
Phase 3 & 5 – LAP204	4.44	Monthly	
Phase 3 & 5 – LAP228	3.79	Monthly	
Phase 3 & 5 – LAP229	4.87	Monthly	
Phase 3 & 5 – LAP242	6.30	Monthly	
Phase 3 & 5 – LAP244	3.92	Monthly	
Phase 3 & 5 – LAP245	5.17	Monthly	
Phase 3 & 5 – LAP293	5.87	Monthly	
Phase 3 & 5 – LAP539	5.37	Monthly	
Phase 4 – LAP258	6.19	Monthly	
Phase 5 – LAP959	3.00	Monthly	
Phase 6A – LAP931, LAP932, LAP933, LAP934,	4.20 <sup>#</sup>	Monthly	
Phase 6A – LAP950, LAP953	3.00	Monthly	
Phase 6B – LAP929, LAP930	4.20 <sup>#</sup>	Monthly	
Phases 6A, 11A, 11B – LAP608	4.70	Monthly	
Phases 6A, 11A, 11B – LAP617	4.41	Monthly	
Phases 6A, 11A, 11B – LAP624	5.24	Monthly	
Phases 6A, 11A, 11B – LAP627	4.36	Monthly	
Phases 6A, 11A, 11B – LAP632	5.24	Monthly	
Phases 6B, 10, 12 – LAP615	6.59	Monthly	
Phases 6B, 10, 12 – LAP621	5.91	Monthly	
Phases 6B, 10, 12 – LAP623	5.94	Monthly	

**Table S4.1 Leachate level limits and monitoring requirements**

Monitoring point reference/ Description	Limit / mAOD	Monitoring frequency	Monitoring method
Phases 6B, 10, 12 – LAP628	6.18	Monthly	
Phases 6B, 10, 12 – LAP650	6.43	Monthly	
Phases 6B and 12RED LAP646	5.25	Monthly	
Phases 7A, 8A – LAP772, LAP773	2.74	Monthly	
Phase 7A – LAP775	2.50	Monthly	
Phase 7B – LAP780	2.50	Monthly	
Phases 7A, 8A – LAP778	2.5	Monthly	
Phase 8B – LAP779	2.50	Monthly	
Phase 8C - LAP781	2.50	Monthly	
Phase 10 – LAP956	2.00	Monthly	
Recycling (MRF, Transfer Station etc.) – LAP870L	6.16	Monthly	
Recycling (MRF, Transfer Station etc.) – LAP882	5.11	Monthly	
Recycling (MRF, Transfer Station etc.) – LAP922	4.63	Monthly	
Recycling (MRF, Transfer Station etc.) – LAP928	4.20	Monthly	

# interim limits up to 30/06/10 subject to Improvement Condition 6

**Table S4.2 Point source emissions to water (other than sewer) – emission limits and monitoring requirements**

Emission point Ref. & Location	Parameter	Source	Limit (incl unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
RAI 015	Chloride	Surface water drainage	5302 mg/l	Spot Sample	Monthly	Monitoring to be carried out in accordance with Environment Agency Document 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water (LFTGN02), unless otherwise agreed in writing with the Agency.
RAI 011, 013, 016, 017, 018, 019	Chloride	Surface water drainage	9044 mg/l	Spot Sample	Monthly	
RAI 015	Orthophos phate as P	Surface water drainage	0.1 mg/l as P	Spot Sample	Monthly	
RAI 011, 013, 015, 016, 017, 018, 019	Ammoniac al Nitrogen as N	Surface water drainage	9 mg/l as N	Spot Sample	Monthly	
	pH	Surface water drainage	6 – 8.5	Spot Sample	Monthly	
	Suspended solids	Surface water drainage	100mg/l	Spot Sample	Monthly	
	BOD	Surface water drainage	15 mg/l as O	Spot Sample	Monthly	
	Potassium	Surface water drainage	256 mg/l	Spot Sample	Monthly	

**Table S4.2 Point source emissions to water (other than sewer) – emission limits and monitoring requirements**

Emission point Ref. & Location	Parameter	Source	Limit (incl unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
	Oil and Grease	Surface water drainage	Not visible	Spot Sample	Monthly	

