

Determination of two Applications to vary an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2010

Decision document recording our decision-making process

The Application Number is: EPR/DP3639LM/V005
The Applicant / Operator is: Whitemoss Landfill Limited
The Installation is located at: Whitemoss Landfill

What this document is about

This is a draft decision document, which accompanies the draft variation notice that we have decided to issue.

It explains how we have considered the applications, and why we have included the specific conditions in the variation notice. It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our decision. Unless the document explains otherwise, we have accepted the Applicant's proposals. We have consolidated all variations to this permit into one set of permit conditions and updated the conditions to our most recent permit template as an Agency initiated variation.

The document is in draft at this stage, because we have yet to make a final decision. Before we make this decision we want to explain our thinking to the public and other interested parties, to give them a chance to understand that thinking and, if they wish, to make relevant representations to us. We will make our final decision only after carefully taking into account any relevant matter raised in the responses we receive. Our mind remains open at this stage: although we believe we have covered all the relevant issues and reached a reasonable conclusion, our ultimate decision could yet be affected by any information that is relevant to the issues we have to consider. However, unless we receive information that leads us to alter the conditions in the draft Permit, or to reject the Application altogether, we will issue the Permit in its current form.

In this document we frequently say "we have decided". That gives the impression that our mind is already made up; but as we have explained above, we have not yet done so. The language we use enables this document to become the final decision document in due course with no more re-drafting than is absolutely necessary.

We try to explain our decisions as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy. A lot of technical terms and acronyms are inevitable in a document of this nature: we provide a glossary of acronyms near the front of the document, for ease of reference.

Please note that the operator has also submitted an application to transfer the permit to Whitemoss Landfill Holdings Limited. The transfer application is being determined concurrently with this substantial variation application. The current intention is for the transfer of the permit to be completed following determination of this substantial variation application. We will address this decision in a separate document.

Preliminary information and use of terms

We gave the Application the following reference number:

- EPR/DP3639LM/V005 – variation to extend the boundary of the existing landfill site for hazardous waste to the west (known as the western landfill area) comprising phases A,B,C and D – adjacent to the current landfill.

We refer to the application as “the **Application**” in this document in order to be consistent.

The Application was duly made on 23/09/2014.

The Applicant is Whitemoss Landfill Limited. We refer to Whitemoss Landfill Limited as “the **Applicant**” in this document. Where we are talking about what would happen when the Variation is granted, we use the term “the **Operator**”.

Whitemoss Landfill Limited’s facility Whitemoss landfill site is located at Whitemoss Road South, Skelmersdale, Lancashire, WN8 9TH. We refer to this as “the **Installation**” in this document.

How this document is structured

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Glossary of acronyms used in this document

AERMOD	<u>A</u> merican Meteorological Society and <u>E</u> nvironmental Protection Agency <u>R</u> egulatory <u>M</u> ODEl
AONB	Area of Outstanding Natural Beauty
ASL	Artificial Sealing Liner
BAT	Best Available Technique(s)
CAR	Compliance Assessment Report
CQA	Construction Quality Assurance
CROW	Countryside and Rights of Way Act 2000
DAA	Directly Associated Activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
DCO	Development Consent Order
DD	Decision Document
DEFRA	Department of the Environment, Food and Rural Affairs
EAL	Environmental Assessment Level
EPR	Environmental Permitting (England and Wales) Regulations 2010 (SI 2010 No. 675) as amended
EQS	Environmental Quality Standard
ESID	Environmental Setting and Installation Design
EU	European Union
FEMP	Fugitive Emissions Management Plan
FML	Flexible Membrane Liner
FSA	Food Standards Agency
GCL	Geosynthetic Clay Liner
GUP	Gas Utilisation Plant
H1	Horizontal Guidance – Environmental risk assessment for permits
HPA	Health Protection Agency (now Public Health England)
HRA	Hydrogeological Risk Assessment
IDB	Internal Drainage Board
IED	Industrial Emissions Directive
IPPCD	Integrated Pollution Prevention and Control Directive (2008/1/EC)
LfD	Landfill Directive (1999/31/EC)
LFGRA	Landfill Gas Risk Assessment

LFTGN	Landfill Technical Guidance Note
mAOD	metres Above Ordnance Datum
OMP	Odour Management Plan
PC	Process Contribution
PEC	Predicted Environmental Concentration
PPS	Public Participation Statement
RFI	Request for information
RGS	Regulatory Guidance Series
SAC	Special Area of Conservation
SGN	Sector Guidance Note
SPA(s)	Special Protection Area(s)
SRA	Stability Risk Assessment
SSSI(s)	Site(s) of Special Scientific Interest
SWMA	Specified Waste Management Activity
SWMP	Surface Water Management Plan
TGN	Technical Guidance Note
WFD	Waste Framework Directive (2008/98/EC)

1 Our **proposed** decision

We **are minded to issue the Variation Notice** to the Applicant. This will allow the Applicant to operate the Installation, subject to the conditions in the Permit as varied.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

This Application is to vary the conditions of the Permit which allows the operation of an installation which is subject principally to the Landfill Directive (LfD) and the Industrial Emissions Directive (IED) which has superseded the Integrated Pollution Prevention and Control Directive (IPPCD).

The proposed decision is vary the permit to extend the area of Whitemoss Landfill to include the western landfill area and to update the permit to modern conditions. We have taken the opportunity to change a small number of conditions to the wording in our current template. This does not affect the level of regulatory control or environmental protection. We have consolidated the **draft** variation notice EPR/DP3639LM/V005 with the previous variation notice to the Permit and produced a consolidated Permit based on our modern template conditions. The draft consolidated Permit contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We have varied the Permit to include these conditions by way of a regulator initiated variation. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting (England & Wales) Regulations 2010 (“EPR”) and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the Permit, we have considered the Application and accepted the details are sufficient and satisfactory to make the standard condition appropriate.

2 How we reached our **draft** decision

2.1 Receipt of Application

The Application was duly made on 23/09/2014. This means we considered the Application was on the correct form and contained sufficient information for us to begin our determination but not that it necessarily contained all the information we would need to complete that determination, see below:

The Applicant claimed that certain information was commercially confidential and should be withheld from the public register. We considered this request and determined that the Financial Provision information is commercially confidential. The expenditure plan could be read and used by any potential or current competitor and/or supplier. This would affect the operator’s legitimate

economic interest. It would allow competitors to work out the operator's costings and undercut them when bidding for contracts and allow potential suppliers to know what the operator is expecting to pay for something. We do not consider that the public interest in knowing the site specific detailed costings outweighs this. A pre-operational condition has been included in the draft permit which will ensure that adequate Financial Provision is made for the site. Apart from the issues and information just described, we have not received any information in relation to the Application that appears to be confidential in relation to any party.

2.2 Consultation on the Application

We carried out consultation on the Application in accordance with the EPR, our statutory PPS and our own RGS Note 6 for Determinations involving Sites of High Public Interest. We consider that this process satisfies, and frequently goes beyond the requirements of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which are directly incorporated into the IED, which applies to the Installation and the Application. We have also taken into account our obligations under the Local Democracy, Economic Development and Construction Act 2009 (particularly Section 23). This requires us, where we consider it appropriate, to take such steps as we consider appropriate to secure the involvement of representatives of interested persons in the exercise of our functions, by providing them with information, consulting them or involving them in any other way. In this case, our consultation already satisfies the Act's requirements.

We advertised the Application by a notice placed on our website, which contained all the information required by the IED, including telling people where and when they could see a copy of the Application. We also placed an advertisement in the Skelmersdale Champion on 5th November 2014, 12th November 2014 and 19th December 2014. We advertised the second time to correct an error in the original advert and because additional information had been included on the public register. We advertised the third time to extend the consultation period following feedback, to give people more time to look through the documents included in the consultation.

We made a copy of the Application and all other documents relevant to our determination (see below) available to view on our Public Register. Anyone wishing to see these documents could do so and arrange for copies to be made. The Applicant also provided a number of copies of the Application on CD which were also made accessible from the Public Register. A copy of the CD was also sent to Skelmersdale library and placed on our e-consultation tool to provide further access to the public and consultees.

We sent copies of the Application to the following bodies, which includes those with whom we have "Working Together Agreements":

- *Director of Public Health*
- *West Lancashire District Council – Environmental Protection Section*
- *Food Standards Agency*

- *Health and Safety Executive*
- *Public Health England (Centre for Radiation, Chemical and Environmental Hazards)*
- *Sewerage Undertaker – United Utilities Plc*

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly. Note under our Working Together Agreement with Natural England, we only inform Natural England of the results of our assessment of the impact of the installation on designated Habitats sites.

A summary of consultation comments and our response to the representations we received can be found in Annex 1. We have taken all relevant representations into consideration in reaching our draft determination.

2.3 Requests for Further Information

Although we were able to consider the Application duly made, we did in fact need more information in order to determine it, and issued an information notice on 6 March 2015. A copy of the information notice was placed on our public register. The information request was received in instalments, but all of the information was received by 26/10/15.

In addition to our information notice, we received additional information during the determination from the applicant as follows:

Response to request for information (RFI) from Operator in relation to Priority Habitats submitted on 6/05/15;

Letter from Applicant providing second addendum of HRA dated 23/07/15 following a verbal request as this information was requested separately by the Compliance Team in the Environment Agency, and once we became aware of it we requested that this was also submitted by the applicant as part of the application so that it could be considered as part of the determination;

The operator also submitted comments on the public consultation responses we had received which were on the public register this was dated 26/08/15. We have taken this into consideration as appropriate.

We made a copy of this information available to the public in the same way as the response to our information notice;

Having carefully considered the Application and all other relevant information, we are now putting our **draft** decision before the public and other interested parties in the form of a **draft** Permit, together with this explanatory document. As a result of this stage in the process, the public has been provided with all the information that is relevant to our determination, including the original Application and additional information obtained subsequently, and we have given the public two separate opportunities (including this one) to comment on

the Application and its determination. Once again, we will consider all relevant representations we receive in response to this final consultation and will amend this explanatory document as appropriate to explain how we have done this, when we publish our final decision.

3 The legal framework

The Variation notice will be issued, **if appropriate**, under Regulation 20 of the EPR (this includes Operator initiated variation and Agency initiated variation elements as detailed in this decision document). The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* for the purposes of the IED;
- a *landfill* as described by the LfD;
- an *operation* covered by the WFD, and
- subject to aspects of other relevant legislation which also have to be addressed.

We address some of the major legal requirements directly where relevant in the body of this document. Other requirements are covered in a section towards the end of this document.

We consider that, **if we issue the Variation notice**, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

Under Regulation 18 of the EPR, we have consolidated variation EPR/DP3639LM/V005 with all previous variations to the Permit to form one single consolidated Permit reflecting all the variations including EPR/DP3639LM/V005.

4 The Installation

4.1 Description of the installation

The Installation is subject to the EPR because it carries out activities listed in Part 1 of Schedule 1 to the EPR:

- Section 5.2 Part A(1)(a) – the disposal of waste in a landfill –
 - (i) receiving more than 10 tonnes of waste in any day, or
 - (ii) with a total capacity of more than 25,000 tonnes,

but excluding disposals in a landfill taking only inert waste.

- Section 5.4 Part A(1)(a)(i) – biological treatment of non-hazardous waste. Treatment of leachate in a facility with a capacity of >50 tonnes/day.

An installation may also include “directly associated activities” which at this Installation include leachate storage, landfill gas flaring, discharges to surface water, discharges to public sewer from leachate treatment and fuel storage.

Together, these listed and directly associated activities comprise the Installation.

4.1.2 The Site

The existing site is centred approximately on National Grid Reference (NGR) SD47046 05064 and is located to the south of the M58 motorway which separates Whitemoss Landfill from the southern outskirts of Skelmersdale in Lancashire. The current permitted landfill installation comprises of a landfill site for hazardous waste and associated infrastructure as well as a leachate lagoon and treatment plant and a landfill gas flare. The site also contains the Whitemoss Interceptor Waste Treatment Plant installation which has a separate Environmental Permit (EPR/TP3531GY). The Whitemoss Interceptor Waste Treatment Plant installation is not part of this application and is not affected by it and therefore is considered no further in this document. The Whitemoss Interceptor Waste Treatment Plant is a separate activity not part of the landfill installation and therefore has a separate permit, although the operator is also Whitemoss Landfill Limited. We have not received an application to transfer this permit.

This application is for an extension to the west of the existing site known as ‘the western landfill area’. The western landfill area is centred approximately on NGR SD 46822 05242 and covers an area of approximately 12.7 hectares.

The proposed landfill extension is for hazardous waste only and has been defined as a Nationally Significant Infrastructure Project. An application for a Development Consent Order was submitted and this was granted on 21st of May 2015 by the Secretary of State.

The eastern part of the northern boundary of the western landfill area is bordered by 4 residential properties to the south of the M58 motorway (i.e. between the landfill and the motorway) Adjacent to the remaining northern boundary to the north of the M58 motorway are offices and commercial areas and domestic dwellings that form part of the south western outskirts of Skelmersdale. The southern boundary is bordered by land designated as open space, parks and farmland, although there is a biodiversity action plan priority habitat to the south west. The eastern and western boundaries of the installation border biodiversity action plan priority habitats. All of these

receptors have been taken into consideration as part of this determination. See section 5.2.12 of this document.

The SABIC Trans – Pennine Ethylene pipeline runs adjacent to the southern boundary of the site. The Rainford drain pipeline, a piped underground surface water drain currently runs through the proposed western landfill area. Prior to the commencement of operations, the pipeline will be diverted around the perimeter of the western landfill area to join the existing culvert to the south of the M58 motorway.

There are no European or international designated habitats sites within 2km of the site. The closest European site is the Martin Mere SPA and Ramsar located approximately 9.5km to the north west of the site.

The Applicant submitted a plan which we consider is satisfactory, showing the site of the Installation and its extent. A plan is included in Schedule 7 to the Permit, and the Operator is required to carry on the permitted activities within the site boundary.

The site boundary has been extended to include the western landfill area as part of the determination of this application.

Further information on the site is addressed below at 4.2.

4.2 The site and its protection

4.2.1 Site setting, layout and history

The current operational landfill area consists of cells 1, 2 and 3. Landfill cell 3 is subdivided into four areas 3A, 3B, 3C and 3D. Landfill operations are complete in Cell 1 and Cells 3A, 3B, 3C and are substantially complete in Cell 2. Cell 1, part of Cell 2 and Cells 3A, 3B and 3C have been capped with low permeability material and restored to grassland and woodland planting. The current operational phase is in Cell 3D located in the south west of the existing landfill. The western landfill area will consist of Phases A, B, C and D as detailed on the plan in Schedule 7 of the draft permit.

The western landfill area will be excavated through 9-14m of superficial deposits, comprising peat, Shirdley Hill Sands and boulder clay, and into the underlying Carboniferous Pennine Lower Coal Measures. The void will be dewatered and a groundwater drainage system installed in the base and sides of the void as necessary. Groundwater will be pumped to the surface water management system. The site will ultimately be a sub-water table landfill once groundwater has rebounded following cessation of groundwater management.

4.2.2 Landfill location

The site will require active long-term site management to prevent long-term groundwater pollution. However, we agree that whilst it will be a below water

table the landfill meets the requirements of our landfill location requirements in that:

- It does not lie in a source protection zone;
- It is not on or in a principal aquifer; and
- Given the significant distance to the River Tawd (~1.6km) to the east and Rainford Brook to the west/southwest (1.7km), groundwater in the Coal Measures that flows beneath/around the proposed landfill would not be regarded as providing a significant contribution to river flow or other sensitive waters.

The Western landfill area will have side slope gradients which are a maximum of 1v:2.5h in both the glacial till and the Coal Measures. To enable the installation of landfill engineering infrastructure in dry conditions a groundwater under-drainage system will be installed in the base and sides of the excavated void as necessary. Groundwater will drain to a sump in each phase and be pumped to the surface water management system.

The landfill will be provided with a geological barrier comprising a minimum 1m thick clay liner with a hydraulic conductivity of 1×10^{-9} m/s, and an artificial sealing layer comprising a 2mm thick HDPE membrane liner. This corresponds to the engineering design for the current landfill. A leachate collection system will be installed across the base of the landfill which will comprise 300mm thick granular layer with leachate collection pipework. Leachate will drain to collection sumps, located at the lowest point in the phase, will be pumped using side risers and treated prior to discharge to sewer. A 1m thick clay cap, with a hydraulic conductivity of 1×10^{-9} m/s, covered with a geocomposite drainage layer underlying ~2.23m of restoration material, will be installed following completion.

For further information see section 5.2.2 below'.

5. Variation application

Key issues of the impact of the proposals

5.1 The proposed variation

This application is for an extension to the west of the existing site known as 'the western landfill area' covering an area of approximately 12.7 hectares for the deposit of hazardous waste. The variation also changes the leachate treatment activity from an unlisted activity to a listed activity.

5.2 Key issues of the decision

The key issues arising during this determination were the risks from emissions to groundwater, emissions of landfill gas to air, stability of the landfill, particulate matter emissions to air, impact on habitats from emissions to air and water and the risks from emissions to sewer and to surface water.

5.2.1 Waste Acceptance and annual waste input limits

The variation proposes a slight increase in annual waste input to 150,000 tonnes (currently 149,500 tonnes) but the permitted waste types will not change and comprise principally of treatment residues and contaminated materials including soils and materials containing asbestos. A total of 1,908,145 m³ (3,053,032 tonnes) will be deposited over a 20 year time period. No changes have been made to the waste types in Schedule 2 of the permit.

The wastes accepted at the existing landfill are subject to detailed waste acceptance procedures to minimise the risk of unauthorised wastes being deposited. The waste acceptance procedures will continue to apply to the western landfill area. The operator confirms that the site will be operated in accordance with 'Waste acceptance at landfills – Guidance on waste acceptance procedures and criteria' (V1 Nov 2010), and 'Waste sampling and testing for disposal to landfill' (March 2013) and the current site operating techniques will be updated where applicable based on these.

5.2.2 Landfill Engineering and Infrastructure

New Cell Containment Engineering

In order to construct the western landfill void it will be necessary to extract materials including soils, peat, clay, mudstones and coal. The void will be dewatered and a groundwater drainage system will be installed in the base and sides of the void as necessary. Groundwater will drain to a sump from where it will be pumped to the surface water management system. The landfill will be lined with a 1m thick clay liner and a 2mm thick high density polyethylene flexible membrane liner. A leachate collection system will be installed across the base of the landfill. Leachate extraction wells will be installed in the landfill to facilitate the removal of excess leachate and to control leachate levels. Following completion of filling the landfill will be capped with a 1m thick clay cap covered with a geocomposite drainage layer underlying restoration materials.

The basal and side slope lining system comprising a minimum 1m thickness of clay at a maximum permeability of 1×10^{-9} m/s with a 2mm thick high density polyethylene flexible membrane liner.

The proposed base and sideslope lining system is less than the default standard in the Landfill Directive for a landfill for hazardous waste which is that the landfill base and sides shall consist of a mineral layer which satisfies permeability requirements with a combined effect in terms of protection of soil, groundwater and surface water at least equivalent to a permeability of 1×10^{-9} m/s with a thickness of $> \text{ or } = 5\text{m}$, together with an artificial sealing liner.

However the Landfill Directive Annex 1 section 3.4, states that, if on the basis of an assessment of the environmental risks ...the competent authority has decided in accordance with section 2 (water control and leachate

management) that...it has been established that the landfill poses no potential hazard to soil, groundwater or surface water the above requirements may be reduced.

The applicant submitted a quantitative HRA which comprised of a cumulative assessment of the potential impacts on groundwater and surface water from the current landfill site for hazardous waste and the western landfill area. Based on this risk assessment we agree that the thickness of the base and sidewall liner can be reduced to a thickness of 1 metre with a permeability of 1×10^{-9} m/s based on the risk assessments submitted with the application. The applicant proposed that the western landfill area is developed in a manner similar to the current landfill site. Therefore the site has been designed on the basis of hydraulic containment. During the operational phase, covering 20 years, the groundwater in the surrounding coal measures will be controlled to a level below the base of the western landfill area by a groundwater drainage system. When the level of waste in the landfill is sufficient to counter the upward pressure exerted by the confined groundwater in the Coal Measures, groundwater controls will cease and groundwater will be allowed to rise to rest levels. The leachate level will be maintained at the compliance limit and at a level below the level of the surrounding groundwater – hence the landfill will be hydraulically contained. Leachate will be maintained at a level of 1m above the base of the cell.

A leachate collection system will be installed across the base of the landfill which will comprise 300mm thick granular layer with leachate collection pipework. The Landfill Directive specifies a drainage layer of 500mm, however this can be reduced to 300mm on the basis of an assessment of environmental risk. We consider on this basis 300mm is suitable as the drainage layer also contains pipework. Leachate will drain to collection sumps, located at the lowest point in the phase, will be pumped using side risers and treated prior to discharge to sewer.

Dividing bunds comprising low permeability material placed on the base of the landfill will be provided to delineate the boundary of each hydraulically separate phase and prevent the movement of water from non-operational parts of the landfill to the waste and prevent the movement of leachate from the waste to non-operational areas.

The western boundary of the current hazardous waste landfill site will be separated from the western landfill area by unexcavated strata with a low permeability engineered liner placed on each side. Following completion of filling the landfill will be capped with a 1m thick clay cap covered with a geocomposite drainage layer underlying restoration materials.

We are satisfied with the above proposals.

5.2.3 Stability and settlement

The Application is supported by a Stability Risk Assessment which provides a summary of previous assessments, the proposed design for the western landfill area, a comparison of the conceptual stability site models for the proposed western landfill area and the existing landfill site, and risk screening to identify further assessment requirements. A number of areas have been identified where the conceptual models for the proposed western landfill area are not consistent with the conceptual models for the existing site as the design has been revised or new geotechnical data are available. Elements of the design have therefore been subject to further qualitative or quantitative assessment.

