

Natural Resources Wales permitting decisions

FCC Waste Services (UK) Limited (Chirk Landfill Site)

Decision Document

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Part-Surrender Application

The Application number is: PAN-016033

The applicant /operator is: FCC Waste Services (UK) Limited

The Installation is located at: Chirk Landfill Site, Pen-Y-Bont Works, Chirk, Wrexham, LL14 5AR

Refusal

We have decided to refuse the Part-Surrender Application for Chirk Landfill Site operated by FCC Waste Services (UK) Limited.

We consider that in reaching this decision, we have taken into account all relevant considerations and legal requirements.

Purpose of this document

This decision document:

- explains how the Application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account

Receipt of Application

The Application was accepted as duly made on **14/03/2022**. This means we considered it was in 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.

The Applicant made no claim for commercial confidentiality. We have not received information in relation to the Application that appears to be confidential in relation to any party.

Requests for Further Information

In order for us to be able to consider the Application duly made, we required an additional fee charge as the original fee sent was incorrect. The original paid fee was charged for a low-risk Part-Surrender, however this Application highlights potential risks arising from accidental or uncontrolled releases of hazardous chemicals to land or groundwater. RNG 9 states, a low-risk surrender is available for an application that does not need site characterisation data. As the Application does include site characterisation data, an additional fee charge was required (partial surrender x OPRA charge multiplier based on the site's activities). The additional fee was received on 10/03/2022.







A copy of the information notice and e-mails requesting further information were placed on our public register as were the responses when received.

Overview

The Application is for the surrender of the part of the permit which relates to areas of land situated to the south and east of the main landfill void associated with EPR/GP3830BG held by FCC Waste Services (UK) Limited for Chirk Landfill Site. The proposed surrender areas have been utilised for storage, refuelling and ancillary requirements.

The area to which the proposed part-surrender relates is underlain by a combination of superficial glacial till and colliery spoils which juxtapose the main landfill void. The site does not have a sealed drainage system and the surface consists of both impermeable hardstanding and unsurfaced ground where site activities were undertaken.