**Table S4.3 Trigger levels for emissions into groundwater and monitoring requirements**

Monitoring point reference	Parameter	Limit (including unit)	Reference Period	Monitoring frequency	Monitoring standard or method
Monitoring points as shown on drawing RAI/PPC/976 GWMPs: 101, 102, 103, 104, 110, 111, 112, 113, 114, 115, 116, 119, 120, 124, 125, 126, 127, 128, 131, 132, 140, 141, 142, 143, 144 All subsequent new monitoring points or replacement monitoring points agreed in writing with the Agency.	Cadmium	1 ug/l	Spot Sample	Quarterly <sup>#</sup>	Monitoring to be carried out in accordance with Environment Agency Document 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water (LFTGN02), unless otherwise agreed in writing with the Agency.
	Napthalene	0.4 ug/l	Spot Sample	Quarterly <sup>#</sup>	
	Ethylbenzene	0.6 ug/l	Spot Sample	Quarterly <sup>#</sup>	
	Cis 1,2-Dichloroethene	0.1 ug/l	Spot Sample	Quarterly <sup>#</sup>	
	1,3,5-Trimethylbenzene	0.6 ug/l	Spot Sample	Quarterly <sup>#</sup>	
	Chromium	0.015mg/l	Spot Sample	Quarterly <sup>#</sup>	
GWMP 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165	Cadmium	*	Spot Sample	Quarterly <sup>#</sup>	
	Napthalene	*			
	Ethylbenzene	*			
	Cis 1,2-Dichloroethene	*			
	1,3,5-Trimethylbenzene	*			
	Chromium	*			

\* Trigger limits to be agreed in accordance with Improvement condition 7

# Or any other frequency agreed in writing with the Agency.

**Table S4.4 Landfill gas in external monitoring boreholes – limits and monitoring requirements**

Monitoring point Ref. /description	Parameter	Limit (including units) *	Monitoring frequency	Monitoring standard or method
Peripheral landfill gas monitoring boreholes (nos. 810-824, 843, 851, 854-866, 867G, 868-870G, 871, 872G-874G, 875, 877, 880, 881, 883 922) as shown on drawing no. RAI/PPC/976 and any additional monitoring points agreed in writing with the Agency.	Methane	#	Monthly	Monitoring to be carried out in accordance with Environment Agency - Landfill Technical Guidance Note (LFGTN) 03: 'Guidance on the management of landfill gas,' unless otherwise agreed in writing with the Agency.
	Carbon dioxide	#	Monthly	
	Oxygen	No limit	Monthly	
	Atmospheric pressure	No limit	Monthly	

**Table S4.4 Landfill gas in external monitoring boreholes – limits and monitoring requirements**

Monitoring point Ref. /description	Parameter	Limit (including units) *	Monitoring frequency	Monitoring standard or method
833, 841, 842, 844, 884, 885, 886, 887	Methane	1%v/v	Monthly	
	Oxygen	No limit	Monthly	
	Atmospheric pressure	No limit	Monthly	
833	Carbon dioxide	4.1%v/v	Monthly	
841	Carbon dioxide	3.4%v/v	Monthly	
842	Carbon dioxide	4.9%v/v	Monthly	
844	Carbon dioxide	4.5%v/v	Monthly	
884	Carbon dioxide	3.1%v/v	Monthly	
885	Carbon dioxide	3.5%v/v	Monthly	
886	Carbon dioxide	2.8%v/v	Monthly	
887	Carbon dioxide	12.0%v/v	Monthly	

# - Limits to be agreed in accordance with IC2

**Table S4.5 Landfill gas from capped surfaces - monitoring requirements**

Monitoring point Ref. /description	Parameter	Monitoring frequency	Other specifications	Monitoring Standard or method
Permanently capped zone	Methane conc/flux	Annually (unless otherwise agreed with the Agency)	Where a rate of 0.001 mg/m <sup>2</sup> /second is exceeded appropriate measures must be taken to reduce the rate.	As per LFTGN 07 or as otherwise agreed in writing by the Agency*.
Temporarily capped zone	Methane conc/flux	Annually (unless otherwise agreed with the Agency)	Where a rate of 0.1 mg/m <sup>2</sup> /second is exceeded appropriate measures must be taken to reduce the rate.	As per LFTGN 07 or as otherwise agreed in writing by the Agency*.