We assessed the SRA. This resulted in 2 questions or points of clarification for the operator in the form of a Schedule 5 Notice issued on 6 March 2015.

The first question related to the long term integrity of side slope lining system. The Applicant was required to demonstrate by quantitative modelling that there will be no unacceptable deformations in terms of compressional, shear and/or tensional strains in the side slope lining system once groundwater is allowed to rebound to normal levels in the surrounding ground. The analysis was also required to include the effects of any anticipated post closure settlement of the waste however small this may be.

The reason is because it is conceivable that due to the differences in unit weights between the different side slope lining materials and the natural strata, and the 15m+ inward head that will eventually develop under the lining system and the waste, that there will be additional strains imposed, particularly on the geomembrane. We were looking to ensure that any deformations in the side slope lining system will not lead to an unacceptable impact on the performance of the containment system.

The second question related to the long term integrity of the side slope lining system when heterogeneous strata are encountered, particularly in the Coal Measures. The applicant was required to provide a description and explanation of the proposed methods and approach to addressing the stability and integrity issues that could arise where strata other than mudstone (as modelled) are encountered in the sub-grade.

The reason is because the modelling has considered the Coal Measures to consist of uniform mudstone, which may not represent the true range of strata that may be encountered during cell preparation ground works. Therefore we need to know what methods and approaches the applicant proposes to adopt to analyse the stability and integrity of the side slopes when this scenario arises.

We have assessed the Schedule 5 Notice response and we are satisfied that they have adequately addressed the issues. In relation to question 1 the Applicant has confirmed that the groundwater will be controlled until restoration is completed and/or the Operator demonstrates to the satisfaction

of the Environment Agency that there is sufficient mass in the landfill to counteract any groundwater rebound that may be planned.

Settlement is expected to be similar to that identified and assessed for the existing phase for which it was demonstrated to be of no detriment to the lining system, and capping. As explained in the SRA 4.7.2. It is considered that settlement and consolidation of the waste will have completed predominantly prior to capping and restoration of the site given that it will be placed and compacted in layers and will comprise predominantly fine grained, non-biodegradable nature of the hazardous wastes to be deposited at the site". We agree with this position.

Demonstration of the integrity of the lining system due to any planned groundwater rebound and any settlement that has been measured will be dealt with through the CQA process as required by section 2.6 of the permit.

If there are any variations in the basal geology, this matter will be dealt with through the CQA process as required by the section 2.6 of the variation notice.

5.2.4 Closure, aftercare and decommissioning

The operator is required to maintain a closure and aftercare management plan in accordance with condition 2.9 of the draft permit. There is already a closure and aftercare management plan for the existing landfill and this will be updated upon issue of any permit for the western landfill area so that any new permit conditions can be taken into consideration - to meet the requirements of Article 13 of the Landfill Directive. The permit will remain in force until it is surrendered. A permit cannot be surrendered unless and until we are satisfied that the necessary measures have been taken to avoid any pollution risk and to return the site to a satisfactory state.

5.2.5 Site report

The site report is provided in section 4 of the Environmental Setting and Installation Design (ESID) report. The applicant also completed the Site Condition Report (SCR) template in accordance with our H5 guidance entitled, 'Environmental Permitting Regulations: Site condition report – guidance and template', April 2013.

We have reviewed the documents and consider they adequately describe the condition of the soil and groundwater prior to the start of operations.

The baseline report is an important reference document in the assessment of contamination that might arise during the operational lifetime of the installation and at cessation of activities at the installation

The information provided in section 4 of the ESID and in the SCR template is acceptable.

Part D – Emissions and monitoring

5.2.6 Sewers and Surface Water

5.2.6.1 Emissions to sewer and monitoring

H1 discharge to sewer from Leachate treatment plant

The discharge from the leachate treatment facility will increase from 50m³/day to 150m³/day due to the western landfill area. This increase means that the leachate treatment facility is now a listed activity in Table S1.1 and the operator was asked to provide a H1 risk assessment in accordance with Annex E for surface water discharges (complex) for the increase in the discharge to sewer.

We are satisfied that an increase of this nature won't have an environmental impact and will provide flexibility above the current permit so that the extended site can cope with the leachate from the current site and the increased leachate from the western landfill area due to infiltration through the waste and in the event of adverse weather conditions (see results of H1 risk assessment).

Skelmersdale waste water treatment works (WWTW) is the receiving sewage treatment works and the water discharges to the River Douglas at approximately NGR SD 4817 1202. As the application does not change the waste materials accepted at the site it was assumed in the H1 assessment that the quality of the leachate discharged from the site will remain consistent with the current leachate quality. We accept this assumption.

The H1 risk assessment methodology is based on a series of tests as follows:

Test 1 – does the concentration of the substance in the discharge exceed 10% of the EQS?

Test 2 – Does the Process Contribution (PC) exceed 4% of the EQS?

PC is the concentration of discharged substances in the receiving water after dilution.

If the PC exceeds 4% of the EQS it is potentially significant and should be carried forward to test 3. If it does not, the substance is insignificant and it screens out, i.e. it is not liable to cause pollution and requires no control.

Note: A substance must pass both tests 3 and 4 to be screened out.

Test 3. Does the difference between upstream quality and Predicted Environmental Concentration (PEC) exceed 10% of the EQS.

The PEC is the predicted concentration in the receiving water downstream of the discharge. The PEC is a combination of the Process Contribution (PC) and background concentration.

Previously the allowed difference between upstream quality and the PEC could be up to 70% of the EQS, which may have allowed substantial deterioration in a clean watercourse. This test is therefore much tighter but will ensure compliance with the no deterioration requirements of the Water Framework Directive.

If the difference between the upstream quality and the PEC is greater than 10% of the EQS, the substance is potentially significant and needs to be assessed – usually by detailed modelling.

Test 4: Does the PEC exceed the EQS in the receiving water downstream of the discharge?

This test assesses whether the discharge, when combined with the existing upstream water quality, will contribute to an EQS failure in the receiving waters. It therefore takes account of in-combination effects with existing discharges. If the PEC exceeds the EQS, the substance is potentially significant and needs to be assessed in Phase 2 modelling. If it is not exceeded, the substance is insignificant and is screened out i.e. it is not liable to cause pollution and requires no control. This test must be carried out for both the Annual Average (AA) and Maximum Allowable Concentration (MAC) (or 95 percentile) EQS.

The applicant's H1 risk assessment concluded that the process contributions (PC) were > 1% of the long term EALs for Cadmium (1.45%), Lead (1.42%) and Mercury (1.13%) and >1% of the short term EAL for Mercury (2.50%). For all other substances these were <1% of the EAL (Ammonia 0.293%, BOD 0.0641%), Pentachlorophenol 0.0533% and Trifluralin 0.0460% and the only other 2 substances with short term EALs were below 1% at 0.506% for Cadmium and 0.0674% for Pentachlorophenol). For the predicted environmental concentrations (PECs) (where PCs are added to background levels) the applicant's risk assessment concluded that all parameters are less than 70% of the relevant long term EALs and <20% of the short term EALs, therefore no further detailed modelling of emissions of leachate to the River Douglas was considered necessary.

The operator submitted their application before our guidance was updated. The thresholds in our latest guidance (as detailed above) are that the PCs have to be <4% of the EQS for annual average and Maximum Allowable Concentration (MAC) and <10% of the PEC (taking into account background / upstream quality). So we carried out our own risk assessment. And it was found that for all of the parameters – Mercury (1.12%), Cadmium (1.45%), Lead (1.42%), Pentachlorophenol (0.05%) and Trifluralin (0.05%) (Ammoniacal Nitrogen and BOD were not assessed as not included in the new database), the PC was <4% of the EQS for the annual average (AA) concentrations and all (with MAC's are Cadmium 1.15%, Pentachlorophenol 0.0817% and Mercury) only) were <4% of the EQS for the MAC with the exception of Mercury (4.34%). However Mercury did not exceed the 10% of the PEC (at 1.1% for the AA EQS) and the MAC EQS is not exceeded.

Therefore whilst we did not agree exactly (minor differences in the PC for Mercury) with the numerical values detailed in the applicant's H1 assessment as detailed above, we agree that the conclusions are valid. Therefore no limits are required to be included in Table S3.6 with the exception of flow where the limit is now 150m³/day. However the operator has proposed limits for Cadmium of 8µg/l and Mercury of 1.6µg/l which are as per the current permit - therefore these will be retained in the draft variation notice.

5.2.6.2 Emissions to surface water and monitoring

The ESID outlines the proposed scheme of groundwater management which is essentially a continuation of the current scheme whereby during the construction and parts of the operational period of the landfill, groundwater from the groundwater drainage system beneath the site is abstracted and discharged off site via the surface water management system. With the exception of ammoniacal nitrogen (see below), the proposal does not seek to amend the existing compliance limits relating to the combined discharge of groundwater and surface water from the surface water management system (the current permit is also a combined discharge).

The Rainford drain which runs along the western edge of the current landfill will be diverted around the western boundary of the western landfill area in accordance with requirement 15 of the Development Consent Order (DCO). Once the landfill activity is completed, the proposal is to provide ditches/storage areas for the groundwater and surface water along the base of the restored landfill slopes and route it towards four discharge points which will be restricted to the Greenfield runoff rate of 58l/s. During the operational phase of the landfill the combined groundwater and surface water discharge will be managed in accordance with the proposed surface water management scheme and the draft permit. The combined groundwater and surface water discharge will be discharged to the River Tawd (1.6km to the east of the site) via the sites surface water management system and the highways drainage network. There is no change to the discharge point to the River Tawd, however this is not specified as a compliance or monitoring point in the draft permit. The 4 outfalls from the surface water management system (S1, S2, S3 and S4) are compliance points and all count towards the single discharge to the River Tawd. The combined groundwater and surface water will be treated if necessary in a settlement lagoon prior to discharge.

The emission limits and monitoring requirements for discharges of groundwater from cell 3 to surface water drainage are no longer required as they are no longer pumping groundwater from under this cell and so these have been removed from the permit.

Full details of the groundwater and surface water management schemes will be provided, and approved by us, prior to construction of any infrastructure, in accordance with standard landfill engineering permit requirements. All infrastructures will be subject to CQA. We accept the proposals in principle. We do not need the full details of the design now as we are satisfied in

principle, however we do need the details before they begin construction and this will be approved by us in accordance with the engineering condition 2.6 in the draft permit. There are also measures in place in the draft permit to monitor the discharge as well as emission limits to comply with. The groundwater and surface water management scheme in the current permit is satisfactory and the Application for the western landfill area proposes a continuation of the existing scheme. There are also contingency measures in place if a breach of an emission limit in the draft permit is identified.

H1 Discharge of groundwater to surface water

The operator also submitted a H1 risk assessment for the discharge of groundwater to surface water from the site as a result of groundwater dewatering which is necessary for the construction and operation of the western landfill area. Based on pumping calculations in the Hydrogeological Risk Assessment (HRA) it is calculated that the maximum discharge rate will be $424\text{m}^3/\text{day}$ ($0.0049\text{m}^3/\text{s}$). The draft permit in table S3.3 limits the combined discharge of groundwater and surface water to an annual average of 2.73l/s or $236\text{m}^3/\text{day}$ or a maximum of $424\text{m}^3/\text{day}$. The flow rate needs to be limited in the permit so this links to what has been assessed in the H1 and to keep the flow rate the same as the existing permit to ensure there is no increase to flood risk downstream. There will be storage to allow them to restrict the discharge if necessary.

The H1 assessment assesses the impact of the discharge of groundwater on the River Tawd. In order to assess the impact, source term data has been used for the site's groundwater in the H1. However the limits in the permit are included for the combined groundwater and surface water discharge and this is acceptable.

Groundwater quality data recorded in the coal measures in the vicinity of the site is reviewed in sections 3.59 to 3.61 of the ESID where the priority substances benzene, cadmium and mercury are recorded above their detection limits on a limited number of occasions and lead and nickel are recorded above their respective drinking water standards on a limited number of occasions. For the purpose of the assessment the priority substances discussed in the ESID are assessed together with ammoniacal nitrogen.

The applicant's H1 assessment demonstrates that all determinands have process contributions (PC) greater than 1% of their respective EALs and were not screened out at the initial H1 assessment stage. (Although we now use a threshold of 4%).

In the applicant's H1 assessment the background concentration is used together with the PC to calculate the total predicted environmental concentration (PEC). The applicant's assessment states that in accordance with the Environment Agency's guidance if the long term PEC is less than 70% of the relevant EAL no further detailed modelling of emissions to water is necessary. The long term PEC concentrations calculated in the H1 assessment are <70% of the relevant EAL's with the exception of mercury, hence no further detailed modelling for the priority substances (with the

exception of mercury is necessary). The PEC for mercury is 71.2% of the EAL which is greater than 70% of the EAL.

We carried out our own checks of the assessment as our guidance has now been updated. Our assessment showed that mercury was above the 10% of the PEC in the River Tawd. Therefore we required that the operator carry out modelling for ammoniacal nitrogen and mercury in accordance with Appendix D2 of the H1 guidance.

We also required the operator to carry out modelling for sanitary determinands (ammoniacal nitrogen, biochemical oxygen demand (BOD) and suspended solids). However the Applicant explained that in August 2009, continuous groundwater dewatering ceased and since then any abstracted groundwater has been used onsite. There is currently no discharge of groundwater. There has been no monitoring data for concentrations of suspended solids since August 2009 and data from before then may no longer be representative, therefore there is no appropriate input data for suspended solids on which to base the H1 assessment. The operator also considered that significantly elevated concentrations of suspended solids in the discharge is unlikely.

We accept the above explanations by the Applicant and do not consider that elevated levels of suspended solids are likely in the discharge. However we still require the concentration of suspended solids to be assessed to make sure that the Applicant's assumptions are correct. Therefore we have included an improvement condition in the **draft** permit (see table below) which requires the operator to assess suspended solids in the groundwater to confirm whether this parameter is likely to be discharged in significant quantities and whether the emission limit in the permit of 40mg/l continues to be acceptable. In the unlikely event that suspended solids are discharged in significant quantities we will require action to be taken to reduce the level.

Also no monitoring of BOD is specified in groundwater or in the discharge to surface water in the current permit - therefore there is no monitoring data available to include in the risk assessment. The operator also stated that as this site will only dispose of hazardous wastes, significantly elevated concentrations of BOD in the discharge is unlikely. This is because leachate from hazardous waste is unlikely to contain elevated concentrations of BOD. However we still require the concentration of BOD to be assessed by H1 risk assessment to make sure that the Applicant's assumptions are correct. Therefore we have included an improvement condition in the **draft** permit (see table below) which requires the operator to assess BOD in the groundwater to confirm whether this parameter is likely to be discharged in significant quantities and whether an emission limit is required. This improvement condition has been combined with that for suspended solids.

Therefore after further consideration in relation to the sanitary determinands we agreed that only modelling of ammoniacal nitrogen was necessary.

Modelling of mercury

Mercury is the parameter which has a PEC >70% of the EQS in the H1 risk assessment. Therefore further modelling of the discharge of mercury from the groundwater drainage system to the River Tawd is required in accordance with our H1 guidance, Annex D2. The Annual Average (AA) and Maximum Allowable Concentration (MAC) EQSs comprise 50ng/l and 70ng/l respectively. Mercury has been recorded above the analytical detection limit in the groundwater quality monitoring from the groundwater drainage system on four of the thirty three monitoring occasions. The effect of the discharge with respect to mercury concentrations in the River Tawd has been modelled.

The results of the modelling show that the modelled mean and 95th percentile concentrations downstream of the discharge of groundwater to the River Tawd - do not exceed the AA or MAC EQS values. The results of the modelling show that the difference between the modelled mean in respect of the mercury concentration in the River Tawd downstream of the discharge compared with the mean upstream concentration is less than 10% of the AA EQS. Therefore it is considered that mercury concentrations in the discharge from the groundwater drainage system to the River Tawd are not liable to cause pollution hence it is not necessary to set an emission limit for mercury.

Ammoniacal nitrogen

Further modelling of the discharge of ammoniacal nitrogen as a sanitary determinand from the groundwater drainage system to the River Tawd has been undertaken in accordance with H1 Annex D2 guidance document.

The results of the modelling show that there will be no deterioration of the ammoniacal nitrogen concentration in the River Tawd downstream of the discharge provided that the proposed discharge limit of 2900µg/l or 2.9mg/l from the combined groundwater and surface water discharge is maintained. It is considered that the site will be able to achieve this discharge limit based on the ammoniacal nitrogen concentrations recorded in the groundwater drainage system at the site. We are satisfied with the operator's assessment. Therefore the limit of 2.9mg/l for ammoniacal nitrogen will be included in the **draft** variation notice in table S3.3 for the combined discharge of groundwater and surface water to surface water from the western extension area. If the operator cannot meet this limit then they will have to include further mitigation methods, vary the permit or we may take enforcement action.

Limits for pH and visible oil have also been included in the **draft** permit for this discharge as specified in the application.

See improvement conditions below in relation to discharges of groundwater to surface water.

Improvement programme requirements	
Reference	Requirement
1	<p>The operator shall submit to the Environment Agency in writing for approval, a H1 risk assessment and report for suspended solids and BOD for the discharge of groundwater to surface water for pumping from Phases A, B, C and D. The H1 risk assessment and report shall be based on 12 months of consecutive monthly monitoring data. The operator shall also propose emission limits for suspended solids and BOD if appropriate.</p> <p>Timescale - 15 months from the date of issue of the variation notice.</p>
Justification	<p>This risk assessment is required for suspended solids and BOD as these parameters were not included in the previous H1 risk assessment for the reasons detailed above. If the emission limit is required to be revised for suspended solids or an emission limit is required to be added for BOD, the operator will be required to submit another variation application to incorporate these into the permit.</p>
2	<p>The operator shall submit to the Environment Agency in writing for approval, a report which reviews the emission limits to surface water (with the exception of flow) from the discharge of groundwater from pumping from Phases A, B, C and D and surface water runoff. The report shall include proposals for control limits and also emission limits if appropriate. The operator shall review actual data against the limits and if practicable propose revised limits. The report shall be based on 12 months of consecutive monthly monitoring data.</p> <p>Timescale - 3 months from the date of issue of the variation notice.</p>
Justification	<p>The existing limits are acceptable and protective of the environment. However this improvement condition is required to ensure that the emission limits are revised if appropriate based on actual monitoring data within an agreed timescale. It is considered that the clearest and most transparent way of ensuring these changes which are proposed as part of the H1 risk assessment are incorporated into the permit – is to include them as improvement conditions as there may be scope for reducing the limits further based on actual data.</p>

Improvement programme requirements	
Reference	Requirement
	As the operator has stated that there are already 12 months of monitoring data available (obtained since the submission of the application) - then the timescale has been set at 3 months from the date of issue of the permit. If amendments to emission limits are required then a variation will be required to include the new limits in the permit.
3	The operator shall submit to the Environment Agency in writing for approval, a report which reviews the emission limit on flow to surface water from the combined discharge of groundwater from pumping from Phases A, B, C and D and surface water – following the completion of Phase Ai. The report shall include proposals for a revised emission limit for flow as appropriate. Timescale – 3 months from the date of completion of phase Ai.
Justification	This improvement condition is required to ensure that the emission limit for flow is revised if appropriate based on actual monitoring data following completion of Phase Ai within an agreed timescale. It is considered that the clearest and most transparent way of ensuring these changes which are proposed as part of the H1 risk assessment are incorporated into the permit – is to include them as improvement conditions as there may be scope for reducing the limits further based on actual data.

5.2.7 Groundwater

This section relates to the risk of contamination of groundwater from the landfill as opposed to the previous section which related to the risk of contamination of surface water from the combined discharge of groundwater and surface water during the dewatering stage.

Contaminants modelled in the hydrogeological risk assessment (HRA) comprise ammoniacal nitrogen, arsenic, benzene, cadmium, chloride, lead, mercury, phenols, sulphate, toluene, xylene and zinc. Leachate concentrations are based on the maximum recorded leachate concentration +10%, in the current hazardous landfill cells, except for ammoniacal nitrogen and chloride which are based on current observed range in leachate quality. This is because representing the source term with a single concentration, equal to the maximum recorded concentration plus 10%, for ammoniacal nitrogen and chloride was considered overly conservative for these

substances. So, instead, for these substances the source term has been defined as a range of concentrations based on observed concentrations in the current site. This is standard method for defining leachate source term concentrations in quantitative risk assessments.

Ammoniacal nitrogen and chloride concentrations have been based on actual site data because these contaminants are generally the main pollution indicators and they tend to be present in very much higher and variable concentrations in the leachate than other contaminants such as e.g. metals. To represent the source term on the basis of the maximum observed concentrations for these contaminants in the leachate would be unrealistic and could potentially lead to theoretical concentrations at the compliance points which exceeded the EAL (Environmental Assessment Limit).

To assess the impact of leachate concentrations from wastes with up to 3 x hazardous WAC – as permitted in the current permit, the source term has been modelled with a concentration of 3 x the hazardous WAC concentration. The substances modelled have been selected on the basis of the observed leachate quality in the existing hazardous landfill.

Groundwater compliance and control limits for the new groundwater monitoring boreholes in table S3.4 of the draft permit have been proposed for arsenic, benzene, cadmium, ammoniacal nitrogen, chloride, phenols and zinc and are based on observed groundwater quality around the western landfill area. The limits are to be reviewed and revised if appropriate, prior to landfill activity taking place in the western landfill area, based on more recent water quality monitoring data and data from a number of replacement boreholes.