Areas Covered by Site Condition Report

| CLIENT  FCC Environment (UK) Limited Ground Floor West, 900 Parkway Drive, Northampton Business Park, Northampton, NN4 7YD | NOTES  Ownership Boundary  Environmental Permit Boundary  Cell Boundaries  Area Covered by Part-Surrender Application | REPRODUCED FROM ORDNANCE SURVEY SUPERPLAN DATA WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONARY OFFICE. CROWN COPYRIGHT. ALL RIGHTS RESERVED. LICENCE NUMBER: 10001998 | THIS INFORMATION IS CONFIDENTIAL AND THE PROPERTY OF SIRIUS. IT IS RELEASED ON CONDITION THAT NONE OF THE INFORMATION SHALL BE DISCLOSED TO ANY THIRD PARTY OR REPRODUCED IN WHOLE OR PART WITHOUT THE PRIOR CONSENT IN WRITING OF SIRIUS. | | | | | | | | | | |
|---|--|---|--|-------------|------|-----------------|----------|------------|------------|------------|--------------|---|--|
| CLIENT  The Beacon Centre for Enterprises, Dafen, Llanelli. SA14 8LQ. 01554 780 544 | | DRAWING TITLE PEN-Y-BONT PART SURRENDER APPLICATION | | | | | | | | | | | |
| | | DRAWING TITLE AREA COVERED BY PART SURRENDER APPLICATION | | | | | | | | | | | |
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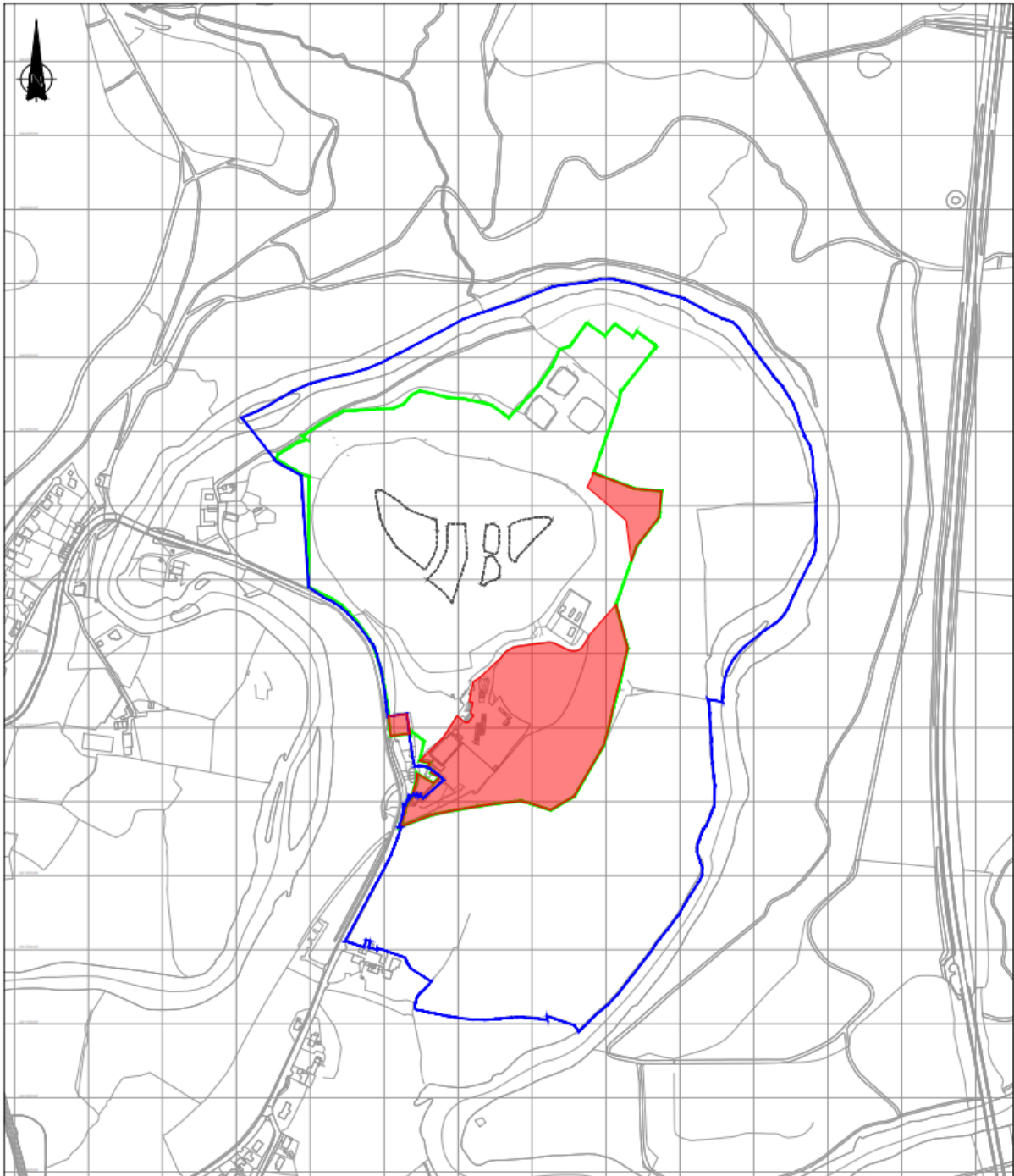
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Table 10 of the Site Condition Report (SCR) includes an inventory of hazardous substances stored/handled within the proposed surrender area, their general environmental behaviour, potential environmental impacts, storage arrangements and assessment of alternatives.

Table 10: Inventory of Substances Stored/Handled Within the Proposed Surrender Area and their Environmental Behaviour and Impacts

| Substance | Chemical composition | Quantity | Environmental behaviour and fate | Potential Environmental Impact | Storage arrangements | Assessment of Alternatives |
|--|-----------------------------------|---|---|--|---|---|
| Fuel Oils (Diesel - including Red Diesel) | Hydrocarbons with trace additives | 1 x Fuel Tank (10,000L capacity) 1 x Red Diesel Tank (5,000L capacity) 1 x Engine Oil Tank (100L capacity) 1 x Hydraulic Oil Tank (100L capacity) 1 x Transmission Oil Tank (100L capacity) | Insoluble and floats on water. Low biodegradation in soil. | Contamination of land and controlled waters and health risk to end users (i.e. humans, wildlife) | Fuels were stored in fit-for-purpose double skinned or bunded fuel tank over areas on impermeable pavement. Refuelling area was located on areas of impermeable pavement Spill kits located in strategic locations across the facility. | Essential for operation of various items of plant Alternatives limited to biodiesel. No guarantee of supply available. |

Section 5.0 of the SCR details chemical storage protection measures implemented in the proposed surrender areas. The only permitted activities undertaken within the surrender area are for the storage of fuel and oils for site vehicles/plant. Protection measures include:

- Impermeable pavement and containment
- Storage within a double skinned or bunded tank.