Footnote \* If a cap has previously been shown compliant and there have been no significant physical changes in the gas management during the year, a detailed walkover survey can be used to demonstrate that the surface emissions are under control. If this survey shows no change in the pattern of methane emission, it may be used as the annual survey. The values for flux and total methane emissions measured in the previous year may be reported and a fresh flux box survey is not necessary. If the zone remains stable, the results of a full walkover survey may be accepted as the site report for a period of four years before a further quantitative flux box survey is required.

**Table S4.6 Landfill gas – other**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Gas extraction wells at locations shown on drawing RAI/PPC/961	Methane Carbon Dioxide Oxygen Atmospheric pressure	Fortnightly		Portable infra-red gas analyser

**Table S4.7 Leachate – other Monitoring**

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>	
Phase 1 Northern Foreshore	Chromium (mg/l)	6 monthly	Monitoring to be carried out in accordance with Environment Agency Document 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water (LFTGN02), unless otherwise agreed in writing with the Agency.		
Phase 1	Cadmium (mg/l)				
Phase 2 Southern Foreshore	Chloride (mg/l)				
Phase 2	Ammoniacal Nitrogen (mg/lN)				
Phase 3/5	Monohydric phenol (mg/l)				
Phase 4	cis-1,2 Dichloroethene (µg/l)				
Phase 6A/11A/11B	Ethylbenzene (µg/l)				
Phase 7A/8A	1,3,5 Trimethylbenzene (µg/l)				
Phase 7B/8B/8C	Naphthalene (µg/l)				
Phase 6B/10/12					
Phase 6B/12 'red' leachate					
	List 1 screen	Annually			

**Table S4.8 Surface water – other monitoring**

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
RAI 001, RAI 002, RAI 007, and RAI 010 as detailed on drawing RAI/PPC/976	Temperature, pH, Electrical Conductivity, Ammoniacal Nitrogen (as N), COD, Chloride, Dissolved Oxygen.	Monthly	Monitoring to be carried out in accordance with Environment Agency Document 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water (LFTGN02), unless otherwise agreed in writing with the Agency.	

**Table S4.9 Groundwater – other monitoring**

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
Monitoring points as shown on drawing RAI/PPC/976 GWMPs: 101, 102, 103, 104, 110, 111, 112, 113, 114, 115, 116, 119, 120, 124, 125, 126, 127, 128, 131, 132, 140, 141, 142, 143, 144, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165 All subsequent new monitoring points or replacement monitoring points agreed in writing with the Agency.	pH, Electrical Conductivity, NH <sub>3</sub> – N, Chloride, Potassium, TOC, Alkalinity, Bromide, Cadmium, Calcium, Chromium, COD, Copper, Cyanide – T, Hardness, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Phenol – M, Sodium, Sulphate, TON, Zinc.	Quarterly	Monitoring to be carried out in accordance with Environment Agency Document 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water (LFTGN02), unless otherwise agreed in writing with the Agency.	
	All List 1 substances found in leachate from this installation	Annually		



## Schedule 5 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

<b>Table S5.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Leachate levels As required by condition 3.6.1	LAP204, LAP205, LAP207, LAP218, LAP228, LAP229, LAP234, LAP235, LAP239, LAP241, LAP242, LAP243, LAP244, LAP245, LAP258, LAP272, LAP279, LAP293, LAP240, LAP482, LAP498, LAP499, LAP539, LAP925, LAP926, LAP569, LAP571, LAP573, LAP575, LAP578, LAP608, LAP615, LAP617, LAP621, LAP623, LAP624, LAP627, LAP628, LAP650, LAP632, LAP646, LAP717, LAP721, LAP725, LAP735, LAP740, LAP772, LAP773, LAP778, LAP814, LAP820, LAP824, LAP927, LAP929, LAP930, LAP931, LAP932, LAP933, LAP934, LAP950, LAP953, LAP959, LAP775, LAP779, LAP780, LAP781, LAP870L, LAP882, LAP922, LAP928, LAP956 and any additional monitoring points agreed in writing with the Agency.	Every 3 months	16/10/09
Emissions to water Parameters as required by condition 3.6.1	RAI 011, 013, 015, 016, 017, 018 and 019	Every 3 months	16/10/09
Groundwater Parameters as required by condition 3.6.1	Monitoring points as shown on drawing RAI/PPC/976 GWMPs: 101, 102, 103, 104, 110, 111, 112, 113, 114, 115, 116, 119, 120, 124, 125, 126, 127, 128, 131, 132, 140, 141, 142, 143, 144, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165 All subsequent new monitoring points installed in accordance with improvement condition 1 and any additional monitoring points agreed in writing with the Agency.	Every 3 months	16/10/09
Landfill gas surface emissions Parameters as required by condition 3.6.1	Permanently capped zone Temporary capped zone	Every 12 months (unless otherwise agreed with the Agency)	16/10/09
Landfill gas lateral migration Parameters as required by condition 3.6.1	Peripheral landfill gas monitoring boreholes (nos. 810-824, 833, 841-844, 851, 854-866, 868-870G, 871, 872G-874G, 875, 877, 880, 881, 883-887, 922) as shown on drawing no. RAI/PPC/976 and any additional monitoring points agreed in writing with the Agency.	Every 3 months	16/10/09
Other Landfill gas monitoring Parameters as required by condition 3.6.1	Gas extraction wells at locations shown on drawing RAI/PPC/961	Every 3 months	16/10/09