Existing groundwater quality monitoring boreholes 26, 28, 29 and 45 are required to be decommissioned as they form potential contaminant migration pathways directly into the groundwater. Whilst we would have preferred monitoring of these boreholes to continue for as long as possible we note that the ESID states that Phase A will be operational for only 3.83 years, and it is stated that restoration and capping will be completed within 12 months of completion of landfilling in each phase. Furthermore, the review of monitoring boreholes included in the HRA, concluded that the affected boreholes are not fit for purpose. Given the short timescale of operation of Phase A and the ongoing monitoring of the groundwater drainage, a requirement to replace these boreholes could not be justified as they would only be available for a short period of time prior to decommissioning.

We assessed the HRA. This resulted in a number of questions or points of clarification for the operator in the form of a Schedule 5 Notice issued on 6 March 2015.

On 23rd July 2015 we received a second addendum (the first addendum was provided as part of the Application) to the HRA submitted by the applicant as part of the application. The original HRA and the addendums were all considered as part of the determination.

The second addendum of the HRA reviewed the leachate source term in the light of discrepancies between the data obtained from the laboratory and that provided by Whitemoss Limited. Where the data shows that the actual source term concentrations are higher than those modelled initially, the Landsim and Hydraulic Containment spreadsheet models have been updated and re-run by the Applicant.

The results show that these small changes to the source term concentrations do not affect the conclusions of the HRA that was submitted as part of the permit variation Application, although there are some minor changes to the proposed groundwater compliance limits in table S3.4 of the draft permit.

The revised Landsim model has also been checked and the mismatch between the cell areas in the model (which should be the same throughout the Landsim model) has been addressed.

The model has been re-run and the outputs confirm that there will be no unacceptable discharge to groundwater during the period of groundwater control.

We are satisfied with the information provided in the HRA to allow us to issue the variation and set protective limits now. However there is additional monitoring information which we require from monitoring data collected when the new monitoring points are installed and prior to tipping in the western landfill area. This will allow the applicant to review the interim compliance limits based on more up to date monitoring data collected to see whether any limits need to be updated. We also require the operator to install additional or replacement monitoring boreholes as proposed in their risk assessment. The additional information and the reasons for it have been included in the following pre-operational measures which are required before tipping can begin in the western landfill area:

Table S1.4 Pre-operational measures	
Reference	Pre-operational Measures
1	Prior to landfill activities commencing in the western landfill area, the operator shall submit a report to the Environment Agency in writing which reviews and revises if appropriate the interim groundwater compliance and control levels which are to be applied to the down hydraulic gradient groundwater monitoring points in table S3.4. The report shall be based on the most up to date monitoring data. The operator shall have obtained the Environment Agency's written approval to the report.
Justification	Interim groundwater compliance limits have been proposed for down hydraulic groundwater monitoring points. The ESID proposes that these interim levels are revised and updated using more recent water quality monitoring data

Table S1.4 Pre-operational measures	
Reference	Pre-operational Measures
	<p>prior to landfill activities commencing in the western landfill area. We are satisfied that the proposed interim compliance limits are appropriate but we want these to be checked using the latest data before landfilling actually begins.</p> <p>If amendments to emission limits are required then a variation will be required to include the new limits in the permit.</p>
2a	<p>Prior to the commencement of waste operations in the western landfill area, the operator shall install boreholes to replace existing boreholes 36 and 38, with response zones which target the Coal Measures strata. Once installed, the operator shall undertake routine monitoring in accordance with table S3.9.</p>
2b	<p>Prior to the commencement of waste operations in the western landfill area, the operator shall install groundwater monitoring boreholes 59A and 60A, at locations agreed with the Environment Agency, around the leachate treatment plant and lagoon to target the superficial drift aquifer.</p> <p>Following installation, the operator shall undertake routine groundwater monitoring in accordance with table S3.4</p>
2c	<p>Prior to commencement of waste operations in the western landfill area, the operator shall submit a report to the Environment Agency in writing which proposes groundwater compliance limits for arsenic, benzene, cadmium, ammoniacal nitrogen, chloride, phenols and zinc to be applied to the groundwater boreholes in pre-operational condition 2a above, which are down hydraulic gradient of the leachate treatment plant and lagoon. The report shall be based on the most up to date monitoring data. The operator shall have obtained the Environment Agency's written approval to the report.</p>
2d	<p>The following details regarding the monitoring boreholes detailed in pre-operational conditions 2a and 2b above shall be provided to the Environment Agency within 3 months of installation:</p> <ul style="list-style-type: none"> • casings/linings (length, diameter, material, type of grout or filter media and whether • slotted or plain); • depths and diameters of unlined sections; • standing groundwater levels; • details of strata encountered during drilling; • reference levels in metres above ordnance datum; • national grid references of the boreholes in the form AB 12345 67890; <p>any other information obtained from the boreholes relevant</p>

Table S1.4 Pre-operational measures	
Reference	Pre-operational Measures
	to the interpretation of water sample analysis.
Justification	<p>(a) Some of the existing groundwater boreholes which have been used to characterise the Coal Measures groundwater (boreholes 36 and 38) are constructed such that the screened interval straddles both the Coal Measures aquifer and the overlying superficial drift aquifer. To enable acquisition of groundwater quality data that is unequivocally attributable to the Coal Measures replacement boreholes are required, and have been proposed, with screened intervals which target the Coal Measures strata only.</p> <p>(b) The application proposes the installation of 2 additional groundwater monitoring boreholes around the Leachate Treatment Plant and lagoon. These will be designed and constructed to target groundwater in the superficial drift aquifer and will be for the purposes of detecting any unacceptable impact on the groundwater in the Shirdley Hill Sands. The operator will be required to submit another permit variation application to get the new boreholes incorporated into the permit.</p> <p>(c) Following installation of additional boreholes in (b) above, groundwater compliance limits must be proposed and agreed for the borehole(s) that are down hydraulic gradient of the leachate treatment plant and lagoon, on the basis of one year's groundwater quality data. Compliance limits must be derived in accordance with Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3, version 2.1, Dec 2011, or other guidance which supersedes this document as agreed with the Environment Agency. The operator will be required to submit another permit variation application to get the new limits incorporated into the permit.</p> <p>(d) - The operator has to comply with condition 2.6 in the draft permit to ensure that we have confirmed that we are satisfied with the infrastructure of the monitoring boreholes which are to be installed, prior to their construction and installation. Following installation of additional boreholes in (a) and (b) above, details of the borehole installations need to be provided.</p>

5.2.8 Leachate

Leachate is generated as a result of infiltrating rainfall. After completion of the placement of the waste in each cell the landfill cell will be capped. This will reduce infiltration and will minimise the generation of leachate. A leachate management system is included in the design of the landfill. The objective of the leachate management system is to maintain leachate at a level not exceeding 1m above the top of the basal liner. The leachate management system includes the provision for the extraction of excess volumes of leachate.

Leachate levels and monitoring

The leachate level monitoring requirements are in table S3.1 of the draft permit.

The leachate quality monitoring requirements are in table S3.11 and are standard for landfills for hazardous waste.

5.2.9 Landfill Gas

5.2.9.1 Emissions of landfill gas and monitoring

As the western landfill area will only accept hazardous waste – there is no significant gassing potential from the waste and therefore there will be no need for gas management. Therefore the landfill gas risk assessment (LFGRA) submitted as part of this variation application is qualitative. For the purpose of assessing landfill gas generation potential the hazardous wastes are therefore treated as comprising inert materials and asbestos wastes which have no significant gas generation potential.

5.2.9.2 Point source emissions and monitoring

The waste accepted at the existing landfill site is subject to detailed waste acceptance procedures to minimise the risk that unauthorised wastes are deposited. These same waste acceptance procedures will continue to apply to the western landfill area.

Currently landfill gas generated in part of the existing landfill for hazardous waste is managed. The site is producing landfill gas because it accepted non-hazardous waste between 2003 and 2004 from a nearby civic amenity facility and this was deposited in cells 3A, 3B and 3C. Therefore the existing landfill gas flare will continue to operate to manage landfill gas from cells 3A, 3B and 3C. This point source emission is monitored in accordance with table S3.2 – there is no change from the existing permit.

The LFGRA for the western landfill area concludes that no landfill gas management systems, including gas collection or gas treatment are necessary in the western landfill extension area. Therefore there will be no point source emissions of landfill gas from the western landfill area.

We are satisfied with the conclusions of the Applicant's risk assessment based on studies we have carried out on the monitoring at landfills for hazardous waste.

5.2.9.3 In waste and External landfill gas monitoring

The existing permit requires in-waste landfill gas monitoring from one in-waste gas borehole per cell and the leachate wells in each cell, however to date no in-waste monitoring has been installed. Asbestos waste has been deposited in Cell 3D in a separate cell for asbestos but in Cells 1 and 2 asbestos waste was deposited with other hazardous wastes. The applicant proposes that except for the asbestos cells - the in waste gas monitoring wells will be drilled as soon as practicable after completion of the cell. The applicant also proposes that to minimise disturbance and hence exposure of asbestos that the in waste gas monitoring points comprise of pin wells in the asbestos cells in Cell 3D and Cells 1 and 2. The issue over installing landfill gas monitoring points in asbestos cells is the risk in disturbing the waste and releasing asbestos fibres. Pin wells should be suitable as these do not give rise to any drilling spoil as they are essentially holes made by pushing a 6m steel pin into the waste. We are satisfied with these proposals. The requirements for in-waste landfill gas monitoring are detailed in Table S3.10 of the draft variation notice. We also require in waste landfill gas monitoring for the western landfill area from one in-waste gas borehole per cell and leachate wells.

External landfill gas monitoring currently takes place around the cells in the existing landfill site which accepted non-hazardous waste (Cells 3A, 3B and 3C). The Application proposes:

- the continuation of perimeter landfill gas monitoring around cells 3A, 3B and 3C of the current site, due to the generation of small quantities of landfill gas from the civic amenity waste;
- the decommissioning of those boreholes present alongside the western boundary - once the western landfill area is developed.
- no perimeter landfill gas monitoring around the western landfill area or the current cells (1, 2 and 3D) where only hazardous waste has been deposited. The continuation of landfill gas surface monitoring in cells 3A, 3B and 3C, which contain some gassing non-hazardous wastes and gas management infrastructure. However, for cells which comprise hazardous wastes only, surface gas monitoring is not required.

We assessed the Landfill gas risk assessment (LFGRA). This resulted in a number of questions or points of clarification for the operator in the form of a Schedule 5 Notice issued on 6 March 2015. We were satisfied with the LFGRA.

We generally do not consider that external landfill gas monitoring is required around landfills, or landfill cells which have only accepted hazardous waste due the limited gassing potential. This is in accordance with a study we have carried out on monitoring data at hazardous waste landfill sites. However as detailed above the Applicant confirmed that there are no in-waste boreholes in cell 1, cell 2 (north, west and east quadrants) and cell 3D, which have taken hazardous waste only, and there is no in –waste gas data. This is despite the current permit including a requirement for in-waste gas monitoring in table

S3.10. The absence of gas data relating to the hazardous waste cells means that there is no confirmatory evidence to support the contention that the hazardous wastes are of low gassing potential and can be regarded as inert from a gas generation perspective and that perimeter gas monitoring is therefore not required.

Furthermore we asked whether there is a pathway for gas generated in cells 3A, 3B and 3C, where civic amenity waste has been deposited, to migrate into adjacent cells 3D and 2 and therefore whether perimeter gas monitoring should extend around these adjacent cells. The applicant confirmed that a pathway does exist; however, they argue that the active gas extraction scheme in cells 3A, 3B and 3C creates a negative pressure gradient away from the site boundaries and away from adjacent cells. Additionally, perimeter gas monitoring currently undertaken has not recorded methane or carbon dioxide concentrations above limits specified in the permit, confirming the efficacy of the gas extraction scheme. They also argue that on the basis of the landfill gas risk assessment (low gassing potential hazardous wastes) it is considered unnecessary to continue gas monitoring at the perimeter boreholes adjacent to cells 2 and 3D.

Whilst there is some merit to the arguments provided by the applicant, the lack of confirmatory in-waste gas data relating to the hazardous waste cells means that, until such time as in-waste gas data has been obtained and it confirms the low gassing potential of the hazardous wastes, perimeter gas monitoring around the existing site must continue.

Therefore the draft variation notice retains the current Table S3.5 'Landfill gas in external monitoring boreholes – limits and monitoring requirements', for the monitoring points around the existing cells 1, 2 and 3.

However no external gas monitoring is required around the western landfill area as this area of the site will only accept hazardous waste.

The draft permit also contains table S3.8 for monitoring landfill gas emissions from capped surfaces for cells that have accepted non hazardous biodegradable waste. This is a standard table for all landfills for hazardous waste. However we have clarified for this site in the table title that it should only be relevant for cells 3A, 3B and 3C.

5.2.9.4 Other landfill gas emissions and monitoring

As well as the requirements for in waste monitoring, the other landfill gas monitoring requirements are detailed in table S3.10 of the draft permit and include the requirements for monitoring of the gas collection system, the output to the flare and the temperature of the emissions from the flare stack itself.

5.2.10 Amenity issues

The Applicant submitted a risk assessment in accordance with H1 Annex A – Amenity and accident risk from installations and waste activities.

5.2.10.1 Odour

Hazardous waste is not considered to be a significant source of odour. All of the residual risks in Table A1 (entitled Odour risk assessment and management plan which forms part of the H1 risk assessment) have been assessed as low by the Applicant after risk management measures have been put in place.

Risk management measures include the following:

- Pre-treatment (offsite) of the wastes to reduce the potential for significant volatile components which could be a potential source of odour;
- Waste acceptance procedures will identify any malodorous loads for which additional measures are necessary to reduce the risk of significant odour emissions;
- The Weighbridge Operator will advise the Site Manager of the expected receipt of potentially malodorous waste. The Site Manager will advise the Landfill Operatives accordingly so that masking agents are available to spray on the load after it is deposited. Malodorous wastes will only be delivered in enclosed vehicles. Any malodorous waste will be deposited at the foot of the working face and covered immediately. The working face where malodorous wastes are deposited will be kept as small as is reasonably practicable;
- Odour may also be generated from the landfill gas flare and the leachate management system. The landfill gas flare is operational due to the biodegradable waste which was deposited in the current landfill Phase 3, therefore the western landfill area will not add to this flaring requirement and therefore the odour potential from flaring. The leachate treatment plant is increasing its throughput due to the western landfill area, however the leachate treatment lagoon is enclosed and it is provided with an air extraction system with carbon filters. The lagoon surface is covered with a HDPE ball blanket that provides a 90%+ seal of the surface area of the leachate. Despite the increase in throughput the leachate storage and treatment infrastructure will not be altered as a result of the variation, therefore there is not expected to be an increase in odour from the leachate treatment facility. The residual risk from these activities is low or very low.

We are satisfied with the Applicant's risk assessment and the odour management measures. Furthermore there have been no substantiated odour complaints since 2006.

We are satisfied the measures proposed will be appropriate measures and that emissions will be prevented and where that is not possible minimised and there will be no significant pollution of the environment or harm to human

health. Operations at the current site support this and that if historically there have been any issues these have now been addressed

5.2.10.2 Noise - Table A2 – Noise risk assessment and management plan

The residual risk in the Applicant's risk assessment due to noise is low or very low due to the risk management measures which are available, which include the following:

- The construction of a 5m high temporary noise bund as part of the development;
- All site plant and vehicles are fitted with appropriate silencers and are subject to a routine maintenance programme;
- Plant and vehicles are fitted with strobe lighting visual warnings instead of audible reversing alarms, where appropriate;
- The internal haul roads and access road will be inspected on a regular basis and maintained so that potholes are identified and repaired as soon as is reasonably practicable;
- Leachate and landfill gas management infrastructure will follow a maintenance regime and will be fitted with silencers where necessary. The leachate and gas management infrastructure will not be altered as a result of this variation.

We are satisfied with the Applicant's risk assessment and the noise management measures proposed and that emissions will be prevented and where that is not possible minimised and there will be no significant pollution of the environment or harm to human health. Furthermore there are currently no compliance issue on site in relation to noise.

5.2.10.3 Fugitive emissions - Table A3 – Fugitive emissions risk assessment and management plan

5.2.10.3.1 Particulates from access routes, restored surfaces, waste delivery and waste deposit

The residual risk in the Applicant's risk assessment due to particulate matter is low due to the risk management measures which are available, which include the following:

- All waste deliveries are in closed containers or by enclosed or sheeted vehicles;
- Particularly dry or dusty wastes will be dampened;
- All asbestos wastes will be double bagged or double wrapped as appropriate;
- Asbestos wastes will be deposited at the site with the minimum practicable mechanical or manual handling;
- All asbestos wastes will be covered immediately after deposition with cover materials that will not generate dust;
- Cover materials will be placed over the surface of all deposited waste throughout the day and at the end of the working day;

- There will be a restriction in the movement of mobile plant and site traffic to internal haul road and speed limits will be enforced;
- Wheel cleaning facilities by all waste delivery and collection vehicles when necessary before leaving the site;
- The sweeping of internal haul roads, the site access road and Whitemoss Road South between the site and Moss Lane with a road sweeper as necessary;
- Damping of haul roads and access roads and the spraying of soil, clay and general fill stockpiles together with areas of waste deposition as necessary during dry weather conditions.

We are satisfied with the Applicant's risk assessment and the particulate and asbestos management measures proposed and that emissions will be prevented and where that is not possible minimised and there will be no significant pollution of the environment or harm to human health. The Applicant also submitted an updated Particulate matter and asbestos management, monitoring and action plan for the western landfill area and specific monitoring requirements have been included in the draft permit in Table S3.7. See also the human health risk assessment below for particulate matter and the conclusion that there will be no harm to human health.

5.2.10.3.2 Litter arising from waste deposit and waste surface

The Applicant's risk assessment states that the western landfill area will not generate significant quantities of litter, therefore the residual risk is very low. Waste types such as paper, plastic and cardboard will not be accepted at this site. The site personnel undertake regular inspections of the site boundary. If any litter does escape beyond the site boundary, this will be collected as soon as reasonably practicable.

We are satisfied with the Applicant's risk assessment and the litter management measures proposed.

5.2.10.3.3 Mud and debris on public highway

The Applicant's risk assessment states that the residual risk is low. The general risk management measures at the site include:

- Wheel wash installed on the landfill haul road which will be maintained throughout the operational life of the landfill;
- In the event that the wheel wash is not operational the vehicles will be cleaned using a stand-by jet wash;
- The internal haul roads and access road will be inspected regularly so that mud or debris can be removed as soon as is reasonably practicable;
- Cleaning of hard surfaced haul roads and access roads with a road sweeper as necessary;
- If mud or other debris is carried onto the public highway warning signs will be erected on the highway to inform users of the potential hazard.

We are satisfied with the Applicant's risk assessment and the mud and debris management measures proposed.

5.2.10.3.4 Birds, vermin and insects

The Applicant's risk assessment assesses the risk of the site attracting birds, vermin and insects as very low. The landfill does not and will not accept wastes that are attractive to birds, vermin and insects.

We are satisfied with the Applicant's risk assessment

5.2.10.4 Table A4 – Accident risk assessment and management plan

From the Applicant's risk assessment the following hazards have been assessed as low or very low residual risk due to the risk management measures which are in place:

- Acceptance of inappropriate waste types;
- The deposited wastes are physically unstable;
- Deposited wastes are chemically incompatible ;
- Accidental release of fuel or oil;
- Fire and explosion;
- Unauthorised access.

We are satisfied with the Applicant's risk assessment and the risk management measures which are proposed or in place.

Summary

The draft permit contains standard conditions for emissions of substances not controlled by emission limits, odour, noise and vibration and pests. The conditions state that the specific emissions shall not cause pollution. If the Environment Agency notify the operator that emissions are giving rise to pollution (outside of the site in the case of odour, noise and vibration and pests), then the operator will be required to submit a management plan to us for approval within the specified period which identifies and minimises the risks of pollution from the relevant emission. They will then be required to operate in accordance with the approved plan.

For all of the above amenity issues we are satisfied the measures proposed will be appropriate measures and that emissions will be prevented and where that is not possible minimised and there will be no significant pollution of the environment or harm to human health. Operations at the current site support this and if historically there have been any issues these have now been addressed.

5.2.11 Human health risk assessment - Particulate matter management and monitoring

Particulate matter and asbestos monitoring is carried out onsite to monitor the effectiveness of the measures in place to minimise emissions of particulates. Particulate matter and asbestos monitoring is carried out at the current landfill site in accordance with table S3.7 which also contains compliance limits.

Particulates will continue to be monitored around the boundary of the active landfilling cell. As the development of the western landfill area proceeds the current particulate monitoring locations will be replaced with suitable monitoring locations around the active landfilling areas of the site following written approval by the Environment Agency.

As part of the Schedule 5 Notice dated 6 March 2015 we requested:

- a quantitative modelling impact assessment to provide further information on the impact on the environment and human health (question 8 of Landfill operations section of S5 Notice). The quantitative modelling impact assessment is required to provide further information on the impact on the environment and human health;
- an updated particulate and asbestos management, monitoring and action plan which takes into account the western landfill area and the closer proximity of landfill operations to the sensitive receptors. The risk assessment currently states that the dust monitoring plan will be updated to take into account the proposed new operational area and once agreed this will be implemented to confirm the effectiveness of mitigation measures. However the risk assessment needs to be updated as part of the determination of this application to take into account the health and environmental impacts at sensitive receptors; and
- a particulate monitoring programme for the categories of particulate matter identified in M17 (e.g. the suspended fraction and deposited speciated fractions). The current particulates monitoring plan requires updating to meet the requirements of the latest guidance.