Information has been submitted with the Application that presents evidence that ground contamination, notably in the vicinity of the fuel and oil storage system, is present; reference intrusive boreholes BH5 and BH7. The efficacy of the protection and handling measures used to contain and prevent spillage and/or leakage over the operational life of this hydrocarbon storage system is however unknown based on the information submitted in support of the Application. In addition, the nature and extent

of any spillage and/or leakage or inventory losses is also unknown. The nature and validation of any decommissioning required to ensure that the hydrocarbon storage system cannot continue to pose a potential risk to the environment, is also unknown.

On 13th and 14th June 2018 intrusive site investigation work was undertaken to establish the environmental baseline conditions for the proposed surrender areas and to identify any evidence of contamination. The investigation consisted of drilling 13 boreholes (BH), the excavation of 13 trial pits (TP) and the collection of ground samples which were sent for chemical analysis to a UKAS/MCERTS accredited laboratory.

It is noted within the SCR that, *“the proposed surrender areas...have been returned to a satisfactory state, having regard to the state of the site before the facility was put into operation”*. It is unclear how the applicant can make and support this claim, H5 Guidance for applicants states they must *“provide the evidence necessary to convince us that your site does not pose a pollution risk and is in a satisfactory state”*. To examine the claim that the proposed surrender areas have been returned to a satisfactory state, the NRW internal Geoscience team were contacted to provide support in reviewing the submitted documents as part of Application PAN-016033.

Technical support request

A technical support request was sent to the NRW internal Geoscience team on 15/03/2022 where the following documents were reviewed, and a response was provided on 11/04/2022 as part of assessing the Part-Surrender Application for Pen-Y-Bont (Chirk) Landfill:

- WR7449 - Pen Y Bont Factual SI Report

- Appendix 1 – Intrusive Location Drawing
- Appendix 2 – Borehole and Trial Pit Logs
- Appendix 3 – Laboratory Results
- Appendix 5 – Photographic Record
- WR7449_03_SS_R0 – Supporting Statement
- WR7449_03_SSCR.R0 – Surrender SCR
- WR7449_05_02 – Area Covered by Site Condition Report
- Soil screening values for assessing ecological risk
- Environmental Permitting Regulations England and Wales: Regulatory Guidance Note, RGN 9: Surrender

The main concerns highlighted from this review are based on statements presented within the various reports that have been submitted in support of the Application.

These include:

The **Pen Y Bont Factual SI Report** states:

1.1.4 The site investigation works were carried out over two days (13th and 14th June 2018).

2.3.3 As a water strike and odour (hydrocarbon) were noted in borehole 5 (BH5), two further boreholes were drilled 5m east (BH9) and 5m west (BH8) of BH5 to see whether the same conditions were noted. In both BH8 and BH9 no hydrocarbon odour was noted, however, nor any water strikes encountered.

A review of the **borehole and trial pit logs** from the site investigation revealed the following:

Dark Grey slightly silty sandy GRAVEL present in boreholes BH1, BH2, BH3, BH4, BH5, BH7, BH8, BH9, BH10, BH11 and BH12 (cobbles). The thickness varied from 0.5m to 4.5m.

The Surrender SCR, Table 10: Inventory of Substances Stored/Handled Within the Proposed Surrender Area and their Environmental Behaviour and Impacts lists the following storage vessels:

- 1 x Fuel Tank (10,000L capacity)*
- 1 x Red Diesel Tank (5,000L capacity)*
- 1 x Engine Oil Tank (100L capacity)*
- 1 x Hydraulic Oil Tank (100L capacity)*
- 1 x Transmission Oil Tank (100L capacity)*

The **SCR, Section 5.3.1** states:

No assessment of baseline environmental conditions for the surrender area had been previously undertaken.