**Table S5.1 Reporting of monitoring data**

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Other leachate monitoring Parameters as required by condition 3.6.1	Phase 1 Northern Foreshore, Phase 1, Phase 2 Southern Foreshore, Phase 2, Phase 3/5, Phase 4, Phase 6A/11A/11B, Phase 7A/8A, Phase 7B/8B/8C, Phase 6B/10/12, Phase 6B/12 red leachate and any additional monitoring points agreed in writing with the Agency.	Every 6 months	16/10/09
List 1 Screen	All phases	Every 12 months	16/10/09
Other surface water monitoring Parameters as required by condition 3.6.1	RAI 001, RAI 002, RAI 007, RAI 010	Every 3 months	16/10/09

**Table S5.2: Annual production/treatment**

Leachate: Disposed of off site; Disposed of to any onsite effluent treatment plant; Recirculated into the waste mass.	Cubic metres/year
Surface water and/ or groundwater: Disposed of off site; Disposed of to any onsite effluent treatment plant.	Cubic metres/year
Landfill gas: combustion in flares; combustion in gas engines; Other methods of gas utilisation.	Normalised cubic metres/year

**Table S5.3 Performance Parameters**

Parameter	Frequency of assessment	Annual total	Unit
Energy used (including for leachate treatment)	Annually		MWh of electricity

**Table S5.4 Reporting Forms**

Media/parameter	Reporting Format	Date of Form
Leachate	Form leachate 1 or other reporting format to be agreed in writing with the Agency	16/10/09
Air	Form Air 1 or other reporting format to be agreed in writing with the Agency	n/a
Controlled water	Form Water 1 or other reporting format to be agreed in writing with the Agency	16/10/09
Groundwater	Form Groundwater 1 or other reporting format to be agreed in writing with the Agency	16/10/09
Sewer	Form Sewer 1 or other reporting format to be agreed in writing with the Agency	n/a
Landfill gas	Form LFG 1 or other reporting format to be agreed in writing with the Agency	16/10/09
Waste Return	RATS2 E - Waste Return Form (electronic)	
Landfill topographical surveys and interpretation	Reporting format to be agreed in writing with the Agency	

## Schedule 6 - Notification

This page outlines the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

### Part A

Permit Number	EPR/JP3039SU
Name of operator	VEOLIA ES LANDFILL LTD
Location of Installation	RAINHAM LANDFILL
	COLD HARBOUR LANE RAINHAM ESSEX RM13 9DA
Time and date of the detection	

<b>(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution</b>	
<b>To be notified within 24 hours of detection</b>	
Date and Time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

<b>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

<b>Time periods for notification following detection of a breach of a limit</b>	
<b>Parameter</b>	<b>Notification period</b>

<b>(c) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified within 24 hours of detection</b>	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

**Part B to be supplied as soon as practicable**

<b>Any more accurate information on the matters for notification under Part A.</b>	
<b>Measures taken, or intended to be taken, to prevent a recurrence of the incident</b>	
<b>Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission</b>	
<b>The dates of any unauthorised emissions from the installation in the preceding 24 months.</b>	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* authorised to sign on behalf of Veolia ES Landfill Ltd.

## Schedule 7 - Interpretation

*“Accident”* means an accident that may result in pollution.

*“Annually”* means once every Year.

*“Application”* means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations

*“Authorised Officer”* means any person authorised by the Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in Section 108(4) of that Act.