Quantitative modelling impact assessment.

We assessed the applicant's impact assessment of air emissions for human health and deposition to soil.

Following a review of the completeness of the submission, the applicant submitted additional information pertaining to the air quality assessment in response to a Schedule 5 notice follow up request and then in response to a request for information about the areas of each of the phases.

The air quality assessment report concludes the proposals will:

- Be below the available maximum deposition rate (MDR) on agricultural land;
- Be below the appropriate Environmental Quality Standards (EQS) where an MDR is not available;
- Not result in an exceedance of any relevant EQS.

We have audited the assessments. The main observation is that the emission rates used by the applicant cannot be fully validated.

Pollutant Predictions

Application of Environment Agency H1 Guidance. We have carried out our own check modelling and we are satisfied with the results of the applicant's assessment.

The H1 methodology uses a concept of "process contribution (PC)", which is the estimated concentration of emitted substances after dispersion into the receiving environmental media at the point where the magnitude of the concentration is greatest. The guidance provides a simple method of calculating PC primarily for screening purposes and for estimating process contributions where environmental consequences are relatively low. It is based on using dispersion factors and so the process contributions calculated are likely to be an overestimate of the actual maximum concentrations.

Once short-term and long-term PCs have been calculated in this way, they are compared with Environmental Quality Standards (EQS) referred to as "benchmarks" in the H1 Guidance.

Where an EU EQS exists, the relevant standard is the EU EQS. Where an EU EQS does not exist, our guidance sets out a National EQS (also referred to as Environmental Assessment Level - EAL) which has been derived to provide a similar level of protection to Human Health and the Environment as the EU EQS levels. In a very small number of cases, e.g. for emissions of Lead, the National EQS is more stringent than the EU EQS. In such cases, we use the National EQS standard for our assessment.

National EQSs do not have the same legal status as EU EQSs, and there is no explicit requirement to impose stricter conditions in order to comply with a national EQS. However, national EQSs are a standard for harm and any significant contribution to a breach is likely to be unacceptable.

PCs are considered **Insignificant** if:

- the **long-term** process contribution is less than **1%** of the relevant EQS; and
- the **short-term** process contribution is less than **10%** of the relevant EQS.

The **long term** 1% process contribution insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality;
- The threshold provides a substantial safety margin to protect health and the environment.

The **short term** 10% process contribution insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions;

- the threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider that the impact of the emission is already insignificant, it follows that any further reduction in this emission will also be insignificant.

However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

For those pollutants which do not screen out as insignificant, we determine whether exceedences of the relevant EQS are likely. This is done through detailed audit and review of the Applicant's air dispersion modelling taking background concentrations and modelling uncertainties into account.

The "predicted environmental contribution" (PEC) is the PC plus background and this is compared to the Environmental Quality Standards (EQS) referred to as "benchmarks" in the H1 Guidance (see above).

For those pollutants which do not screen out as insignificant, we determine whether exceedences of the relevant EQS are likely. This is done through detailed audit and review of the Applicant's air dispersion modelling taking background concentrations and modelling uncertainties into account. Where an exceedance of an EU EQS is identified, we may require the Applicant to go beyond what would normally be considered appropriate in our guidance for the Installation or we may refuse the application if the applicant is unable to provide suitable proposals. Whether or not exceedences are considered likely, the application is subject to the requirement to operate in accordance with BAT.

If, as a result of reviewing of the risk assessment and taking account of any additional techniques that could be applied to limit emissions, we consider that emissions **would cause significant pollution**, we would refuse the Application.

The applicant presents their predictions at worst case human health receptors for each phase of the western landfill area, in report entitled, 'An air dispersion modelling assessment of fugitive particulate matter emissions from the proposed western landfill area at Whitemoss Landfill site, Lancashire (re: WL/WL/AW/5504/01/MOD June 2015), section 4.

The applicant predicts that the 24-hour mean PM10 impacts screen out as insignificant (<10% short-term) as a process contribution (PC) at all receptors for all phases with the exception of Phase B. The annual mean PC's of PM10 do not screen out as insignificant (<1% long-term) for Phases A, B and D. When taking background concentrations into account, the applicants calculated Predicted Environmental Concentration (PEC) for long-term or short-term PM10 would not result in an exceedance of the EQS'.

The applicant predicts that PCs would screen out as insignificant with respect to the PM2.5 annual mean EQS.

We have checked the background pollution data used by the applicant for those pollutants which were relevant in the assessment, i.e. where the pollutant does not screen out as insignificant. Obtaining data from Defra's background maps as the applicant did is appropriate; however we noted slightly higher concentrations of PM10 when checking concentrations in surrounding grid squares. We have taken these variations into account in our check modelling.

With regard to their assessment of deposition of metals on agricultural land, the operator predicts that all metals assessed (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc) have a PC below the Maximum Deposition Rate (MDR).

For manganese and vanadium, which do not have an MDR, the operator has calculated PCs based on PM10 concentrations. They predict these metals screen out as insignificant with respect to the long term EALs. Whilst this approach follows guidance set out in Annex F of H1 we would expect a more conservative approach would be carrying out the assessment based on total particulate matter (TPM) concentrations (rather than PM10 only). The applicant has not assessed impacts of antimony as they do not have data for this metal.

Our check modelling

In order to check the validity of the applicant's predictions, we have undertaken our own detailed check modelling. We carried out detailed check dispersion modelling using ADMS Version 5.1 using meteorological data observed at Crosby (2007-2011), located approximately 18 km west of the application site.

We have carried out the following sensitivity analysis and checks:

- Using different surface roughness parameters;
- Checks on potential emission rates using a range of assumptions;
- Carrying out sensitivity analysis on a range of possible particle size distributions;
- Considering higher background concentrations than those used by the operator for the pollutants which do not screen out as insignificant.

As a result of our checks, we are satisfied that the Applicant's assessment of air quality impacts to human health are reasonably representative. We do not agree with the absolute numerical values given in their reports, but can agree that any differences are not likely to affect the likelihood of harm to human health. We do not consider that the facility will contribute to exceedances of an air quality EQS at human health receptors or to the Maximum Deposition Rates (MDR) for agricultural land.

Particulate matter and asbestos management, monitoring and action plan for the western landfill area at Whitemoss Landfill Site, Lancashire (WL/WL/AW/5504/01/DMP June 2015)

Regarding the updated particulate and asbestos management, monitoring and action plan - the plan states that the operational controls employed currently

at the existing site will continue to be employed for the western landfill area, including the following:

- Sheeting of all vehicles using the site;
- Use of wheel cleaning facilities to prevent mud on the road which may lead to dust;
- Vehicles will be restricted to haul roads, which will be maintained;
- Vehicle speed limits will be imposed to prevent dust;
- Use of a water bowser on haul roads in dry conditions to prevent dust;
- Waste covered progressively throughout the day;
- Operations will cease during high winds;
- Visual monitoring of emissions of particulate matter and quantitative monitoring of suspended particulate matter and deposited dust.

Visual monitoring

Visual monitoring for emissions of particulate matter will be undertaken by suitably trained site personnel during site operations. Any problems observed will be reported to the site manager who will be responsible for investigating the cause and implementing any necessary remedial action.

Quantitative monitoring – deposited dust

Deposited dust has the potential to cause nuisance by deposition on properties, vehicles, windows etc. Five Frisbee dust deposition gauges are to be installed at locations around the western landfill area to monitor for deposited dust. The Frisbee monitoring locations will remain under review based on meteorological data recorded at the site as landfilling proceeds from phases A to D. There is also an existing suspended particulate matter monitor (ref C1). The monitoring requirements are detailed in table S3.7 of the **draft** variation notice.

Quantitative monitoring – suspended solids

The operator proposed that 2 additional continuous suspended particulate matter monitors are installed at locations at the perimeter of the western landfill area. This is in addition to the existing monitor C1.

Asbestos monitoring

The monitoring requirements are standard for all sites which accept asbestos and are detailed in Table S3.7 of the draft variation notice. The monitoring location has been clarified in the **draft** variation notice to state, 'Site boundary downwind of asbestos disposal area' rather than disposal 'cell', as the intention is for the monitoring requirement to be required for all areas that accept asbestos rather than just separate cells for the disposal of asbestos.

Quantitative monitoring – Chemical speciation of deposited dust

The other effect of deposited dust is related to the potential impact on human health based on any potentially toxic components of the dust. See quantitative modelling impact assessment detailed above. As the results are not significant and are not likely to cause pollution of the environment or harm to human health there is no need to require the monitoring of the speciated metals to meet compliance limits in table S3.7 of the permit. However the

operator shall continue to monitor the speciated metals on a quarterly basis as detailed in the 'Particulate matter and asbestos management, monitoring and action plan for the western landfill area at Whitemoss Landfill Site, Lancashire (ref: WL/WL/AW/5504/01/DMP, June 2015)'. Following review of the results the number of monitoring locations and the frequency may be reduced depending on the outcome of the review. The management plan will be linked into the permit by table S1.2 – 'Operating techniques' table.

We are satisfied with the Applicant's updated particulate matter and asbestos management, monitoring and action plan and the continuation of the existing management measures for particulates and asbestos. We are satisfied the measures proposed will be appropriate measures and that emissions will be prevented and where that is not possible minimised and there will be no significant pollution of the environment or harm to human health. Operations at the current site support this and if historically there have been any issues these have now been addressed. Furthermore the monitoring requirements are covered by the standard emissions and monitoring condition in the draft permit where the limits in table S3.7 shall not be exceeded.

5.2.12 Impact on Habitats sites, SSSIs, non-statutory conservation sites etc.

Sites Considered

There are no Habitats (i.e. Special Areas of Conservation, Special Protection Areas and Ramsar) sites within 2km of the proposed Installation.

There are no Sites of Special Scientific Interest within 2km of the proposed Installation.

There are no non-statutory local wildlife and conservation sites within 2km of the proposed Installation.

There are three protected habitats within 200m of the installation – these are Deciduous Woodland, Fens, and Lowland Raised Bog.

The deciduous woodland (broadleaved) is 190m to the SW of the southern installation boundary.

For the Lowland raised bogs and fens – the western landfill area will be built on the lowland raised bogs and fens – meaning that the habitat will be removed. There will be a small area remaining to the west of the western installation boundary and a larger amount remaining to the east of the eastern installation boundary as shown on drawing ESID2, following development of the western landfill area.

The site and immediate surrounding area are UK Biodiversity Action Plan (BAP) priority habitats comprising Fens and Lowland Raised Bog. There is an area of Deciduous Woodland UK BAP priority habitat between White Moss Road South and the M58 to the north of the existing site and a second area approximately 170 metres to the south west of the site.

The operator was asked to provide additional information (on 15/04/15) in relation to the protection, conservation, recovery and mitigation of the Fens and Lowland raised bog as a habitat of principal importance in accordance with Section 41 of the NERC Act 2006 – for conservation sites under the UK Biodiversity Action Plans (BAP) . Also information on the protection, conservation, recovery and mitigation of the Deciduous Woodland UK BAP priority habitat between White Moss Road South and the M58 to the north of the existing site and a second area approximately 170 metres to the south west of the site.

In their response the Applicant had reviewed the DEFRA Magic website with respect to habitats at and in the vicinity of the site. However the Magic website is not up to date - as the current landfill area (which is almost complete) is currently referred to as Lowland Raised Bog which is a priority habitat. The operator states that detailed ecological surveys were carried out as part of the Environmental Impact Assessment which were presented in the Environmental Statement which was submitted as part of the Development Consent Order (DCO) application. No Lowland Raised Bogs or Lowland Fens were identified at the site during the ecological survey work, therefore it is not necessary to provide as part of the development any protection, conservation, recovery or mitigation in respect of these habitats in the area of the site.

However significant peat deposits were identified as part of the soil resources and agricultural land assessment carried out during the Environmental Impact Assessment process. Based on the presence of peat deposits a detailed soil handling and management scheme was agreed with Lancashire County Council and Natural England during the examination stage of the DCO process.

Regarding the impacts of adjacent priority habitats including Lowland Raised Bog to the east and west of the proposed western extension area, the Deciduous Woodland to the north and to the south west - the operator states that suitable mitigation was included in a wide range of design and operational measures which have been presented in the Environmental Statement and on which the design of the landfill in the Environmental Permit application was based, and on which the operational techniques at the site will be based. The Environmental Impact Assessment concludes that the proposed development will not have an unacceptable impact on the environment which includes the adjacent habitats.

From our consideration of the potential emissions which may have an impact on the priority habitats, these include particulate matter emissions to air and emissions to surface water or discharges of leachate.

Deciduous Woodland to the north.

From the 'Particulate matter and asbestos management, monitoring and action plan (WL/WL/AW/5504/01/DMP, June 2015', based on the meteorological data recorded between January 2005 and May 2014 at the weather station on the weighbridge near the site entrance - the prevailing

wind direction is from the west, west-north west and north west. Individual wind roses for the years 2008, 2009, 2010, 2011, 2012 and 2013 prepared using the data from the weather station using macros provided by the Environment Agency confirm the prevailing wind direction and show also that there is a significant component of wind from the south to south-south east.

Therefore it is unlikely that this site would be affected by particulate matter emissions due to the prevailing wind directions.

Deciduous Woodland 170m to the south west

This woodland area is unlikely to be affected by particulate matter emissions due to wind blowing from the west, west-north west and north west or south to south east.

The operator has also proposed mitigation measures for dust and particulates which will also to protect these sites in the event of unfavourable wind direction.

Specific measures are in place to prevent the release of fibres and particulates from accepted wastes and monitoring requirements and emission limits are included in the draft permit. The appropriate measures will be enforced by incorporating the appropriate measures into the draft permit through the operating techniques condition.

All waste deliveries are in closed containers or by enclosed or sheeted vehicles. Particularly dry or dusty wastes will be dampened. Cover materials will be placed over the surface of all deposited waste throughout the day and at the end of each working day.

The general risk management measures employed at the site include:

Restriction of the movement of mobile plant and site traffic to internal hard surfaced haul roads.

Site speed limits to be enforced.

The use of wheel cleaning facilities by all waste delivery and collection vehicles when necessary before leaving the site.

The sweeping of the internal haul roads, the site access road and White Moss Road South between the site and Moss Lane with a road sweeper as necessary.

Damping of haul roads and access roads and the spraying of soil, clay and general fill stockpiles together with areas of waste deposition as necessary during dry weather conditions.

Priority habitats (Lowland raised bogs) to the west and east. No lowland raised bogs were identified in the ecological survey (carried out as part of the Environmental Impact Assessment). Therefore no further consideration of potential impacts on these habitats is necessary. The scope of the ecological assessment was agreed with Natural England. From section 10 on ecology in the Environmental Statement and the Ecological Impact Assessment (submitted as part of the DCO application), it states that the site principally comprises poor semi improved grassland together with marsh / marshy grassland dominated by soft rush and compact rush. Patches of scrub,

plantation woodland and small areas of bare ground, swamp, tall ruderal and ephemeral vegetation are also present. Botanically the habitats are poor and of limited ecological value. They are common and widespread within the local area and are assessed to be of site level value or negligible value only. It is considered that there will be a cumulative benefit to habitat creation and biodiversity resulting from the proposed development. Benefits will include the transfer of agricultural land to specific wetland, species diverse meadow and scrub vegetation. Any adverse impacts during the development stages should be outweighed by any beneficial impacts within the restoration and aftercare phases resulting in an overall beneficial scheme.

We do not consider that the deciduous woodland sites, including the area adjacent to the north boundary will be affected by run off from leachate - as the landfill will be engineered in accordance with the Landfill Directive to protect the groundwater and surface water and land.

The site will be restored progressively to a raised landform supporting a diversity of habitats including species rich grassland, broadleaved woodland, scrub, species rich hedgerows and peripheral ponds and ditches surrounded by marshy grassland. The construction of the screening bunds around the perimeter of the proposed western landfill area will create additional rough grassland and scrub habitat and reduce noise disturbance to species using the surrounding land.

Following restoration of the proposed development the site will be restored to increase biodiversity and will be of benefit to a range of species including breeding birds, reptiles and bats.

Natural England submitted a letter agreeing with the proposals in the DCO application (see Natural England letter dated 14.10.14, Ref: 6422/134077). The letter states that Whitemoss Landfill Limited and Natural England submitted a Statement of Common Ground in June 2014 (Report reference: WL/WL/SPS/1616/01 SOCGNE June 2014) setting out areas of agreement including the details in the Soils Handling and Management Scheme and the Landscaping, Restoration, Habitat Management and Aftercare Scheme. Whitemoss Landfill Limited and Natural England submitted a further Statement of Common Ground on 7 October 2014 (report ref WL/WLSPS/1616/01 SOCGNE2) with respect to the updated Landscaping, Restoration, Habitat Management and Aftercare Scheme and the updated Soil Handling and Management Scheme.

We agree with the requirements laid out by Natural England and the Secretary of State. An outline of the requirements are as follows:

To restore the land and retain its potential as best and most versatile land (Grade 2). The soils will be stripped, stored and managed in accordance with the soils handling and management scheme, which is agreed, and that there will be no unacceptable adverse impact on soil resources.

Restoration and aftercare

1) Following certification in writing by the county planning authority of the completion of restoration in any phase on the application land, aftercare of that phase must be carried out for a period of 20 years in accordance with the Landscaping, restoration, habitat management and aftercare scheme.

(2) By the end of October in each year until the end of the aftercare period in the final phase on the application land, a report must be submitted to the county planning authority recording in detail—

- (a) The operations carried out on the land during the previous 12 months in respect of landfilling;
- (b) The measures taken to implement the restoration and aftercare provisions;
- (c) The intended operations for the next 12 months which will be implemented on the application land; and
- (d) The report must contain the topographical survey specified under requirement 24 to this Order.

Japanese Knotweed

Prior to the commencement of the activities in Phase B of the authorised project (as shown on the works plan) a scheme for the eradication of any Japanese Knotweed identified in Phase B must be submitted for approval by the county planning authority. The extent of the Japanese Knotweed in Phase B must be confirmed and detailed as part of the preparation of the scheme. The approved scheme must be implemented prior to the commencement of the activities of Phase B and thereafter.

Ecology

No removal of trees or hedgerows may take place between 1 March and 31 August inclusive in any year unless otherwise agreed with the county planning authority.

European protected species

1) Prior to the commencement of the operations in each of Phases B, C and D of the application land, further survey work must be undertaken to establish whether any European protected species or Common Toad are present on any of the application land, in any land affected, or likely to be affected, by the authorised project, in any of the trees to be lopped or felled, or in any buildings to be demolished, during that phase of the authorised project. The scope of the further survey work must be agreed with, and the result of the survey work submitted to, the county planning authority.

(2) "European protected species" has the same meaning as in regulations 40 and 44 of the Conservation of Habitats and Species Regulations 2010(a).

(3) If European protected species or Common Toad are identified during the further survey work, no works within that phase may commence until a mitigation scheme has been approved by the county planning authority. The mitigation measures contained in the approved scheme must be undertaken prior to the commencement of development in that phase.

Although we will not include specific permit conditions in relation to the planning requirements above, the conditions in any permit which may be issued will not conflict with the requirements. The applicant will be required to meet all of the requirements of both planning and the environmental permit.

5.3 Landfill operations

5.3.1 Treated leachate discharge pipework

The pipelines will be included in the installation boundary up to the point that they leave land under the control of the operator. This is to provide regulatory control in the event of a pollution incident. When the pipelines leave the site boundary they will be covered by the general regulatory requirements relating to waste.

The applicant confirmed that inspection and maintenance of leachate pipework are the subject of operating procedures as part of the site management system.

6. Other Legal Requirements

In this section we explain how we have addressed other relevant legal requirements, to the extent that we have not addressed them elsewhere in this document.

6.1 EPR 2010 and related Directives

The EPR delivers the requirements of a number of European and national laws.

6.1.1 Schedules 1 and 7 to the EPR 2010 – IED

The requirements of the IED, have been addressed in the **draft** permit. The LFD provides many of the technical requirements for landfill. For energy efficiency, raw materials and wastes produced by the installation – conditions 1.3, 1.4 and 1.5 in the draft permit deliver these requirements.

There is one requirement not addressed above, which is that contained in Article 5(3) IED. Article 5(3) requires that “In the case of a new installation or a substantial change where Article 4 of Directive 85/337/EC (the EIA Directive) applies, any relevant information obtained or conclusion arrived at pursuant to articles 5, 6 and 7 of that Directive shall be examined and used for the purposes of granting the permit.”

- Article 5 of EIA Directive relates to the obligation on developers to supply the information set out in Annex IV of the Directive when making an application for development consent.
- Article 6(1) requires Member States to ensure that the authorities likely to be concerned by a development by reason of their specific environmental responsibilities are consulted on the Environmental Statement and the request for development consent.

- Article 6(2)-6(6) makes provision for public consultation on applications for development consent.
- Article 7 relates to projects with transboundary effects and consequential obligations to consult with affected Member States.

The grant or refusal of development consent is a matter for the relevant local planning authority. The Environment Agency's obligation is therefore to examine and use any relevant information obtained or conclusion arrived at by the local planning authorities pursuant to those EIA Directive articles.

In determining the Application we have considered the following documents: -

- The Environmental Statement submitted with the planning application (which also formed part of the Environmental Permit Application).
- The decision of the Secretary of State to grant planning permission on 19 May 2015 coming into force on 9 June 2015.
- The report and decision notice of the Secretary of State accompanying the grant of planning permission.
- The response of the Environment Agency to the local planning authority in its role as consultee to the planning process.

From consideration of all the documents above, the Environment Agency considers that no additional or different conditions are necessary.

The Environment Agency has also carried out its own consultation on the Environmental Permitting Application which includes the Environmental Statement submitted to the local planning authority. The results of our consultation are described elsewhere in this decision document.