The **SCR, Section 9.1.15** states:

*The laboratory results received; included with **Appendix 3**, allowed for the identification of an environmental quality baseline for the proposed surrender area. As part of the baseline identification process statistical analysis was undertaken on the received results to identify contamination hotspots and any statistical outliers; which were subsequently removed from further analysis.*

The **Environmental Permitting Regulations England and Wales: Regulatory Guidance Note, RGN 9: Surrender**, states the following:

Surrender of permits

3.8 A surrender SCR describes the condition of the land and groundwater at the point at which the operator applies to surrender the environmental permit. It is this report that provides the basis for our judgement as to whether unacceptable pollution risks have been removed and the site is in a satisfactory state.

In light of the documents reviewed as part of the technical support request made to and provided by NRW's internal Geoscience team, a number of queries arose. These were noted and detailed within a Schedule 5 Notice request which was sent to the applicant on 12/04/2022 with a response deadline date of 10/05/2022.

The applicant provided a response to the Schedule 5 Notice on 29/04/2022. This reply provided a summary of the applicant's comments and requests for further clarification and considerations. A 10-day extension to the Schedule 5 Notice (20/05/2022) was agreed between the regulator and applicant to allow for a detailed reply regarding the original comments made by the applicant. The applicant provided a response on 19/05/2022 that satisfied the Schedule 5 Notice request for further information issued on the 12/04/2022.

The applicant provided a response to the Schedule 5 that included a summary of comments against the request of the Schedule 5 Notice for consideration.

Key issues with the Application

The applicant has not been able to demonstrate with reasonable certainty via the site investigation performed to date, that a clear distinction exists between the particular hydrocarbons found to be present within the colliery spoil and those found within areas proposed for surrender including those areas associated with the fuel and oil storage tanks. The following sections of this document therefore focus on particular topics that highlight this issue. These are:

- Substances Stored and Handled within the proposed Surrender Area
- Site Investigation Strategy
- Baseline Environmental Condition
- Statistical Analysis

Substances Stored and Handled within the proposed Surrender Area

The applicant has submitted limited photographic and documentary evidence associated with the fuel and oil storage system and related infrastructure. Details of the fuels and oils that were stored and handled are presented in Table 10 of the Surrender SCR Report.

There is also insufficient detail/evidence to demonstrate how the fuel and oil storage arrangements including refuelling and dispensing, tank containment, tank condition, tank locations and site drainage relate to particular site investigation boreholes and trial pits that were drilled and excavated respectively.

Knowledge of the location of the storage tanks is necessary to determine if the location of boreholes and trial pits align to an effective and representative investigation of 'potential areas of contamination concern'. This information has not been provided.

Information on the logistics, storage, use and refilling of the tanks including any known losses would also inform upon the potential contamination risks that the tanks may have posed/continue to pose to the local environment.

Best practice requires that boreholes and trial pits be installed in the vicinity of areas of potential contamination concern to assess the nature and extent of contamination likely to be caused as a result of permitted activities. In this case, the applicant has not provided sufficient information and evidence to support their Application.

Typically, the applicant would identify fuel storage, tank refuelling and dispensing locations including any associated conveyance pipework together with the location(s) of boreholes and trial pits used to investigate the environmental quality of local ground materials on a site investigation plan. This information would provide further evidence to how the tanks were managed and therefore the degree of risk the tanks may have posed. Boreholes would be completed as groundwater monitoring wells, notably those within the footprint of contamination sources but also distally to periodically assess if and how groundwater conditions manifest during wetter periods of the year, the nature of the resulting groundwater flow directions and the potential for contaminant migration through the groundwater pathway. However, due to this lack of evidence submitted to date, we are unable to determine with reasonable certainty if the current permitted activities have resulted in contamination.

Site investigation strategy

The intrusive site investigation was carried out over 2-days in June 2018, which consisted of drilling 13 boreholes and the excavation of 13 trial pits. The investigation was carried out during a drier period of the year. It is inferred although not known with

certainty that the boreholes once drilled, sampled and logged, were then immediately decommissioned/backfilled.

Boreholes BH5 and BH7 yielded evidence of organic/hydrocarbon odour. The relationship of these boreholes and other boreholes to the fuel and oil storage system is unknown and has not been provided to date. The rationalisation for why particular boreholes and trial pits were drilled and excavated in their respective locations has not been made clear in the documents submitted and reviewed to date.

The proposed surrender areas therefore may contain residual hydrocarbons as identified by the applicant, notably associated with the fuel and oil storage system and evidenced by BH5/BH7.