*“Background concentration”* means such concentration of that substance as is present in:

- For emissions to surface water, the surface water quality up-gradient of the site; or
- For emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge; or
- For emissions of landfill gas, the ground or air outside the site and not attributable to the site.

*“Construction Proposals”* means written information, at a level of detail appropriate to the complexity and pollution risk, on the design, specifications of materials selected, stability assessment (where relevant) and the construction quality assurance (CQA) programme in relation to the New Cell or Landfill Infrastructure.

*“CQA Validation Report”* means the final “as built” construction and engineering details of the New Cell or of the Landfill Infrastructure. It must provide a comprehensive record of the construction and must include, where relevant:

- The results of all testing required by the CQA programme - this must include the records of any failed tests with a written explanation, details of the remedial action taken, referenced to the appropriate secondary testing;
- Plans showing the location of all tests;
- “As-built” plans and sections of the works;
- Copies of the site engineer’s daily records;
- Records of any problems or non-compliances and the solution applied;
- Any other site specific information considered relevant to proving the integrity of the New Cell or Landfill Infrastructure;
- Validation by a qualified person that all of the construction has been carried out in accordance with the Construction Proposals.

*“EP Regulations”* means The Environmental Permitting (England and Wales) Regulations SI 2007 No.3538 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

*“Fugitive emission”* means an emission to air, water or land from the activities which is not controlled by an emission or background concentration limit.

*“Groundwater Regulations”* means the Groundwater Regulations SI 1998 No. 2746, and words and expressions used in this permit which are also used in the Regulations shall have the same meanings as in those Regulations.

*“Landfill Infrastructure”* means any specified element of the:

- permanent capping;
  - temporary capping (i.e. engineered temporary caps not cover materials);
  - leachate abstraction systems;
  - leachate transfer, treatment and storage systems;
  - surface water drainage systems;
  - leachate monitoring wells;
  - groundwater monitoring boreholes;
  - landfill gas monitoring boreholes;
  - landfill gas management systems;
- within the site.

*“Liquids”* means any liquid other than leachate within the engineered landfill containment system.

“LFTGN 05” means Environment Agency Guidance for monitoring enclosed landfill gas flares, September 2004.

“LFTGN 08” means Environment Agency Guidance for monitoring landfill gas engines, September 2004.

“Medicinal product” means any medicine licensed by the Medicines and Healthcare products Regulatory Agency (MHRA) or their predecessors under the Medicines Act 1968, section 130.

“New Cell” means any new cell, part of a cell or other similar new area of the site where waste deposit is to commence after issue of this permit and can comprise:

- groundwater under-drainage system;
  - permanent geophysical leak location system;
  - leak detection layer;
  - sub-grade;
  - barriers;
  - liners;
  - leachate collection system;
  - leachate abstraction system;
  - separation bund/layer;
  - cell or area surface water drainage system;
  - side wall subgrade and containment systems;
- for the New Cell.

“No impact” means that the change made to the construction procedures will not affect the agreed design criteria, specification or performance in a way that has a negative effect.

“notify without delay” and “notified without delay” means that a telephone call can be used, whereas all other reports and notifications must be supplied in writing, either electronically or on paper.

“Quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“Relevant person” and “relevant conviction” shall have the meanings given to them in the Environmental Protection Act 1990

“Review of the Hydrogeological Risk Assessment” means a written review of the hydrogeological risk assessment included in the Application, together with any other parts of the Application that addressed the requirements of the Groundwater Regulations. The review shall assess whether the activities of disposal or tipping for the purpose of disposal of waste authorised by the permit continue to meet the requirements of the Groundwater Regulations

“Site Protection and Monitoring Programme” means a document which meets the requirements for Site Protection and Monitoring Programmes described in the Land Protection Guidance.

“Technically competent management” and “technical competence” shall have the meanings given to them in the Environmental Protection Act 1990.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, List of Wastes (Northern Ireland) Regulations 2005 (as amended), or The Special Waste Amendment (Scotland) Regulations 2004 as appropriate, and in relation to hazardous waste, includes the asterisk

“Year” means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means the standards included in Environment Agency Guidance for Monitoring Enclosed Landfill Gas Flares LFTGN 05 or Guidance for Monitoring Landfill Gas Engine Emissions LFTGN 08.

**END OF PERMIT**