6.1.2 Schedule 9 to the EPR 2010 – Waste Framework Directive

As the Installation involves the disposal of waste, it is carrying out a *waste operation* for the purposes of the EPR 2010, and the requirements of Schedule 9 therefore apply. This means that we must exercise our functions so as to ensure implementation of certain articles of the WFD.

We must exercise our relevant functions for the purposes of ensuring that the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste and that any waste generated is treated in accordance with Article 4 of the Waste Framework Directive.

The conditions of the permit ensure that waste generation from the facility is minimised. Where the production of waste cannot be prevented it will be recovered wherever possible or otherwise disposed of in a manner that minimises its impact on the environment. This is in accordance with Article 4.

We must also exercise our relevant functions for the purposes of implementing Article 13 of the Waste Framework Directive; ensuring that the requirements in the second paragraph of Article 23(1) of the Waste

Framework Directive are met; and ensuring compliance with Articles 18(2)(b), 18(2)(c), and 35(1) of the Waste Framework Directive.

Article 13 relates to the protection of human health and the environment. These objectives are addressed elsewhere in this document.

Article 23(1) requires the permit to specify:

- (a) the types and quantities of waste that may be treated;
- (b) for each type of operation permitted, the technical and any other requirements relevant to the site concerned;
- (c) the safety and precautionary measures to be taken;
- (d) the method to be used for each type of operation;
- (e) such monitoring and control operations as may be necessary;
- (f) such closure and after-care provisions as may be necessary.

These are all covered by permit conditions.

The permit does not allow the mixing of hazardous waste so Article 18(2) is not relevant.

If hazardous wastes can be mixed e.g. in reception hall or wherever we need something to the effect that the provisions of Article 13 are still complied with and the adverse impact of the waste management on human health and the environment is not increased; and the mixing operation conforms to best available techniques

Article 35(1) relates to record keeping and its requirements are delivered through permit conditions.

6.1.3 Schedule 10 to the EPR 2010 – Landfill Directive

All the requirements of the (LfD) will have been addressed during the determination of this application. See section 5.

We address the main issues covered by the LfD such as engineering and stability in the body of this document above. The LfD represents best available techniques (BAT) for landfills. We are satisfied the proposals are compliant with the requirements of the LFD.

6.1.4 Schedule 16 to the EPR 2010 – Asbestos Directive

We have addressed the requirements of this Directive in section 5.2.11 above and the requirements to ensure appropriate handling of asbestos during deposit and monitoring for asbestos fibres are delivered through the Permit conditions.

6.1.5 Schedule 22 to the EPR 2010 – Groundwater, Water Framework and Groundwater Daughter Directives

To the extent that it might lead to a discharge of pollutants to groundwater (a “groundwater activity” under the EPR 2010), the Permit is subject to the requirements of Schedule 22, which delivers the requirements of EU Directives relating to pollution of groundwater. The Permit requires the taking of all necessary measures to prevent the input of any hazardous substances to groundwater, and to limit the input of non-hazardous pollutants into groundwater so as to ensure such pollutants do not cause pollution, and satisfies the requirements of Schedule 22.

We have addressed the effects of the proposals on groundwater in section 5.2.7 above.

6.1.6 Directive 2003/35/EC – The Public Participation Directive

Regulation 59 of the EPR 2010 requires the Environment Agency to prepare and publish a statement of its policies for complying with its public participation duties. We have published our public participation statement.

These Applications were consulted upon in line with this statement. This satisfies the requirements of the Public Participation Directive.

Our decisions in these cases have been reached following consideration of representations from the public. A summary of the representations made and the responses received to our consultations and our consideration of them is set out in Annex I.

6.2 National primary legislation

6.2.1 **Environment Act 1995**

(i) Section 4 (Pursuit of Sustainable Development)

We are required to contribute towards achieving sustainable development, as considered appropriate by Ministers and set out in guidance issued to us. The Secretary of State for Environment, Food and Rural Affairs has issued *The Environment Agency’s Objectives and Contribution to Sustainable Development: Statutory Guidance (December 2002)*. This document:

“provides guidance to the Agency on such matters as the formulation of approaches that the Agency should take to its work, decisions about priorities for the Agency and the allocation of resources. It is not directly applicable to individual regulatory decisions of the Agency”.

In respect of regulation of industrial pollution through the EPR, the Guidance refers in particular to the objective of setting permit conditions “*in a consistent and proportionate fashion based on Best Available Techniques and taking into account all relevant matters...*”. The Environment Agency considers that it has pursued the objectives set out in the Government’s guidance, where relevant, and that there are no additional conditions that should be included in this Permit to take account of the Section 4 duty.

(ii) Section 7 (Pursuit of Conservation Objectives)

We considered whether we should impose any additional or different requirements in terms of our duty to have regard to the various conservation objectives but concluded that we should not.

We have considered the impact of the installation on local wildlife sites within 2Km which are not designated as either European Sites or SSSIs. We are satisfied that no additional conditions are required.

6.2.2 Human Rights Act 1998

We have considered potential interference with rights addressed by the European Convention on Human Rights in reaching our decision and consider that our decision is compatible with our duties under the Human Rights Act 1998. In particular, we have considered the right to life (Article 2), the right to a fair trial (Article 6), the right to respect for private and family life (Article 8) and the right to protection of property (Article 1, First Protocol). We do not believe that Convention rights are engaged in relation to this determination.

6.2.3 Countryside and Rights of Way Act 2000 (CROW 2000)

Section 85 of this Act imposes a duty on Environment Agency to have regard to the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty (AONB). There is no AONB which could be affected by the Installation.

6.2.4 Wildlife and Countryside Act 1981

Under section 28G of the Wildlife and Countryside Act 1981 the Environment Agency has a duty to take reasonable steps to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which a site is of special scientific interest. Under section 28I the Environment Agency has a duty to consult Natural England in relation to any permit that is likely to damage SSSIs. There are no SSSIs within the relevant screening distance.

6.2.5 Natural Environment and Rural Communities Act 2006

Section 40 of this Act requires us to have regard, so far as is consistent with the proper exercise of our functions, to the purpose of conserving biodiversity. We have done so and consider that no different or additional conditions in the Permit are required.

6.3 National secondary legislation

6.3.1 The Conservation of Natural Habitats and Species Regulations 2010

We have assessed the Application in accordance with guidance agreed jointly with Natural England and concluded that there are no relevant Habitats sites within the relevant screening distance.

6.3.2 Water Framework Directive Regulations 2003

Consideration has been given to whether any additional requirements should be imposed in terms of the Environment Agency's duty under regulation 3 to secure the requirements of the Water Framework Directive through (inter alia) EP permits, but it is felt that existing conditions are sufficient in this regard and no other appropriate requirements have been identified.

6.4 Other relevant legal requirements

6.4.1 Duty to Involve

S23 of the Local Democracy, Economic Development and Construction Act 2009 require us where we consider it appropriate to take such steps as we consider appropriate to secure the involvement of interested persons in the exercise of our functions by providing them with information, consulting them or involving them in any other way. S24 requires us to have regard to any Secretary of State guidance as to how we should do that.

The way in which the Environment Agency has consulted with the public and other interested parties is set out in section 2 of this document. The way in which we have taken account of the representations we have received is set out in Annex 1. Our public consultation duties are also set out in the EP Regulations, and our statutory Public Participation Statement, which implement the requirements of the Public Participation Directive.

ANNEX I: Consultation on the Application

The Application has been advertised and consulted upon in accordance with the Environment Agency's Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our decision is summarised in this Annex. Copies of all consultation responses have been placed on the Environment Agency public register.

The Application was advertised in the newspaper, 'The Skelmersdale Gazette' on 5th, 12th and 19th of November 2014.

The Application was advertised on the Environment Agency website from 5 November 2014 to 2 January 2015. Copies of the Application were placed in the Environment Agency Public Register at our office, Lutra House, Dodd Way, Off Seedlee Road, Preston, PR5 8BX and also a copy was made available at Skelmersdale Library, Southway, Skelmersdale, WN8 6NL.

1) Consultation Responses from Statutory and Non-Statutory Bodies

The following statutory and non-statutory bodies were consulted:

- United Utilities;
- Public Health England;
- Health and Safety Executive;
- Food Standards Agency;
- Environmental Protection Section, West Lancashire District Council;
- Director of Public Health.

Responses were received from the following:

Public Health England

Issues raised:	Summary of action taken / how this has been covered
The former Health Protection Agency (HPA) became part of Public Health England (PHE) in April 2013. In 2011, the HPA published a review of the 'Impact on Health of Emissions from Landfill Sites'. This review included landfills for hazardous waste. The review considered research from the Environment Agency, peer reviewed epidemiological studies and statements from the independent expert committee, the Committee on Toxicity of Chemicals in Food, Consumer products and the Environment. The review concluded that	No action required. Any variation notice issued will contain conditions in relation to fugitive emissions which are known as 'emissions of substances not controlled by emission limits' in the

there has been no new evidence to change the previous advice that living close to a well-managed modern landfill site does not pose a significant risk to human health. As noted in the review, detailed site-specific risk assessment should remain an important part of the permitting and management process.

Following a review of the submitted documentation, we recommend that any Environmental Permit issued for this site should contain conditions to ensure that the following potential emissions do not impact upon public health:

- fugitive emissions from the raw wastes during delivery in vehicles,
- fugitive emissions from vehicles driving along the site haul roads,
- fugitive emissions from landfilling operations from hazardous materials being deposited at the site.
- leachate discharge into any surface waters or groundwater.

We understand that the operator proposes a number of mitigation measures including, but not limited to, using a bowser to dampen down haul roads, covering any inherently dusty material as soon as possible following tipping and ensuring that all lorries coming to site remain sheeted until the moment of tipping which should help to mitigate any impact on the above. In addition PHE note that the operator also proposes to undertake monitoring in accordance with their existing permit DP3639LM dated 18th September 2008, which contains permit conditions for particulate matter in ambient air based on the submitted particulates monitoring plan submitted on 12 January 2005.

PHE have received a number of concerns from members of the public in recent months regarding unsubstantiated fugitive releases from the site. Concerns of local residents are understandable given the close proximity of the nearest receptors to the tipping face of phases A and B of the landfill extension.

Concerns were similarly raised by local residents to PHE following our response to the planning consultation to extend Whitemoss Landfill site. PHE has spoken to the Environment Agency on this matter and they have confirmed that the operator of Whitemoss Landfill is compliant with their current permit. This provides reassurance that provided the current duty of care is

permit. This will cover emissions to air and water. See section 5.2.10.3.

The operator has submitted an updated particulate and asbestos management, monitoring and action plan which takes into account the western landfill area and the closer proximity of landfill operations to sensitive receptors. The particulate matter monitoring requirements and limits in the permit have been updated to take into account this updated plan. This updated plan will be incorporated into the draft variation notice in table S1.2 for operating techniques, therefore the Applicant will be required to comply with this updated plan.

A 5m high temporary bund will surround the northern, western and eastern boundaries of the western landfill area and also within the site as well to provide noise, dust and visual screening.

All asbestos wastes will be double bagged or double wrapped as appropriate at the place of production of the waste and will be covered immediately after deposition with

<p>maintained by the operator, that the extension should not cause any wider health concerns.</p> <p>Public Health England understands that a 5m bund is to be constructed for the proposed extension which will reduce the visual impact, and reduce the potential for any unforeseen dusty material to leave the site. We also understand that all asbestos waste brought to site will be wrapped in plastic or enclosed in bags; this waste is then to be immediately covered to prevent any release. From reviewing the submitted information within the variation application, we understand that the applicant is confident that there will not be a significant risk to health from the works proposed.</p> <p>The existing permit requires the applicant to monitor asbestos fibres at four locations around the boundary of the site on a quarterly basis and not to exceed 0.002 fibres/ml measured over a 4 hour period. Given that this is a substantial variation to the existing permit, the close proximity of phases A and B of the landfill extension to receptors in Peel Farm, Nos 64, 66 and 68a White Moss Road South, we would recommend that a thorough review is made of all monitoring plans prior to permit issue. This may include a more frequent monitoring period at sensitive receptors for asbestos fibres in air when the cells nearest to the residential receptors are active, with sensitivity down to 0.001f/ml (WHO Air Quality Guideline 2000). Public Health England would be happy to comment on a monitoring plan and to provide advice on the significance of the results captured by this work.</p> <p>Additionally, dust and particulate monitoring (deposited and in air) as well as landfill gas and leachate monitoring will also take place as described in the permit application documentation. Monitoring data should be reported to the Environment Agency on a regular basis. Should elevated levels of particulates, asbestos, landfill gas or leachate be observed, results should be discussed with PHE regarding potential risks to public health. Mitigation measures should be implemented if identified to be a concern once operational.</p>	<p>cover materials so as not to allow the release of asbestos fibres.</p> <p>The updated particulate and asbestos monitoring plan has been reviewed and we are satisfied with this. The asbestos monitoring requirements in the revised draft permit will be the same. However we can review that based on some real monitoring data and increase monitoring rates (and amend operational practices) if the data shows there is a need to. The monitoring plans have been assessed as part of the determination of this application and have been found to be satisfactory. See sections 5.2.10.3.1 and 5.2.11 in relation to particulate matter and asbestos management and monitoring.</p> <p>If elevated monitoring results for particulates, asbestos, landfill gas and leachate are observed, the action plans and mitigation measures detailed in the application will be implemented and if it is considered appropriate at the time then we may raise any issues with PHE. However monitoring results which are submitted by the operator will be placed on the public register.</p>
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<p>Based on the information contained in the application documentation, and providing that the applicant takes all appropriate measures to prevent or control pollution in accordance with the relevant sector technical guidance or industry best practice, and that a thorough review is made of all monitoring plans prior to permit issue, PHE has no significant concerns regarding the potential risk to health of the local population from this proposed activity.</p> <p>Any additional information obtained by the Environment Agency in relation to these comments should be sent to PHE for consideration. Such information could affect the comments made in this response. We would be grateful to receive a copy of the final permit documentation, which we assume will include the detail of the monitoring requirements during operations.</p>	<p>We have assessed all of the relevant documentation for the extension area and we consider that the Applicant is taking all appropriate measures in accordance with the guidance and industry best practice and has made a thorough review of all monitoring plans - which we are satisfied with.</p> <p>PHE will be consulted on this draft decision this explains in section 2 above what additional information was received from the Applicant.</p>
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2) Consultation Responses from Members of the Public and Community Organisations

The consultation responses received were wide ranging and a number of the issues raised were outside the Environment Agency’s remit in reaching its permitting decisions. Specifically questions were raised which fall within the jurisdiction of the planning system, both on the development of planning policy and the grant of planning permission.

Guidance on the interaction between planning and pollution control is given in the National Planning Policy Framework. It says that the planning and pollution control systems are separate but complementary. We are only able to take into account those issues, which fall within the scope of the Environmental Permitting Regulations.

Comments:

Some of the comments received referred to the DCO planning application and contained issues that are outside the Environment Agency’s remit as described above.

These issues raised are

- location of the site - decisions over land use are primarily matters for the planning system. The location of the installation is a relevant consideration for Environmental Permitting, but only in so far as its potential to have an adverse environmental impact on communities or sensitive environmental receptors. The environmental impact is

assessed as part of the determination process and has been reported upon in the main body of this document;

- proposal undermines government policy in relation to the waste hierarchy;
- negative economic consequences;
- effect on property values;
- there are alternative disposal options for hazardous waste;
- increase in traffic;
- unfair public hearing for DCO;
- inadequate consultation of residents in relation to the DCO;
- encroachment of the current landfill onto council land beyond the southern boundary;
- concerns about compulsory purchase of plots 15 – 17.

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a) Representations from Councillors and Parish Councils

Representations were received from the following:

Latham South Parish Council

Summary of Issues Raised	Response
<p>Given the size of the extension compared to the original area queried whether an entirely new permit should have been sought.</p>	<p>As the installation already has a permit – the operator can apply to vary to extend the permit. The standard of environmental protection would be exactly the same in any case.</p>
<p>There is no evidence to show that a hazardous waste landfill site situated directly above mine workings and an aquifer, food producing crops and housing - can be made safe using the proposed methods. Plastic liners fail over much shorter timescales than that for which the landfill would remain hazardous and the proposed liner does not meet the correct specification. An outer layer of clay could be eroded by being either too wet or too dry at various times during the active lifetime of landfilled hazardous materials.</p>	<p>The engineering solutions in relation to filling in and making the mine shafts safe has been used before. As part of the engineering the former Mossfield colliery shafts will need to be stabilised and sealed to eliminate the potential for their collapse or settlement. The remaining engineering proposals are in accordance with the Landfill Directive.</p> <p>We are not aware of any other hazardous landfill constructed above mine workings, including shafts, but we are aware of other landfill sites, that are constructed above mine workings. However, subject to appropriate technical precautions as required by the permit there is no reason in principle why development of a hazardous landfill should not take place.</p> <p>The basal and side slope lining system comprising a minimum 1m thickness of clay at a maximum permeability of 1e-9 m/s with a 2mm thick high density polyethylene flexible membrane liner together with a 1m thick clay cap at a maximum permeability of 1e-9 m/s laid on an inert subgrade at a gradient of 1V:8H have been demonstrated in the quantitative risk assessments to be adequate for protecting groundwater and controlling emissions of gas in the operational and post-operational stages. The landfill pollution control systems have been adequately designed for both the situations when it will be non-hydraulically contained when the groundwater drainage system will be operating and when it will be hydraulically contained when the groundwater control system can be reduced or turned off. In the long term (several hundred years) the FML will deteriorate but the effect of this will be counterbalanced by hydraulic containment being achieved when the groundwater dewatering system is turned off and leachate is kept below the level of the groundwater. This means that there will be an inward hydraulic gradient, and leachate heads will be controlled by the leachate management system. The basal and side slope lining system will be constructed to the specifications established in the quantitative risk assessments and under strict Construction Quality Assurance procedures, which would have to be agreed with the EA Area team prior to construction commencing.</p> <p>The cap will be constructed to the minimum specification according to the specification established in the quantitative risk assessments and under strict Construction Quality Assurance procedures, which would have to be agreed with the EA Area team prior to construction commencing. Regarding long term cap integrity the cap will have to be maintained by the permit holder as long as the landfill has a permit in place. This means that any</p>

Summary of Issues Raised	Response
	<p>deterioration of the cap by erosion or cracking (e.g. by being too wet or too dry) will have to be rectified by the permit holder until the time when the permit is surrendered. The permit holder will have to apply to the EA to surrender the permit before the permit can be surrendered.</p> <p>The permit will require the operator to maintain the pollution control systems until it demonstrates that the landfill no longer poses a risk to the environment or human health at which time the operator may apply to surrender the permit.</p>
<p>It was suggested that the site is unlikely to reach the 150,000 tonne per year limit for hazardous waste inputs and the company's proposed remedy is to reduce the depth of the excavation in the later stages and use inert material to make up the remaining shortfall. Reducing excavation depths could create engineering problems.</p>	<p>The conditions in the engineering section in the draft permit state that no construction of any new cell of the landfill shall commence until the operator has submitted construction proposals and the Environment Agency is satisfied with the construction proposals and no disposal of waste shall take place in a new cell until the operator has submitted a CQA validation report and we have confirmed that we are satisfied with the CQA validation report. The purpose of these conditions is to ensure that the engineering requirements meet the correct standards to ensure protection of the environment and prevent harm to human health.</p> <p>There is no evidence to support this assertion. If the depth of the excavation is reduced this would improve the stability of side slopes, lining systems and temporary waste slopes, because the reduced height increases the factor of safety against slippage or failure. Changes to engineering proposals and design will require our approval and if the site was never to reach its currently intended size it could still be engineered satisfactorily</p>
<p>It is suggested there is a severe risk of contaminated water escaping from the proposed site into groundwater and surface water. It seems that no plans have been made for extreme weather conditions which may occur during the operational phase and beyond closure of the site.</p> <p>Concerns raised about the uncontrolled release of water abstracted from the groundwater under-drainage as the applicant has not demonstrated that the surface water system has sufficient capacity</p>	<p>There are limits on the amount of groundwater discharged to the surface water management scheme. Settlement ponds are also proposed for the treatment of the groundwater prior to discharge to surface water – therefore adding the ability to retain any excess water and manage the discharge to surface water.</p> <p>All surface water flows greater than green field runoff rates will be attenuated on site within the proposed and existing ditch systems and storage areas. The ditches will be lined to prevent ground infiltration. The ditch system and balancing ponds which make up the surface water management system will be designed to provide sufficient storage to retain water from storm events up to and including the 1 in 100 year plus climate change (additional 30%). Pumped groundwater will also enter this system once it has been treated through a filtering system to remove suspended solids. The groundwater pumping will only be completed during normal weather conditions and will cease during extreme or storm events. The landfill operator will regularly monitor water quality and will temporarily cease discharge if the water quality or volume is seen to be adversely affecting the ditch system.</p> <p>If the surface water or the groundwater is found to be too contaminated to discharge then it will have to be taken offsite for disposal at an appropriately authorised facility.</p> <p>Any surface water or groundwater caught within the active phase of the landfill will be classed as leachate and dealt with by the</p>

Summary of Issues Raised	Response
	leachate management infrastructure in place.

Lancashire Branch of 'Campaign to Protect Rural England' (except for those relating to planning).