Guidance RGN9 states:

Full surrender – a detailed report is required, using monitoring data:

- a **surrender site condition report** for waste facilities and installations to show satisfactory state
- a **completion report** for mining waste facilities and landfills to show the waste deposited will not cause an unacceptable risk of pollution or harm to human health or the environment.

The site investigation strategy is not considered adequate or sufficiently rigorous to establish the longer term/seasonal condition of land/groundwater within the surrender area, the boreholes should have been completed as groundwater monitoring wells as no monitoring infrastructure has been installed. Such wells could have been routinely monitored over the course of at least one year to assess baseline conditions and would have identified whether or not groundwater conditions manifested during wetter periods of the year when rainfall infiltration rates are elevated and this would have

constituted as monitoring data. The degree to which groundwater conditions manifested would have also revealed the degree to which the groundwater poses a risk to the wider environment. This is particularly important given that the permit is being part- surrendered and that climate change is predicting warmer wetter winters and drier summers. It is the warmer wetter winters that may provide impetus to the fate and transport of residual hydrocarbons that may still be present within the ground materials that comprise the surrender area.

If groundwater conditions were to manifest during wetter periods, there is then a potential for residual hydrocarbons to be mobilised particularly as the boreholes encountered varying thicknesses of silts, sands and gravels which are considered to be permeable materials that can transport chemicals away from spill/source areas. The limited 2-day investigation strategy is not considered to be representative of year-round conditions. Regular monitoring of groundwater monitoring wells would have provided the necessary information to conclude with reasonable certainty whether or not dissolved hydrocarbons and potentially LNAPL (Light Non-Aqueous Phase Liquids describe fuels and oils) are still present within the area of land being considered for surrender. Regular groundwater monitoring is considered good practice and would help show whether or not the hydrocarbons are static or mobile, in which would help to demonstrate whether they are linked to permitted activities or pre-operational activities.

The conclusion made by the applicant that no groundwater exists is based on the specific and short-term conditions encountered during the site investigation which represent a drier period of the year when groundwater levels are typically low.

Any potential spillages and/or leakages of hydrocarbons would be considered a groundwater activity under EPR 2016 but as there is no long-term monitoring data and taking into consideration the information set out in the previous paragraphs, the low-risk conclusion reached by the applicant about the hydrocarbons detected at the site is not considered to be robust.

Additionally, the site investigations performed to date were limited to soils and were carried out in June which is considered to represent a drier period of the year. It is noted that gravels were encountered within the vast majority of the boreholes that were drilled within the proposed surrender area. None of the boreholes were completed as groundwater monitoring wells. It is common for boreholes not to yield groundwater samples at the time of drilling and hence why it is considered best practice to complete such boreholes as monitoring wells. As a minimum, boreholes BH5 and BH7 should have been completed as monitoring wells given the hydrocarbon and water-strike evidence found at the time of the site investigation. Such monitoring wells would allow for periodic monitoring to determine if the conditions found during drilling are the long term 'norm' or not. Water was encountered in BH5 at 3m below ground level. An additional two boreholes (BH8 and BH9) were placed within 5m of BH5, although the SCR states "*no free water or organic material was encountered in either borehole or within any other borehole undertaken*". It is noted that the description above reflects the conditions encountered at the time of drilling which are considered to be limited in duration and not representative of general longer term or seasonal conditions. The need to therefore confirm the potential for groundwater conditions to manifest during wetter winter conditions and also to assess the quality of the groundwater, notably in the vicinity of the hydrocarbon storage tanks location would provide important evidence as to the potential for residual hydrocarbon contamination risks that the

hydrocarbon storage system may continue to pose but also in terms of the wider surrender area.

We consider the proposed surrender areas are not in a satisfactory state as the applicant has uncovered hydrocarbon contamination within the proposed surrender areas. These areas have not been satisfactorily investigated with strategically located groundwater monitoring wells. Based on the information provided by the applicant, we are unable to rule out that the contamination present within the proposed surrender areas may have been either in part or wholly caused by the landfill activities which are associated with the surrender area.

Baseline environmental condition

The SCR states *“Due to the continuous usage of the land on which the Chirk Landfill Site is located, no assessment of baseline environmental conditions for the surrender area had been previously undertaken”*.