Summary of Issues Raised	Response
Concerns raised about whether groundwater will be contaminated or dust from the landfill will be blown onto the surrounding farmland and population.	The proposals to extend the landfill site are in accordance with the requirements of the Landfill Directive. The particulate matter modelling carried out by the operator concludes that emissions of dust and particulates from the site will be below the Maximum Deposition Rates (MDR) for agricultural land and we agree with this. For more information see section 5.2.11. We have assessed the risks to groundwater and the hydrogeological risk assessment (HRA) and we consider that there is no unacceptable risk. For more information, see section 5.2.7.
Concerns raised that no examples exist for precedents for hazardous waste land filling above mineshafts, sealed /capped or otherwise.	<p>However there is experience of other landfill sites being built in areas of mine workings which include mineshafts.</p> <p>Methods and techniques for identifying and stabilising shafts and shallow mineworkings prior to new developments being built are well known and practised, according to codes of practice, viz: Code of Practice for Site Investigations BS5930; Code of practice for strengthened/reinforced soils and other fills BS 8006-1:2010; Environmental code of practice Stabilising mine workings with pfa grout, BRE 488, 2008; CIRIA Special Publication 32 Construction over abandoned mineworkings 1984.</p> <p>The operator will be required to identify and stabilise any shafts and shallow mineworkings as part of the Construction Quality Assurance Plan.</p> <p>Deeper abandoned mineworkings in the area have been identified and assessed in the stability risk assessment and mineworkings assessment to be of no significant risk of causing subsidence, since the movement of strata above the workings will have ceased long ago – this is confirmed by the Coal Authority Report.</p> <p>It is considered that compliance with the strategy for investigating and remediating mine shafts contained in the Stability Risk Assessment (SRA) including Mine Workings Risk Assessment and a Mine Shaft Hazard assessment report by Wardell Armstrong dated February 2014, reproduced in Appendix SRA5 of the application, coupled with the CQA Plan will ensure that the abandoned mineworkings within the site boundary that could pose a risk to the stability and integrity of the lining systems, are identified and stabilised. The SRA is incorporated into the permit in table S1.2 for 'Operating techniques'.</p>
Reference was made to the	This guidance is relevant to the planning authority in relation to

Summary of Issues Raised	Response
<p>Department of Communities and Local Government technical consultation on “The role of planning in preventing major-accident hazards involving hazardous substances”, (20 October 2014) and that the site does not benefit from a recommended 2km standoff distance, as proposed in recent Government consultation on the location of hazardous installations, and with dense populations living at closer distance we remain concerned at the likely impacts</p>	<p>land use decisions.</p> <p>Location is relevant for environmental permitting but only so far as location can affect the impact from the facility on sensitive receptors. As explained in the main body of this document we are satisfied that there will be no significant pollution of the environment or harm to human health from an installation in this location.</p>
<p>Concerns raised over the Waste Management Industry Training Advisory Board certification of technical competence and the CQA processes.</p>	<p>The site has the appropriate WAMITAB certificates for the landfilling of hazardous waste.</p> <p>It will be a condition of any permit issued that no construction of any new cell of the landfill shall commence until the operator has submitted construction proposals and the Environment Agency has confirmed that it is satisfied with the construction proposals. Also no disposal of waste shall take place in a new cell until the operator has submitted a CQA Validation Report and the Environment Agency has confirmed that it is satisfied with the CQA Validation Report.</p>
<p>It is known that two old mineshafts exist within the site along with a disused waste tip. Concerns raised that there has been historic tipping at the site and the nature of the old waste is unknown and that it is possible that further mineshafts exist.</p>	<p>A mine shaft hazard assessment was carried out as part of Appendix SRA5 of the Stability Risk Assessment – for the Area around Whitemoss Landfill.</p> <p>There is a colliery spoil heap in the centre of the western landfill area and a raised area to the north west of the site comprises spoil deposited during works on the M58 motorway. Excavated materials that are not suitable for engineering (i.e. engineering clay) will be used on site as daily cover or restoration material above the cap. Excavated material will be stockpiled on site prior to use or removal from the site. A former railway cutting was filled with inert waste. Boreholes drilled in the north of the western landfill area and in the centre of the eastern edge of the western landfill area are located in the position of the infilled railway cutting and 1.5m and 1m respectively of made ground was proved in the boreholes. Where described in borehole logs the made ground comprises stones, ash and sandstone cobbles.</p> <p>It is considered that compliance with the strategy for investigating and remediating mine shafts contained in the Stability Risk Assessment (SRA) including Mine Workings Risk Assessment and a Mine Shaft Hazard assessment report by Wardell Armstrong dated February 2014, reproduced in Appendix SRA5 of the application, coupled with the CQA Plan will ensure that the abandoned mineworkings within the site boundary that could pose a risk to the stability and integrity of the lining systems are identified and stabilised. The SRA is incorporated into the permit in table S1.2 for ‘Operating techniques’.</p>

Summary of Issues Raised	Response
<p>Concerns raised re Hydrology of the area and stability because of subsidence beyond the site boundary and reference made to documents submitted to the planning inquiry – we require that ARROW documents 5,6,8,10,11,14 and 17 are taken into consideration.</p>	<p>We have reported the claimed subsidence to the Highways Authority and they are currently looking into it to try and identify the cause. There is nothing to suggest site stability would be affected. We have also reviewed the documents referred to. It is considered that compliance with the strategy for investigating and remediating mine shafts contained in the Stability Risk Assessment including Mine Workings Risk Assessment and a Mine Shaft Hazard assessment report by Wardell Armstrong dated February 2014, reproduced in Appendix SRA5 of the application, coupled with the CQA Plan and procedures will ensure that the abandoned mineworkings within the site boundary and posing a risk to the stability and integrity of the lining systems are identified and stabilised.</p> <p>We have assessed the information provided in the application in relation to the site hydrology (SWMP and the HRA) and we are satisfied that the environment will be protected. We have determined the application made to us and we are satisfied we had sufficient information to do so.</p> <p>We consider that the Arrow documents as detailed have been considered.</p>
<p>Impact of Groundwater Removal on Moss land and Farm land.</p> <p>Shrinkage of the ground generally and particularly beneath the adjacent Ethylene Pipeline might destabilise the foundations that support the pipeline.</p> <p>No consideration has been given to impacts of the long term reduction of the water table outside the site during its operation.</p>	<p>Any groundwater pumped out as part of the construction of the western landfill area is discharged back into the surface water management system which eventually is discharged into the River Tawd (via the Rainford Brook) which is what it would naturally have fed.</p> <p>There is a Water Resources Act exemption from licensing for dewatering activities. These issues are outside the scope of the permitting process which focuses on pollution prevention and protection of groundwater and surface water quality from the landfilling itself.</p>
<p>The application is vague on the pumping of water from the hole as it is dug. Ground water will flow into the hole until completion of the final phase of the containment system</p>	<p>The groundwater drainage system will be installed in the base and sides of the void as necessary. Groundwater will drain to a sump in each phase from where groundwater will be pumped to the surface water management system. When the level of waste in the landfill is sufficient to counter the upward pressure exerted by the groundwater – the groundwater controls will cease and groundwater will be allowed to rise to rest levels. Groundwater filling the void during construction of each phase will also be pumped out to the surface water drainage system.</p>
<p>None of the plans show the connecting surface pipe work to the groundwater extraction system which will be in place throughout the greater part of life of the landfill .</p>	<p>The pipe work which forms the groundwater extraction system is not detailed in the SWMP, however the groundwater discharge points to surface water are shown. The detail of the groundwater drainage system will be agreed with the Agency as part of the CQA plan produced post permit issue and prior to engineering. Accordingly, we would not expect to see this level of detail as part of the permit application. See section 5.2.6.2.</p>
<p>Concerns regarding the stability and the increasing load on the existing perimeter</p>	<p>The proposals for the bund wall between the existing landfill and the western landfill area (sideslope formation and lining system) have been assessed with regards to stability by the Environment</p>

Summary of Issues Raised	Response
bund wall by filling the area between the existing and proposed extension area.	Agency and we are satisfied that there is no unacceptable risk of instability.
Concerns raised regarding PHE's approach to risk assessment (Source – Pathway – Receptor)	It is not for us to comment on PHE's approach. We have considered their advice and we are satisfied that there will be no significant impact on human health.
Dust - the likelihood of strong winds in our increasingly more severe weather patterns does not appear to have been fully considered.	In accordance with the updated particulate and asbestos management, monitoring and action plan, the risk management measures include ceasing operations in high winds. See section 5.2.11 for further information.
Concerns raised that the current site is reaching a "critical phase" for dust and that the use of temporary covers should be a requirement, should the Environment Agency choose to issue a permit.	The current site will be regulated in accordance with its existing permit. For the new area waste will be covered progressively throughout the working day to help to prevent emissions of dust. Asbestos waste will be double bagged and also covered immediately. We are satisfied with these proposals. From the risk assessments for the new area we do not think the use of temporary covers (e.g. plastic sheeting or matting) is necessary as a mitigation measure to prevent dust. Such temporary covers are not used for the current site. However the adequacy of the mitigation measures will be kept under review as part of our compliance work and additional measures would be required if necessary which could include temporary covers.
Should the Environment Agency choose to issue a permit, we seek limits on tipping when the wind is blowing, that the efficiency of dust monitoring equipment should be checked regularly and their positions be changed as the phases of the extension are developed. There should be an array of monitors at various heights and their positions be determined by modelling airflow over the mound as it is created.	<p>Waste deposition will cease in high winds. The site will also not accept very dusty wastes.</p> <p>Dust monitoring will take place in accordance with the standards in our Technical Guidance Note M17 – Monitoring particulate matter in ambient air around waste facilities'.</p> <p>Particulates will continue to be monitored around the boundary of the active landfilling cell. As the development of the western landfill area proceeds the current particulate monitoring locations will be replaced with suitable monitoring locations around the active landfilling areas of the site following written approval by the Environment Agency. The monitoring locations will also remain under review based on the meteorological data recorded at the site as landfilling progresses from Phase A to Phases B, C and D.</p> <p>Particulate matter monitoring will also be carried out in accordance with M17 as specified in table S3.7. This guidance provides information on the correct use of equipment.</p> <p>A variety of monitoring equipment will be used for quantitative monitoring of deposited dust in 5 Frisbee gauges at differing locations around the site. Also 2 (C2 and C3) additional continuous suspended particulate matter monitors will be installed at the perimeter of the western landfill area. Existing monitor C1 is currently located to the south of the off-site receptors on Whitemoss Road South which are closest to the site.</p> <p>Regarding asbestos monitoring, samples are collected in accordance with the requirements of table S3.7 of the permit, comprising of pumped samples collected on a membrane filter in</p>

Summary of Issues Raised	Response
<p>Similarly we ask for whole body washing of trucks so that hazardous dust is not carried from the site and contaminate any non-hazardous materials that may subsequently be transported.</p> <p>Hazardous waste rather than be transported in sheeted trucks should be transported in sealed containers or bags. This would reduce risk from exposure to the public when material is transported and in the event a truck is involved in a road traffic accident.</p>	<p>locations upwind and downwind of the area disposing of asbestos and at the boundary downwind of the area disposing of asbestos.</p> <p>For more info see section 5.2.11.</p> <p>Wheel cleaning facilities will be used for vehicles leaving the site. This is a measure that is primarily to prevent mud leaving the site. We do not consider that there will be any significant quantity of hazardous dust on the body of trucks. Condition 3.2 will require the operator to take appropriate measures to prevent trucks leaving the site in a state that could of itself give rise to pollution outside the site. We are currently satisfied with the measures proposed. However the adequacy of the mitigation measures will be kept under review as part of our compliance work and additional measures would be required if necessary which could include whole body washing of vehicles.</p> <p>The permit cannot place conditions on waste carriers using the public highway that is covered by other legislation. However asbestos waste is required to be double –bagged or double – wrapped at the place of production before the waste is delivered to the site</p>
<p>Concerns raised that the failure to provide protection from the rain of the waste materials means that more leachate is produced than would be the case if the waste were protected from rain by temporary covers. Concerns were also raised that that the limits for the composition of the discharge to sewer may be too high and may be reduced at a future date.</p>	<p>The placement of waste at this site meets the requirements of our guidance. Each cell or phase will be restored within 12 months of completion to minimise the production of leachate. Given the need for access to the tipping area for machinery and vehicles for depositing the waste we consider that the operator has taken the practical measures to prevent water entering the waste. There would also be difficulty in using temporary covers to prevent water ingress into the waste as water would then need to be diverted out of the cell away from the waste, otherwise it will automatically be treated as leachate anyway.</p> <p>A risk assessment in accordance with our H1 guidance has been undertaken for the discharge of leachate to sewer, there was found to be no significant risk from this emission and therefore no need to set limits. However the limits included in Table S3.6 have been transferred across from the current permit and a limit has been included on quantity to make sure that the site does not exceed the quantity which formed the basis of the risk assessment. See section 5.2.6.1 for further information.</p> <p>We are currently satisfied with the limits which are included in the draft permit. However we cannot speculate on what may happen in the future, however if the limits are changed then the operator will need to comply with the revised limits.</p>
<p>We have concerns that failure of the public sewer may cause the contaminated water to enter the soil in an agricultural area.</p>	<p>The operator has inspection and maintenance procedures (part of the operating procedures which are part of the site management system) in place for the pipework from the installation boundary up to the point where the pipeline joins the public sewer to prevent failure.</p>

Summary of Issues Raised	Response
	<p>Failure of the public sewer would be a matter for United Utilities – sewerage disposal undertakers, although if a failure occurred there is likely to be dilution of any contamination within the sewer.</p>
<p>We have concerns that the applicant's intention to cover the hazardous waste with daily cover will result in both a reduction of capacity for hazardous waste and the contamination of the "daily cover material".</p>	<p>Waste should be covered as soon as practicable. Any cover material will be inert waste and so is suitable for disposal at a landfill site for hazardous waste – the applicant will have taken into account the amount of inert waste for cover necessary when calculating the amount of hazardous waste capacity at the site. If the cover material becomes contaminated with hazardous waste this would not be an issue as the cover material would not be removed from the landfill and there will be measures in place to prevent emissions of dust and particulates and the cover itself is part of these.</p>
<p>Concerns about the longevity of the containment system and referred to in ARROW 12. The Arrow 12 document relates to the reduction in the basal lining and capping engineering properties from the requirements detailed in the Landfill Directive.</p>	<p>Paragraph 3.4 of Annex 1 of the LFD provides for the reduction of the requirements in paragraphs 3.2, on the basis of an assessment of environmental risks where it has been established that the landfill poses no potential hazard to soil, groundwater or surface water. 'No potential hazard' means that the environmental risk assessment has to demonstrate that the reduction in requirement will result in an acceptable risk to soil and water. The application includes a quantitative hydrogeological risk assessment to justify the landfill design.</p> <p>The basal and side slope lining system comprising a minimum 1m thickness of clay at a maximum permeability of 1e-9 m/s with a 2mm thick high density polyethylene flexible membrane liner together with a 1m thick clay cap at a maximum permeability of 1e-9 m/s laid on an inert subgrade at a gradient of 1V:8H have been demonstrated in the quantitative risk assessments to be adequate for protecting groundwater and controlling emissions of gas in the operational and post-operational stages. The landfill pollution control systems have been adequately designed for both the situations when it will be non-hydraulically contained when the groundwater drainage system will be operating and when it will be hydraulically contained when the groundwater control system can be reduced or turned off. In the long term (several hundred years) the flexible membrane liner will deteriorate but the effect of this will be counterbalanced by hydraulic containment being achieved when the groundwater dewatering system is turned off and leachate is kept below the level of the groundwater. This means that there will be an inward hydraulic gradient, and leachate heads controlled by the leachate management system.</p> <p>We are satisfied with the longevity of the containment system. The permit will require the operator to maintain the pollution control systems until it demonstrates that the landfill no longer poses a risk to the environment or human health at which time the operator may apply to surrender the permit.</p>
<p>Concerns were raised about the proposals for the monitoring of leachate, groundwater and surface water in the HRA. The proposed response time for the applicant to</p>	<p>The requirements for leachate, groundwater and surface water quality monitoring are standard across the landfill sector for landfills for hazardous waste such as Whitemoss Landfill, based on a study of landfill monitoring results. There is nothing particular to Whitemoss that justifies a different approach.</p>

Summary of Issues Raised	Response
<p>report exceeding compliance limits should be 24 hours (not 1 month) and for implementing corrective action if risks are unacceptable 1 week (not 12 months).</p> <p>The HRA confirms to us that the risks of harm to the environment are recognised by the applicant. The existence of such risks ought not to be acceptable to the Environment Agency.</p>	<p>The HRA has been updated twice as part of the determination of this application – the most recent updates are in the HRA second addendum.</p> <p>The substances which have groundwater compliance limits in Table S3.4 of the permit are those which may be a risk to the environment based on the leachate source term which we already have information on due to the operation of the current landfill site (cells 1 – 3). The parameters with compliance limits are monitored quarterly and already contain benzene and some other hazardous substances. The limits in Tables S3.3 and S3.4 will be reviewed based on actual monitoring data as per the improvement conditions and pre-operational conditions in tables S1.3 and S1.4 of the draft permit. For further information see sections 5.2.7 and 5.2.8.</p> <p>In Schedule 5 of any permit to be issued, the operator must report the breach of a limit within 24 hours. We are satisfied with the remainder of the contingency action plan. Before corrective action is required to be undertaken, there usually needs to be an investigation into the reason for the breach and an assessment of the risks. If we consider it justified we can take enforcement action to require corrective action to be taken sooner.</p> <p>We have assessed the HRA and we are satisfied that there is no significant risk to the environment or harm to human health.</p>
<p>There is concern regarding the fact that hazardous substances deposited in the landfill may later be found to be more of a health risk than first thought, and that acceptable threshold levels may change</p>	<p>The Environment Agency follows the most up to date guidance. Landfill permits are reviewed periodically to take into account of changes in guidance and legislation.</p>
<p>The information provided by Whitemoss Ltd does not demonstrate that proposed control measures are sufficient to make the risks and potential impacts acceptable.</p>	<p>We are satisfied with the applicant's proposals and that the conditions in any permit including pre-operational and improvement conditions will protect the environment and human health.</p>

Dalton Parish Council

Summary of Issues Raised	Response
<p>The site is too close to people's homes. Material of this nature, if it must be landfilled, ought to be deposited in sites away from towns and villages.</p>	<p>Location is relevant for environmental permitting but only so far as location can affect the impact from the facility on sensitive receptors. As explained in the main body of this document we are satisfied that there will be no significant pollution of the</p>

Summary of Issues Raised	Response
	environment or harm to human health from an installation in this location

Rosie Cooper MP

Summary of Issues Raised	Response
<p>The systems are not fit for purpose creating significant risk and there does not appear to be robust enough monitoring in place.</p> <p>Concern that the containment system may be breached effecting the ability of the sites systems to detect adverse impacts; Groundwater drainage effluent may exceed discharge limits; The current proposals provide insufficient environmental protection with respect to landfill gas;</p> <p>Current monitoring proposals are not sufficiently protective of controlled water;</p> <p>Lack of assessment of the long term performance of the landfill assumptions regarding FP.</p>	<p>We are satisfied that the application meets the requirements of the Landfill Directive. We are also satisfied with the management and monitoring proposals and the operating techniques (unless these have been updated by the draft permit), therefore we are satisfied that there will not be any significant risk to the environment or harm to human health.</p> <p>The operator will need to comply with the limits in any permit The permit will require the installation and monitoring of in-waste gas boreholes. The applicant has proposed methane and carbon dioxide Action Limits to be applied to the in-waste boreholes. Should the Action Limits be exceeded the Action Plan sets out the contingency actions to be taken, ultimately leading to corrective measures and/or additional monitoring</p> <p>We are satisfied the monitoring proposals are adequate and comply with LFD requirements and our guidance.</p> <p>We have included a pre-operational condition in the draft permit regarding the financial provision (FP). We are satisfied that adequate financial provision (FP) will be provided if we use this pre-operational condition.</p>

Facebook Group 'Say No To More Hazardous Waste in Skelmersdale',

Summary of issues raised	Response
We need strong reassurances that the risk assessments regarding this application are thorough and convincing	We are satisfied with the risk assessments submitted as part of the determination of this application.
The evidence presented at the hearings of the Planning Inspectorate have if anything increased our fears with the operator providing vague and inaccurate responses to our requests.	The operator is currently a band B performer in accordance with our Opra for EPR: Operational risk appraisal system. This means they are operating in accordance with their existing permit and we consider they will continue to do so. Any variation issued will protect both the environment and human health.
Concerns about the perception of harm from the site.	Whilst possibly relevant in the planning context in the context of Environmental Permitting ,we are concerned with the actual and not perceived impacts of emissions. In so far as emissions from the landfill are concerned, the Environment Agency is satisfied that human health and the environment is protected.
The history of Whitemoss landfill indicates that prosecution and enforcement notices have been issued in the past as a result of infringements of their permit. This does not incline us to trust their claims about the impacts of the proposals or that they will undertake closure and restoration of the land.	We take relevant convictions of an Applicant into account and any previous history of operating permitted sites. In this instance and in accordance with the legislation and our guidance, any relevant convictions held by this applicant are considered to be spent, having passed the appropriate timescale, and therefore are no longer 'relevant' for the purposes of this permit application. The operator is currently a band B performer in accordance with our Opra for EPR: Operational risk appraisal system. This means they are operating in accordance with their existing permit and we consider they will continue to do so. Any variation issued will protect both the environment and human health. The operator would have to employ staff who are trained and experienced in the management and disposal of hazardous waste by landfill to operate this site in accordance with the requirements of the permit. We are satisfied with the quality of information submitted to us as part of the application and we are satisfied that the operator will comply with any varied permit. This in turn will protect the environment and human health.
The consultation process for the planning was inadequate	This is not relevant to our determination.

b) Representations from Individual Members of the Public and local businesses

A total of x responses were received from 54 members of the public. Please note that we are not repeating points previously raised. The following issues were raised:

Summary of Issues Raised	Response
Health	

Summary of Issues Raised	Response
Concerns about health risks including children with asthma.	<p>In so far as emissions from the landfill are concerned, the Environment Agency is satisfied that human health and the environment is protected.</p> <p>For further information see section 5.2.11.</p>
Concerns about the cumulative effects on human health (from increased traffic, air pollution, dust, odour, polluting water and noise).	<p>The risk assessments for particulate matter and emissions to sewer and surface water and the HRA take into account the background conditions. There is not considered to be a significant impact from any emissions. We do not consider emissions from traffic off site as this is outside our remit.</p> <p>A nuisance risk assessment in relation to noise was also submitted as part of the application and we are satisfied that noise will not be an issue.</p> <p>A quantitative noise assessment was produced as part of the DCO application and this concluded that there would be no significant impacts associated with the operation of the western landfill area – this assessment will have also taken account of background conditions.</p>
Concern about the deposition of pollutants on farm land used for growing human food and the possible contamination of locally produced honey.	<p>The applicant carried out an impact assessment of air emissions for human health and deposition to soil. The deposition to soil part of the report concludes that any deposition to soil will:</p> <ul style="list-style-type: none"> • Be below the available maximum deposition rate (MDR) on agricultural land; • Be below the appropriate Environmental Quality Standards (EQS) where an MDR is not available; • Not result in an exceedence of any relevant EQS. <p>We do not consider that the facility will contribute to exceedences of air quality EQS at human health receptors or to the Maximum Deposition Rates (MDR) for agricultural land.</p> <p>We do not consider there will be any impact on locally produced food..</p>
Local farmers irrigate crops using water abstractions within 3km of the western landfill. The risk of crop contamination is too great for this application to be allowed.	<p>The conditions in the draft permit will protect the groundwater quality, therefore it is not considered that there will be an impact on these groundwater abstractions.</p> <p>The quantitative HRA has shown that the technical precautions in place will ensure that there will be no entry of hazardous substances into groundwater and no pollution by non-hazardous pollutants in groundwater.</p>

Summary of Issues Raised	Response
<p>Concern about health impacts associated with exposure to PM10's and fine particulates (PM 2.5) – associated with emissions from landfills, according to HPA report 'Impact on Health of Emissions from Landfill Sites' Health Protection Agency –July 2011</p>	<p>Regarding PM10 and PM2.5 emissions - when taking background concentrations into account, the applicants calculated Predicted Environmental Concentration (PEC) for long-term or short-term PM10 would not result in an exceedance of the EQS'.</p> <p>The applicant predicts that PCs would screen out as insignificant with respect to the PM2.5 annual mean EQS.</p> <p>We carried out our own check modelling and as a result of our checks, we are satisfied that the operators assessment of air quality impacts to human health are reasonably representative. We do not agree with the absolute numerical values given in their reports, but can agree that any differences are not likely to affect the likelihood of pollution.</p>
<p>Concerns were raised about the validity and relevance of the report titled "Impact on health of emissions from landfill sites" published in July 2011 as it did not relate to modern hazardous waste landfill sites and has not been the subject of a peer review.</p>	<p>We consult Public Health England (PHE) formerly the HPA as part of the determination of this application (see response above) who are the experts on human health and they refer to the 2011 guidance document which is still relevant. The impact from modern well run sites should be even less than for older sites.</p> <p>There is no evidence to say that the report was not peer reviewed we would expect this to have happened as a normal part of its production.</p>
<p>Incidences of diseases in Skelmersdale far exceeds the national average risk, whereas to the south of the site the figures are below average. These include lung, skin, bladder and liver cancer, mesothelioma, heart disease, CPD and kidney disease</p>	<p>The predominant wind direction in this area is from WNW to ESE which is blowing away from Skelmersdale. We cannot verify this claim none of the statutory consultees raised concerns.</p>
<p>No dust, noise and health risk assessments have been submitted to the EA for all the relevant receptors.</p> <p>Impacts on health are not described in terms of their significance, nor have descriptors or impacts in terms of magnitude, extent and duration been included. This is good practice which the applicant has not followed.</p>	<p>A fugitive emissions risk assessment and management plan which incorporates particulate matter has been submitted as part of the application. Also a noise risk assessment and management plan was also submitted as part of the Application in table A2 of the Nuisance Risk Assessment. We are satisfied that the risk assessments are in accordance with our guidance.</p> <p>A health risk assessment is not required as part of a landfill permit application. As long as we are satisfied that the operator will minimise emissions beyond the site boundary, there is no reason to consider there will be an impact on human health. Furthermore we are satisfied with the particulate matter modelling risk assessment and accept that the site will not have an impact on human health.</p>

Summary of Issues Raised	Response
<p>A review of the risks to public health from Whitemoss Landfill by Public Interest Consultants on behalf of ARROW (Action to Reduce and Recycle Our Waste) – 2 Jan 2015 was submitted this raised concerns that the applicant’s claims about no impact on health are not well founded and are not supported by either a robust analysis or by the academic literature. The Health Protection Agency (HPA; now Public Health England, PHE) concluded in its 2011 review of the literature that “Detailed site-specific risk assessment should remain an important part of the permitting and management process”. The Environmental Permit applicant has failed to define an “acceptable” level of risk and impact and has also failed to provide evidence that no unacceptable impact will occur. Also concerns that there is an increasing body of evidence indicating that contaminants in hazardous waste landfill sites cannot be adequately controlled to protect human health.</p> <p>They also referred to Article 13 of the Waste Framework Directive which requires that: “Member States shall take the necessary measures to ensure that waste management is carried out without endangering human health, without harming the environment...”</p>	<p>The Arrow report contains a lot of detail about the location of the landfill, particularly given a high concentration of other sites in the area. That is not our decision. If the planning authority has agreed that this is the right location for the site (by granting PP), we must consider whether the site can operate satisfactorily in this location. If we are not satisfied that the site cannot operate without causing significant pollution of the environment or harm to human health we should refuse the application.</p> <p>We have assessed the information and risk assessments submitted as part of the application and we are satisfied that there will be no significant impact on human health.</p> <p>We consult Public Health England (PHE) formerly the HPA as part of the determination of this application (see response above) who are the experts on human health and they refer to the 2011 guidance document which is still relevant. PHE will keep up to date with the latest literature. They are also being consulted on this draft decision and the Arrow review has specifically been drawn to their attention. The impact from modern well run sites should be even less than for older sites.</p> <p>We are satisfied that the proposals in the application are based on detailed site specific risk assessment. The risks assessments submitted with the application include the HRA, SRA, LFGRA, NRA, Particulate matter RA, H1 risk assessment for discharges to sewer and surface water.</p> <p>We have addressed Article 13 in section 5 above. We would not normally assess potential health impacts to the level of detail advocated by the report and we do not consider it necessary to do so for this application either as we are satisfied with the proposals to minimise emissions and that the landfilling of hazardous waste is considered environmentally accepted practice at the European level.</p>

Summary of Issues Raised	Response
<p>The residents of Skelmersdale have had to endure the cumulative impacts of many landfill sites, together with the operation of the Whitemoss site for much longer than was originally promised.</p> <p>The application must take account of the precautionary principle as detailed in the Waste Framework Directive.</p>	<p>In relation to the location of the landfill - decisions over land use are matters for the planning system. The location of the installation is a relevant consideration for Environmental Permitting, but only in so far as its potential to have an adverse environmental impact on communities or sensitive environmental receptors. The environmental impact is assessed as part of the determination process and we consider that there is no significant impact on human health or the environment. See the main body of this document.</p> <p>Precautionary Principle: The United Kingdom Interdepartmental Liaison Group on Risk Assessment (UK-ILGRA) state in their paper "The Precautionary Principle: Policy and Application" that the precautionary principle should be invoked when there is good reason to believe that harmful effects may occur and the level of scientific uncertainty about the consequences or likelihood of the risk is such that the best available scientific advice cannot assess the risk with sufficient confidence to inform decision making. We are satisfied that all relevant risks can and have been assessed.</p>
<p>Stress and anxiety caused by the perception of potential health risks</p> <p>The health anxiety is a potential breach of interested parties' rights under Article 8 of the Human Rights Act 1998 to respect for family life, home and privacy.</p>	<p>Whilst possibly relevant in the planning context in the context of Environmental Permitting we are concerned with the actual and not perceived impacts of emissions.</p> <p>In so far as emissions from the landfill are concerned, the Environment Agency is satisfied that human health and the environment is protected.</p> <p>See section 5.2.11 of this document.</p>
<p>Nuisance and Health Risk Assessment and detrimental impact on amenity</p> <p>Concerns about releases of dust, odour and potential leachate escape.</p> <p>Concerns were raised about the risk of unacceptable odour making reference to past odour problems. It was also suggested that not all incidents would be reported. The concerns related to residential areas, a nursing home and sports pitches.</p>	<p>We are satisfied that there is no significant risk to the environment or human health (see section 5.2.10).</p> <p>The surface water and groundwater monitoring systems will monitor the potential for any leachate migration.</p> <p>We are satisfied with the proposals for preventing releases of dust, odour and leachate.</p> <p>Odour complaints were received between 2004 and 2006 when domestic waste was deposited at the site. The EA have not received any substantiated complaints relating to odour from the existing landfill site since 27 November 2006. Additional sources of odour, such as land spreading of sewage sludge in the vicinity of the landfill site, may contribute to the concerns</p>

Summary of Issues Raised	Response
<p>Concerns about odour impacts.</p> <p>We are not aware of any evidence that supports the applicant's assertions that hazardous waste does not produce significant odorous emissions. We are also not aware of any other potential sources of odour within the vicinity of the site.</p> <p>Concerns were also raised about the impact of dust on local residents.</p>	<p>identified by the local community and incorrectly linked to the landfill site.</p> <p>The operator has measures which they will put in place to mitigate against odour which we are satisfied with including for those receptors identified. Furthermore conditions in any permit issued will require that - if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour – the operator must submit an odour management plan to the Environment Agency for approval which identifies and minimises the risks of pollution from odour</p> <p>Odour is only a key issue for landfills for biodegradable waste. Odour is typically associated with trace components in landfill gas, the handling and unsuitable emplacement of odorous wastes and inadequate covering of biodegradable wastes. Therefore this will not be relevant for Whitemoss landfill as it will not accept biodegradable waste and the site will not produce significant quantities of landfill gas.</p> <p>Other potential sources of odour in the vicinity may be landspreading of sewage sludge.</p> <p>The operator has measures which they will put in place to mitigate against dust – which we are satisfied with. Limits will also be included in the permit in relation to dust. See section 5.2.11.</p>

Summary of Issues Raised	Response
<p>Also dust may affect schools and nurseries depending on the wind direction. Also it is claimed that winds from the S and SW have blown hazardous particles across the surrounding area and beyond – spreading into 80% of Skelmersdale.</p> <p>We do not know when the dust monitoring is carried out. Concern about the reliability of the results and that the monitoring could take place at convenient times for the operator. Records show only PM10 results – why not PM2.5.</p> <p>Accidental release of fuel or oil into water courses.</p> <p>Concern that large areas of arable farmland surrounding the site which is used by dog walkers and farmers should be considered at risk from noise and vibration. .</p> <p>Concerns raised regarding the Nuisance and Health Risk Assessments and the methodology used.</p>	<p>There are no schools or nurseries within 500m of the site. There looks to be a school or college >750m to the NE of the site. Wind direction is to the NE <10% of the time – therefore due to this and the distance from the site it is not considered there will be any impact</p> <p>There have been no dust complaints within a 2km radius of the site over the last 2 years.</p> <p>Monitoring for particulate matter PM10 is carried out at the site continuously. For other monitoring frequencies see table S3.7 of the draft permit.</p> <p>Waste management operations that involve mechanical generation of particulate matter rather than combustion, such as Whitemoss landfill are likely to release predominantly coarse particles – i.e. PM10. Therefore continuous monitoring is only required for PM10, however the operator states that the continuous monitors will be set up to monitor PM2.5 and the results will be compared to the Ambient Air Directive statutory limit which is an annual mean of 25µg/m³ for PM2.5.</p> <p>Satisfactory measures will be in place to prevent the accidental release of fuel or oil and to take action in the unlikely event of an incident</p> <p>The public footpaths or bridleways are already considered for the dog walkers and are assessed as being low risk. The risk for farmers and dog walkers on arable farmland is considered to be low risk due to their transient use – i.e. they wouldn't be used by these people all of the time.</p> <p>We are satisfied with the Nuisance and Health Risk Assessments and that all the relevant receptors have been considered and that appropriate methodologies have been used.</p>
<p>Concerns that the wheel cleaning facilities on site are inadequate and that excess groundwater is being used for wheel washing purposes which is inadequate for the existing site and the new site.</p>	<p>We are satisfied that there will be appropriate measures in place. As well as the wheel wash, there will be other risk management measures in place to prevent mud on the road, this includes monitoring the wheel wash so that it is used effectively, using a standby jet plant if the wheel wash is not operational and cleaning the haul roads and access roads with a road sweeper as necessary.</p> <p>Groundwater has occasionally been used to top up the wheelwash when it is running low (once a year or less) – we are satisfied with this practice.</p>

Summary of Issues Raised	Response
<p>Engineering</p> <p>Concerns raised that no assessment has been provided of the structural condition or hydraulic conductivity of the two mine shafts. The applicant has not conducted any controlled tests to ascertain how much dewatering would be necessary to secure the proposed mineral extraction and what the effects of this dewatering would be. Also the risks associated with groundwater inflow from the mineshafts are not considered to have been adequately addressed.</p> <p>It is proposed to commence the landfill extension prior to treating the mine shafts at the site.</p> <p>We are concerned that the pumping of ground water, possibly for the greater part of 20 years or longer, from this very large phased excavation will reduce the water table of the surrounding land with adverse consequences and permanent damage to the sensitive moss land habitat.</p> <p>The treatment and management of groundwater may be inadequate, creating potential for flooding and pollution, and it is not certain that hydraulic containment can be achieved.</p> <p>Concerns were raised that the existing landfill is responsible for 'spikes' in groundwater data showing benzene, cadmium and mercury above the limit of detection and lead and nickel above the drinking water standards</p>	<p>We are satisfied they will be able to effectively dewater to ensure integrity of engineering and minimise ingress of groundwater. The impact of dewatering was part of DCO. Dewatering relates to the ongoing removal of groundwater seepages that derive from the strata encountered by the excavation and the potential large scale dewatering of the mine shafts and connected mine voids. However, the method of filling and sealing of the shafts to a level below the base of the intended mineral excavation void, prior to excavation of the void itself, will ensure that large-scale dewatering of mine workings is not necessary. We are satisfied they will be able to effectively dewater to ensure integrity of engineering and minimise ingress of groundwater.</p> <p>Landfilling will commence in Phase A and then proceed to phases B, C and D. The mine shafts will be filled and sealed prior to excavation of the void itself as detailed above.</p> <p>Regarding the risk to the watertable and the disused mine workings – the landfill will be engineered in accordance with the Landfill Directive to protect the surrounding soil and groundwater. The 2 disused mineshafts which have been identified will be sealed as part of the engineering works. If the operator comes across anymore disused mine workings the engineering requirements will need to be agreed in accordance with the engineering conditions in the permit (section 2.6) which will also need to be validated by CQA.</p> <p>See section 5.2.12 in relation to the sensitive moss habitat which is no longer considered to exist.</p> <p>We are satisfied with the proposals for groundwater management and do not consider that there is a significant risk to the environment Hydraulic containment is an accepted technique and we are satisfied it can be achieved. We are also satisfied that the groundwater management system will not lead to flooding. There are storage and settlement lagoons and measures to prevent too much of the pumped groundwater being emitted to the surface water management system.</p> <p>These parameters were recorded above their respective detection limits on a limited number of occasions. There have been no breaches of emission limits to groundwater as part of compliance with the permit for the existing site. Therefore as far as we are aware there has been</p>

Summary of Issues Raised	Response
<p>No real research has been carried out to identify the risks posed of the mine shafts already being flooded with contaminated water.</p>	<p>no impact on groundwater quality from the existing site. So the measurements may just reflect background quality.</p> <p>The detail of the treatment of the mine shafts and the issue of impact of groundwater dewatering has been considered as part of the DCO and has involved input by the Environment Agency.</p> <p>Any contaminated water pumped as part of the dewatering scheme will have to meet the requirements of the permit before it can be discharged. If this cannot be done the operator will need to find an alternative method of disposal.</p>
<p>The applicant cannot guarantee the proper restoration of the land within a definitive time period.</p>	<p>The landfill will be fully restored within 1 year after completion.</p>
<p>Concern about the cap degrading over time (which will in turn lead to more leachate production and the possibility of the basal liner failing)</p> <p>Concerns were raised about the effectiveness of the clay liners.</p> <p>Concerns about the escape of leachate which contains a range of hazardous and non-hazardous substances. The combination of waste materials, the leachate produced and movement of materials in the tip will accelerate the degradation of the linings and eventually the</p>	<p>The quantitative modelling included in the Hydrogeological Risk Assessment is based on a combination of site specific input parameters and conservative theoretical parameters and incorporates the impact of theoretical degradation of the various lining and capping components. The outputs of the risk assessment models demonstrate that the proposed landfill extension will not have an unacceptable impact on the receiving groundwater in terms of discharge of hazardous substances and non-hazardous pollutants. Throughout the life of the landfill routine environmental monitoring will be required as part of the permit which is designed to demonstrate that assumptions made in the risk assessments are valid and that the landfill has no unacceptable impact on groundwater quality. The permit will require the quantitative hydrogeological risk assessment to be reviewed every 6 years so that any necessary changes in site management can be made to ensure that the landfill remains compliant with the 'prevent and limit' objective of the Groundwater Daughter Directive i.e. there is no discharge of hazardous substances to groundwater and no pollution by non-hazardous pollutants. The permit will remain in place until the landfill operator can demonstrate that the site no longer poses a risk to groundwater, at which point the permit holder may apply to surrender his permit.</p> <p>The leachate will contain a range of hazardous and non-hazardous substances. We are ensuring that the activity does not lead to entry of hazardous substances to groundwater and does not cause pollution by non-hazardous substances; we judge pollution by comparison with Drinking</p>

Summary of Issues Raised	Response
<p>leachate will escape.</p> <p>Concerns about control measures proposed and the long-term nature of the need for leachate pumping</p> <p>Concerns that all landfill sites leak</p>	<p>Water Standards (DWS).</p> <p>We are satisfied with the proposals for the long term pumping of leachate which will be treated in the leachate treatment plant.</p> <p>The basal and side slope lining system comprising a minimum 1m thickness of clay at a maximum permeability of 1e-9 m/s with a 2mm thick high density polyethylene flexible membrane liner together with a 1m thick clay cap at a maximum permeability of 1e-9 m/s laid on an inert subgrade at a gradient of 1V:8H have been demonstrated in the quantitative risk assessments to be adequate for protecting groundwater and controlling emissions of gas in the operational and post-operational stages. The landfill pollution control systems have been adequately designed for both the situations when it will be non-hydraulically contained when the groundwater drainage system will be operating and when it will be hydraulically contained when the groundwater control system can be reduced or turned off. In the long term (several hundred years) the flexible membrane liner (FML) will deteriorate but the effect of this will be counterbalanced by hydraulic containment being achieved when the groundwater dewatering system is turned off and leachate is kept below the level of the groundwater. This means that there will be an inward hydraulic gradient, and leachate heads controlled by the leachate management system.</p> <p>The lining system design therefore is in accordance with the Landfill Directive.</p> <p>The permit will require the operator to maintain the pollution control systems until it demonstrates that the landfill no longer poses a risk to the environment or communities at which time the operator may apply to surrender the permit.</p>
<p>Concerns raised about the availability of sufficient hazardous waste and whether they would need to import inert waste either as fill or for engineering</p> <p>Proposed engineering concerns about the land-raising elements of the submitted plans and the belief that this carries more risk than void-filling in relation to stability.</p>	<p>The operator does not have to fill the landfill up to the annual limit every year. There is a limit on the amount of inert waste which can be deposited at the site every year for cover.</p> <p>The material to be used for engineering is a matter to be agreed as part of the construction proposals in section 2.4 of the draft permit.</p> <p>If the operator wants to increase the amount of waste they can accept for cover or they want to change the waste types that are accepted at the site – then they will have to apply to vary the permit.</p> <p>We are satisfied with the information submitted</p>

Summary of Issues Raised	Response
<p>The current proposals rely on waste having a minimum density, in order to control basal heave, and also rely on the waste being of a nature that will not generate landfill gas. Waste acceptance protocols are critical to environmental performance and safety of the site, and cannot be evaluated on the basis of the info provided.</p> <p>Concerns that at lower waste densities and higher groundwater elevations there could be a significant risk of basal heave and rupture of the landfill liner.</p>	<p>that there will be no stability risks.</p> <p>The operator does not need to supply the waste acceptance protocols. As part of the application the operator confirms that the site will be operated in accordance with 'Waste acceptance at landfills – Guidance on waste acceptance procedures and criteria' (V1 Nov 2010), and 'Waste sampling and testing for disposal to landfill '(March 2013). We are satisfied with the wastes which are proposed to be accepted in the western landfill area. These are the same as accepted at the current landfill. The Operator will have to satisfy the Environment Agency that they can allow groundwater to rebound once they have sufficient waste in place. The information presented to support this will need to include waste tonnages, thicknesses, and their average density.</p> <p>The groundwater management system will be operated until such time the Operator can demonstrate that the pumping system can be turned off. When it is operating coupled with groundwater monitoring this will provide an effective control on groundwater levels and ensure the lining system is not subjected to unexpected groundwater pressures and uplift.</p> <p>The concerns about the rupture of the lining system appear to be around the groundwater under drainage system to be constructed which they consider would not be adequate to control heads at times of high rainfall, and coincident with pump failure and insufficient waste mass in the cell. Environment Agency consider that there would be adequate controls in place to prevent basal heave because the conceptual design presented in the permit variation application is based on the existing system in place which has been adequate in controlling basal heave. Further the conceptual design will have to be designed in detail as part of the Construction Quality Assurance Plan which will be presented to the Environment Agency for prior approval. Also the Operator will have to get agreement of the Environment Agency before being able to stop dewatering.</p> <p>At that future time, the Operator will have to demonstrate by a detailed quantitative assessment that dewatering is no longer necessary, which will have to include the quantities and physical properties of the wastes deposited in the cells. The Operator's Operational Management Procedures must ensure that there are contingencies in place to have replacement pumps readily available in the event of pump failure.</p>