This type of assessment is fundamental to being able to make a meaningful comparison between the original condition of the land prior to permitted activities and operations versus determining the nature and extent of any contamination that has arisen as a result of the lifetime of the permitted activities. Unfortunately, since this baseline assessment is missing, it is not possible to establish with sufficient certainty, the original condition of land.

Noted within the SCR is the statement that there are *“no records of any significant pollution incidents that have occurred within the proposed surrender area during the life of the permit”*. An examination of the submitted SCR would suggest that the permitted activities have led to hydrocarbon pollution notably in the vicinity of BH5 and

BH7 which may or may not have been drilled in close proximity to the fuel and oil storage system. The applicant has justified the presence of hydrocarbons detected within the colliery spoil as predominantly being associated with shale, coal and bitumen fragments. Section 9.1.20 of the Surrender Site Condition Report, November 2021 states that:

“Given the close proximity of these substances which either contain or are formed alongside oil, it is determined that recorded levels are a result of the spoil not any leakages or spillages of fuel during landfilling activities. This suggestion is supported by the consistently high concentrations recorded across all of the Total Petroleum Hydrocarbon band ranges which is indicative of an unrefined hydrocarbon source rather than a refined source e.g., petrol or diesel”.

An examination of *Appendix 3* of the SCR reveals that, the highest recorded hydrocarbon chain length (C₂₁-C₃₅ aliphatic and aromatic) concentrations may also be representative of fuel/oil spillages which are likely to have been caused as a result of the permitted activities; i.e. fuel, oil storage and handling. Moreover, there are multiple elevated levels of TPH and PAHs in BH5, BH7, BH8 and BH9 and it is not possible to state with certainty which of the detections are associated with colliery spoils and which are a result of impacts from fuel/oil.

In the absence of a baseline environmental report, the applicant has used one trial pit; TP13, located on undeveloped field in the northernmost area of the site to which the part-surrender application relates to determine ‘natural ground’ conditions and to establish the original environmental condition of the land prior to FCC Waste operations. Determining baseline conditions is not to assess ‘undisturbed land’ but

rather the baseline of the colliery spoil which can be heterogeneous. As a baseline was not established prior to potentially contaminating activities taking place at the site, we are unable to decipher the scale and nature of impact. TP13 represents a background location, it does not represent baseline conditions in the context of the colliery spoil.

Due to a lack of sufficient site investigation and analytical data together with a lack of baseline reporting, we are unable to conclude with reasonable certainty that the proposed surrender areas are within a satisfactory state and that the evidence for contamination is wholly attributable to the time period prior to the operations and activities pursued by FCC Waste Services (UK) Limited.

Statistical analysis

To gain a greater insight to Section 9.1.15 of the SCR, more information was required on the statistical analysis used. The applicant was asked to provide more information via a Schedule 5 notice to explain point 3. ***As part of the baseline identification process what are and how were the Environmental Baseline values derived? What statistical analysis was performed, and can this be provided?***

The response provided by the applicant states that “*For clarity, the statistical analysis comprised the outlier identification method, where the baseline concentrations were assumed to be normally distributed*”. The applicant has used this approach to derive the Environmental Baseline values. It is likely that the colliery spoil materials are heterogeneous and careful consideration should therefore be made as to the relationship that exists between concentration distributions and hot spots/outliers.

Our decision

We are refusing this Application and in reaching this decision, we have taken into consideration key site-specific information that has been provided to us in support of the Surrender Application together with relevant considerations and legal requirements.

This Application is to surrender part of the permit relating to a specific area of land within the permitted area of an installation which is subject principally to the Environmental Permitting Regulations 2016 (EPR) and to the requirements of the Industrial Emissions Directive (IED).

The applicant has not satisfactorily demonstrated through the evidence submitted to date, a sufficiently robust assessment of baseline conditions including that the hydrocarbon contamination found to be present in the ground within the area of the proposed surrender pre-dates the permitted activities and satisfies RGN9: Surrender. Evidence of contamination associated with the storage and handling of fuel and oil at the site has not been sufficiently investigated. There is therefore **reasonable uncertainty** that the land earmarked for surrender is in a satisfactory condition for said surrender.

Paragraph 7.27 of Environmental permitting: Core Guidance and RGN9 section 2.9 state “We hold the operator responsible for any contamination or other residual risks on the site unless we are convinced that the operator cannot reasonably be held responsible”.

This document should be read in conjunction with the Application and supporting information and permit.

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