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<p>Concerns that the 1m thick liner is inconsistent with the requirements of the LFD which, in Annex 1 paragraph 3.2, states that a landfill for hazardous waste should have a mineral layer 5m thick with a hydraulic conductivity of 1.0 x 10⁻⁹ m/s.</p>	<p>Paragraph 3.4 of Annex 1 of the LFD provides for the reduction of the requirements in paragraphs 3.2, on the basis of an assessment of environmental risks where it has been established that the landfill poses no potential hazard to soil, groundwater or surface water. 'No potential hazard' means that the environmental risk assessment has to demonstrate that the reduction in requirement will result in an acceptable risk to soil and water. The application includes a quantitative hydrogeological risk assessment to justify the landfill design which we are satisfied with.</p>
<p>Contamination of River Tawd and Rainford Brook -Contamination of River Tawd and the effects on wildlife and fauna; -The landfill poses a long-term risk to ground water in Skelmersdale and water courses crossing West Lancashire via the River Tawd to the River Douglas and then to sea</p> <p>Concern raised about Inadequate run-off provision</p>	<p>It is not considered that there will be any significant impact on any watercourses. Limits have been included in the permit in table S3.3 which also includes limits on the amount of groundwater discharged to the surface water management scheme which discharges to the River Tawd. The limits in the permit will protect the River Tawd from contamination.</p> <p>Clean uncontaminated surface water will also be discharged via the surface water drainage system which will eventually flow to the River Tawd.</p> <p>As explained in the main body of this document we are satisfied that the landfill will pose no unacceptable risk to groundwater.</p> <p>The SWMP which deals with runoff is considered to be satisfactory and contains sufficient capacity for a 1 in 100 year storm event plus 30% for climate change.</p>
<p>Concern that validation reports were mentioned but not provided and that these revealed issues with how the site was operated.</p> <p>Claims that cell 3 dug deeper than it was designed for.</p>	<p>These comments relates to CQA validation reports for the existing landfill, therefore these are not required to be submitted as part of this application. The operator is considered to be technically competent to operate the landfill and is currently a band B performer in accordance with our Opra for EPR: Operational risk appraisal system – see our responses above to the facebook group. Therefore we are satisfied that the site will be operated in the appropriate manner.</p> <p>As above.</p>
<p>It was stated that there were problems with drainage and pumping activities on the existing site and also beyond the applicant's boundary on public land. Also concerns in relation to discharges of groundwater to surface water at</p>	<p>We are not aware of any problems with drainage or pumping activities on the existing site or beyond the applicant's boundary. The operator has not been discharging pumped groundwater at the site since August 2009. We are not aware of</p>

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<p>Brookdale Farm.</p> <p>Concerns about the ditch that runs along the current boundary to the SW of the site – the ditch appears to stop approximately halfway along the boundary line. Concern that this existing ditch is not adequate to allow the flow of GW away from the site. Concerns raised that this has been a contributory factor for excess groundwater to form both inside and outside the boundary line; subsidence and flooding.</p>	<p>any compliance issues relating to drainage beyond the site boundary, other than those discussed as part of these consultation responses. Monitoring requirements and compliance limits are included in the current permit for the pumped groundwater and are included in the draft variation notice for the western extension area (see table S3.3). Limits are also included for the amount of groundwater discharged to the surface water management system. We are satisfied with the proposals for groundwater management as part of the application.</p> <p>There is a Water Resources Act exemption from licensing for dewatering activities. These issues are outside the scope of the permitting process which focuses on pollution prevention and protection of groundwater and surface water quality from the landfilling itself.</p> <p>We are satisfied with the groundwater pumping regime and the SWMP for the proposed extension area. As detailed previously there has been no discharge of pumped groundwater at the existing site since August 2009.</p>
<p>Concern raised about the potential for volume/concentration limits applicable to the groundwater under-drain discharge to be exceeded and the capacity of the facility to manage surface water and groundwater discharge at times of high rainfall, and resulting in a risk of uncontrolled releases to controlled waters and inundation of the site.</p>	<p>The draft permit will include monitoring requirements and will set volumetric and concentration limits on the discharge of groundwater under-drain water to the surface water network. Any exceedences will be a compliance issue. There are also measures in place to treat and retain the groundwater in lagoons as part of the surface water management scheme prior to discharge – which will enable the Applicant to comply with the permit. The outfalls shall also be fitted with guile protection and shut off valves to protect against debris and allow flow control. The Applicant has also provided an action plan in the event that there is a breach of a compliance limit. I</p> <p>The SWMP is designed to for a 1 in 100 year storm event plus 30% for climate change.</p>
<p>Concerns were raised about whether the Environment Agency would regulate the site effectively</p>	<p>We take compliance seriously we will regulate the site in accordance with our enforcement and sanctions statement. We will respond to complaints and also carry out both announced and unannounced inspections.</p>

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	<p>An operation may be checked by the Environment Agency in any of the following ways:</p> <ul style="list-style-type: none"> • an assessment - a desk-based check of whether they are complying with their permit, e.g. checking the operator is sending in required information • an inspection - where an officer visits the site • sampling of the permitted discharge <p>Inspections are usually planned, but can be unannounced. Environment Agency staff will look around the site and ask questions about the operations. They may ask to see documents or talk to staff.</p>
<p>Concern that the EA's approach to determining the application is a tick in the box exercise</p>	<p>The Environment Agency have undertaken a thorough assessment of the application as part of the determination of this application.</p> <p>In so far as emissions from the landfill are concerned, the Environment Agency is satisfied that human health and the environment is protected</p>
<p>What is classified as a significant risk or significant harm?</p>	<p>Significant is anything that is not insignificant. For some things it is a value judgement for others where there are numeric EALs it is easier to assess. In terms of our H1 guidance significance is discussed in terms of the thresholds which form part of the screening process. However even if something does not screen out as 'not significant' during the screening process, it does not necessarily mean that an emission is significant. Usually if an emission does not screen out as 'not significant' then we will include numeric limits in any permit to ensure that emissions will not lead to pollution of the environment or harm to human health.</p>
<p>It was queried whether the Environment Agency should be looking for alternative methods of dealing with hazardous waste.</p>	<p>The landfilling of hazardous waste is allowed by both European and domestic law. We may restrict those waste types if we know there is a readily available alternative treatment technology. However, the onus is on the producer of the waste to recycle/ reuse before they consider disposal under the EPR 2010 (as amended).</p> <p>A number of wastes were removed from the permit as part of the permit review (issued on 13/10/14) because there was a readily available alternative treatment technology or because they could be recycled in accordance with the waste hierarchy</p>
<p>Concern that the community has been let down by the process and especially deadlines around the holiday period.</p>	<p>The consultees have had the opportunity to respond to the initial adverts and will now have a further opportunity to comment on the draft</p>

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	documents. We are satisfied that we have given people adequate opportunities to participate in our decision making.
<p>Lack of confidence in the operator Claims that the operator is not a fit and proper person; Alleging severe bad practice at the site; Alleged non-compliance with the environmental permit in the past; No trust between the applicant and the local community.</p>	<p>We are satisfied that the operator is a fit and proper person. There are no relevant convictions associated with Whitemoss Landfill Limited or any 'relevant person' such as a director.</p> <p>The operator performance and compliance history will affect the OPRA scores which has an effect on charging and subsistence.</p> <p>We take relevant convictions of an Applicant into account and any previous history of operating permitted sites. In this instance and in accordance with the legislation and our guidance, any relevant convictions held by this applicant are considered to be spent, having passed the appropriate timescale, and therefore are no longer 'relevant' for the purposes of this permit application. The Operator does manage a waste management site and is operating under the terms of the permit. We have take previous operating history into account. We are aware of past issues but consider this to be a well run site now.</p> <p>Based on our Operational Risk Appraisal (Opra) system, the Whitemoss operator is currently Band B. This is our second highest rating and identifies the operator as a good performer. This is reviewed on at least an annual basis.</p>
<p>Alleged issues of poor practice at the site, breaches of safety procedure etc</p>	<p>Health and Safety is regulated by the Health and Safety Executive (HSE). The HSE were consulted on this variation application – but did not respond.</p>
<p>Water bubbling out of the ground that had odour of landfill gas</p>	<p>It is understood that the water referred to as bubbling up was likely to be water from the local sustainable urban drainage system created for the business park. However we have been unable to substantiate the complaint.</p>
<p>There is a problem with the movement of water on Whitemoss.</p>	<p>The standing water in ditches is likely to be due to the seasonal variation in groundwater / surface water depths. We do not consider that there is an issue.</p>
<p>Problem with Whitemoss Road south undulating, subsistence and cracking.</p>	<p>There is no evidence to say that the undulations in the road are caused by subsistence or by the landfill. As stated previously - we have reported the claimed subsidence to the Highways Authority and they are currently looking into it to try and identify the cause.</p>
<p>Concern raised about the risks arising from subsidence, due to dewatering of the superficial peat deposits and that Whitemoss Road South</p>	<p>There is a Water Resources Act exemption from licensing for dewatering activities. These issues are outside the scope of the permitting process</p>

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is also affected by subsistence	which focuses on pollution prevention and protection of groundwater and surface water quality from the landfilling itself.
Concerns regarding the deposit of asbestos – where bags split and asbestos exposed to atmosphere	The asbestos acceptance procedure requires it to be double bagged, deposited at the base of the tip face and covered immediately
It was stated that the operator has appropriated land belonging to WLBC through adverse possession, that they have been draining from the site into a highway drain for years without anyone knowing about it.	Even if the Operator had obtained land by adverse possession that is not unlawful and is not relevant to this determination. The highways drain is part of the surface water management system which we are satisfied with
Hydrogeological risk assessment addendum report Concerns were raised about what would happen if determinands exceeded the range that had been modelled. If the levels of substances such as Arsenic and Mercury start to rise in the leachate the Applicant has 3 months to "Undertake investigation work to identify the cause of the rise in concentrations" and "If the risks are unacceptable" has 12 months to "implement corrective measures". Concerns were raised regarding the timescales.	The operator is required to remain within the leachate levels specified in the permit, unless and until the permit is varied based on a revised HRA. The timescales are considered to be appropriate. A contingency action plan being in place does not prevent us from taking enforcement action which may require the operator to undertake remedial action in accordance with a different timeframe.
Concerns were raised about groundwater quality data around the current landfill and suggests that there is evidence of a breach of containment.	The operator is currently in compliance with their existing permit. We have no reason to believe that there is or has been a breach in containment.
Concern was raised about whether the currently available data is sufficiently robust to set appropriate Environmental Assessment Levels, compliance limits or control levels.	The groundwater compliance limits will be defined in the permit and will be reviewed following collection of additional monitoring data from boreholes located around the western landfill area. These limits will also be regularly reviewed as part of the routine 6 yearly HRA review to ensure that they remain appropriate and fit for purpose. The new boreholes around the proposed western landfill area are sited at considerable distance from the current area of waste deposit and there is no reason to believe that groundwater quality data from these will not be representative of background conditions.
Concern was raised that post operational risks arising from leachate rebound have not been assessed	Should the operator wish to cease leachate management, so as to allow leachate to fully rebound, they will have to apply to vary the permit and support it with an updated HRA which demonstrates that it will not lead to the entry of hazardous substances to groundwater or pollution by non-hazardous pollutants.
Issues are raised with respect to the determinand suites for groundwater and surface water	The permit will specify determinand suites and frequencies which we consider are appropriate and protective.
It is considered the derivation of surface water	Any surface water compliance limits based on

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<p>compliance limits, using 12 months of data collected in the future, is inappropriate as data may be influenced by poorer quality water discharged from the groundwater under-drain.</p>	<p>future monitoring data will be based on the quality of the upstream samples and so will not be influenced by potential impact of discharges further downstream.</p>
<p>Concern was raised that during the period of groundwater control groundwater compliance limits will only be applied to the groundwater under-drainage effluent which is inappropriate given the lack of certainty in the conceptual model and likely changes in the groundwater regime as the site progresses and the mine shafts are treated.</p>	<p>Yes this is the case as during the period of groundwater control there will be no downstream monitoring points. We are satisfied with this approach. We agree that the groundwater regime around the site will be dynamic and the locations of down-hydraulic gradient compliance points are likely to change over time. Throughout the life of the site the permit will require the operator to undertake regular HRA reviews on a minimum 6 yearly cycle, which will include an assessment of the groundwater monitoring scheme to ensure that it remains fit for purpose, that the appropriate points are being monitored and that compliance limits are applied to the appropriate monitoring locations.</p>
<p>Concerns were raised about the derivation of Environmental Assessment Levels based on groundwater quality data.</p>	<p>Background levels will be based on the quality of the groundwater at the time – so these will be accurate. Condition 4.2.2 (a) in the draft permit requires a review of the results of monitoring and assessment carried out in accordance with the permit against the relevant assumptions, parameters and results in the risk assessments to be reported on an annual basis.</p>
<p>The use of groundwater discharge for dust suppression is not considered protective of groundwater quality in the Shirdley Hill aquifer and peat.</p>	<p>The use of groundwater for dust suppression relates to the current site – which does not form part of the determination of this application for the western landfill area. However we are satisfied with this practice.</p>
<p>The assumption that leachate will rebound and leachate quality will deteriorate as the waste mass becomes saturated is wholly unsupported and not protective of the environment. Without assessment of the long term performance of the landfills - assumptions regarding Financial Provision are also unsupported.</p>	<p>Hydraulic containment is a well established engineering route for landfill and the hydrogeological risk assessment model submitted as part of the application reflects this situation.</p> <p>We are satisfied that adequate Financial Provision will be made for the site in accordance with the pre-operational condition which is included in the draft permit.</p>
<p>Leachate monitoring systems are not regulated sufficiently. There are insufficient leachate management systems in place. The site does not hold any records of movement liquids into or out of the site. The leachate is pumped off site through a private sewer- there is no continuous monitoring of this pipework that goes off site and on public land.</p> <p>What records are there to show there is sufficient leak detection for the leachate lagoon and associated monitoring areas. Are the levels checked daily or weekly and reconciliation information kept at site?</p>	<p>The proposed leachate management systems are satisfactory and are in accordance with the Landfill Directive requirements. We are also satisfied with the proposed leachate level monitoring proposals. The leachate quality monitoring requirements are standard and are detailed in the draft permit. The site is already required to report on the amount of leachate disposed of off site and disposed of to any onsite effluent treatment plant. The site is not permitted to accept leachate from offsite. The operator has confirmed that procedures are in place for the maintenance and monitoring of the leachate pipework on a regular basis - see table S1.2.</p> <p>Regarding the leachate lagoon, it does not have leak detection. The levels in the lagoon are</p>

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	checked visually on a daily basis. The LTP and lagoon are the subject of operating procedures as part of the site management system. The amount of leachate discharged from the lagoon is monitored continuously. There are also other monitoring requirements and emission limits in the draft permit in table S3.6.
Concerns were raised that flooding of the site could give rise to pollution	The site is not located on a flood plain. The surface water drains and the balancing points which form part of the SWMP cover inclement rainfall.
Concerns in relation to flooding in cellars in houses near the landfill and surface water flooding due to poor surface water management at the landfill which may have led to surface water collecting on the M58.	We are not aware that the current landfill has poor surface water management. We are satisfied with the SWMP proposed for the site as part of the western extension area application.
Flood risk	<p>The Environment Agency provides advice and guidance to the local planning authority on flood risk in our consultation response to the local planning authority. Our advice on these matters is normally accepted by both Applicant and Planning Authority.</p> <p>The site is located in Flood Zone 1 having less than 1 in 1000 annual probability of flooding from rivers. There is no historical records of flooding from rivers at or in the vicinity of the site. The areas of land closest to the site in higher flood risk zones are more than 1km from the site and comprise the floodplains of the River Tawd and the Rainford Brook.</p>
Concern about wildlife and ecosystems and out of season blackening of leaves on shrubs and trees.	The impact on habitats sites, SSSI's, non-statutory sites and conservation sites have been assessed and there was considered to be no significant impact – See section 5.2.12.
Over the last 12 years it was stated that changes occurred – higher groundwater levels and localised inundations of surrounding areas some 500m from the landfill.	Groundwater level around the current landfill is routinely monitored as a requirement of the current permit. However, groundwater monitoring does not extend to distances of 500m from the permit boundary and therefore we cannot comment on any observed increases in groundwater level at such distance from the permit boundary. We don't regulate groundwater dewatering, but there is no reason to consider that any increase would be caused by the landfill.
Concerns were raised about gas management proposals	As the western landfill area will only accept hazardous waste – there is no significant gassing potential from the waste and therefore there will be no need for gas management. This will be confirmed by routine in-waste gas monitoring undertaken in compliance with the permit. See section 5.2.9 for further information.
Concerns raised that landfill gas will give rise to adverse impacts and complaints	<p>The permit will require the installation and monitoring of in-waste gas boreholes.</p> <p>The applicant has proposed methane and carbon dioxide action limits to be applied to the in-waste</p>

Summary of Issues Raised	Response
	boreholes. Should the Action Limits be exceeded, which is not considered likely but is precautionary- the Action Plan sets out the contingency actions to be taken, ultimately leading to corrective measures and/or additional monitoring.
Concerns raised about the effect of greenhouse emissions and whether the proposals would meet Government objectives to minimise greenhouse gases and maximise opportunities for climate change adaption and resilience	The operator is required to take appropriate measures to collect and utilise landfill gas – therefore this would meet Government objectives and minimise greenhouse gases. Given the nature of the waste to be deposited in the western extension area we do not expect it will have significant gassing potential. We will require the operator to monitor the situation and where appropriate will require them to utilise or flare any landfill gas produced
If the landfill is allowed to expand then a flare will be used to incinerate the gases resulting in furans and dioxins emissions to be once again blown over the local community.	The flare will continue to be used as part of the existing site due to the non-hazardous waste which was deposited for a period of time. However the waste which will be deposited in the western landfill area is not expected to have significant gassing potential and therefore will not be disposed of by flaring. Therefore the amount of gas burned in the flare will not increase as a result of this application.
Concerns about site security, no warnings about the site.	Site security is part of the sites management systems which is required and regulated by the conditions in section 1.1 of the permit. The site will be adequately secured as required by the LFD.
Concern regarding no provision in the FP for the cost of future pollution incidents	This will be covered by the Financial Provision which the operator has to make provide for the variation.
Concerns were raised about the filling of a ditch and land ownership issues and it was queried why the existing ditch on the eastern boundary was being extended.	Landownership is not of itself relevant to the determination of the variation application. We are satisfied that the operator will have the rights they need to to comply with the permit. We are satisfied with the SWMP which includes extending the ditches around the whole of the site boundary. The ditch on the eastern boundary is to be extended to the south to suit the restoration plans. The watercourse is part of the SWMP which will be designed to contain a 1 in 100 year storm event with 30% for climate change on site.
Concerns were raised about the adequacy, reliability and accuracy of past monitoring and by implication of any future monitoring.	Monitoring in the permit should be carried out in accordance with the latest guidance detailed in the draft permit. Consistent with the deposited dust monitoring currently undertaken at the site, the monitoring will be carried out by a third party contractor specialising in site based monitoring of particulate matter. The collected samples are analysed at a UKAS accredited laboratory.

Summary of Issues Raised	Response
	<p>We are satisfied with the monitoring proposals included in the application for the western landfill area and we are satisfied with the remaining monitoring requirements for the existing site. Where monitoring points need to be installed – we have included a pre-operational condition in the draft variation notice.</p> <p>On 23 Dec 2014 we identified some concerns regarding the monitoring of dust based on data submitted to us in accordance with the requirements of the permit. The data revealed that some PM10 dust emissions sent to us between 2008 and 2013 were reported inaccurately. We reassessed all of the dust data and dust reports for this time period. Following this we are satisfied that the activities at the landfill have not caused an exceedence of any Statutory Air Quality Standard for PM10 at any sensitive receptor. The data also indicates the dust levels (total deposited dust) are low. We are also satisfied that the reason for the inaccurate reporting has also been addressed and that the submissions are now accurate.</p>
<p>Concerns were raised about possible impacts on nearby water abstractions.</p>	<p>We are satisfied there will be no significant pollution to ground or surface water and so no impact on any existing abstractions due to emissions from the landfill.</p>
<p>Concerns were raised that leachate management will be ineffective long term either due to cost or there will be a problem due to human error.</p> <p>Concern raised that leachate has been found in a public drain and watercourses.</p>	<p>The costs of leachate management long term and accidental releases of leachate and other pollution incidents will be covered by the financial provision for the site.</p> <p>We have no reports of leachate being found in public drains or watercourses.</p>
<p>Concern raised that the permit will be surrendered inappropriately early whilst the site still contains polluting leachate and concern that there will be a legacy of contaminated land.</p>	<p>The operator will have to apply to surrender the permit and must demonstrate that the surrender criteria have been met. A surrender will not be accepted if the site poses a pollution risk.</p>

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