Compliance Assessment Report CAR_NRW0039610

Permit being assessed: AB3096CP.
For: Lamby Way Open Windrow Composting Facility, held by Welsh Water Organic Energy (Cardiff) Limited
At: Lamby Way, Rumney, Cardiff, CF3 4EQ.

Type of assessment carried out: Audit, Reason: Other.
On 18/11/2021 between 11:02 and 13:45.
Parts of permit assessed: Operating Techniques

NRW Lead Officer: Geraint Harris, accompanied by Antony Leakey.
Report sent to: Adrian Thomas, Contract and Relationship Manager on 25/03/2022.

1. Summary of our findings (full details in section 4)

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
C2 - General Management - Management system and operating procedures	Action only (X)	
C2 - General Management - Management system and operating procedures	Action only (X)	
B4 - Infrastructure - Containment of stored materials	Action only (X)	

Result types are explained in more detail in the 'Important Information' section below.

Total number of non-compliances recorded	Total non-compliance score
0	0

How we use the non-compliance score to calculate your annual fee is explained in the 'Important Information' section below.

2. What action is required?

Criteria	Action needed	Complete by
C2	What are the current appropriate measures utilised at site to try and minimise ammonia generation? Are you able to implement tighter temperature controls over the summer months?	15/04/2022
C2	Amend Odour management plan.	15/04/2022
B4	review the capacity of the pad and how this is calculated based on the maximum throughput and the design and construction of windrows	15/04/2022

Action criteria codes are listed in the 'Important information' section below.

3. What will happen next?

Any non-compliance we have identified and recorded on this form is an offence. It can result in criminal prosecution and/or suspension or revocation of your permit.

At this time, we do not intend to take any further action.

This statement does not stop us from taking additional enforcement action if further relevant information comes to light or offences continue.

4. Details of our assessment

Welsh Water Organic Energy

EPR/AB3096CP

23rd March 2022

Senior officer Geraint Harris and Technical Specialist Antony Leakey attended Welsh Water Organic Energy's Compost Facility located behind the closed landfill at Lamby Way. Due to a significant number of odour reports in the Rumney and Trowbridge area over the past two summers, it was decided to undertake audits of sites regulated by NRW within that area. It is NRW's intention to assess compliance at all facilities under their regulation that have the requirement to use appropriate measures to prevent or minimise odorous emissions. Permit condition 3.3.1 requires Welsh Water to use appropriate measures to prevent or reduce odours as much as possible. This can be demonstrated using an approved Odour Management Plan (OMP) and records of site operations implemented through a management system required by permit conditions 1.1.1 and 1.1.2.

Over the past year the site has employed the use of Compost Manager to help control the composting process. Compost Manager is a total compost control management system analysing the composts temperature, moisture, O_2 and CO_2 levels simultaneously, using a single probe. Software analyses the results, which is then simplistically presented for the whole site or for each individual windrow. Once analysed, the Compost Manager system will produce a simple instruction for the composter to follow, directing the user to either 'turn', 'irrigate' or 'leave alone' to ensure optimal conditions in the windrow. The Compost Manager system has been in use since 2007. It is used to collect process data from commercial composting operations throughout the world. Data points are collected using a 1.2m probe; the data collection cycle is fully automated so there is no scope to change the data after it is collected. Since effective odour management is related to the control of these key composting parameters, it was decided to undertake a deeper assessment of how Compost Manager has been implemented and can be used to demonstrate that composting process conditions meet the guidelines for minimising odorous emissions.

In attendance at the audit was:

Geraint Harris Senior Officer Industry and Waste NRW,

Antony Leakey, Technical Specialist Pollution Prevention & Control (PPC) NRW,

Dr Eric Crouch, Development Scientist, Freelands Horticulture Ltd

Adrian Thomas, Contract and Relationship Manager Welsh Water Organic Energy

Karl Pascoe, Operations Manager Freelands Horticulture Ltd

George Longmuir Director Freelands Horticulture Ltd

The initial stage of the audit involved a site walkaround with Dr Crouch, Adrian Thomas, Karl Pascoe and

Antony Leakey. During this walkaround we witnessed Mr Pascoe taking measurements on windrow 151121, the second youngest windrow on the site. The 1.2 metre probe was inserted at random points along the windrow to a depth of 1.2 metres. The windrow at the time was approximately 8 metres wide. While at the end of the windrow and the using the probe as a guide it was estimated that a 3-metre section of the centre of the windrow was not being reached by the probe when measuring.

Discussion

NRW have based their initial assessment on the content of '*How to comply with your environmental permit. Additional technical guidance for: composting and aerobic treatment sector'.* This technical guidance has been developed to provide indicative BAT or appropriate measures (environmental standards of operation) for both installations and waste operations. It is this guidance that was used as the basis for talking about the various control measures on site to limit odour generation.

During the audit the first topic of discussion was that of the windrow sizes and the ability of the windrow to remain aerobic. The guidance states that windrows should be constructed to approximate dimensions of 2.7 metres wide and 3metres high. Furthermore, it states that internal oxygen levels should not drop below 5% Oxygen. The first observation was that the windrows are in far excess of the guidance values and given the small probe length in relation to these windrows, how was the site ensuring that they didn't turn anaerobic.

Dr Crouch and Mr Longmuir of Freeland's, proprietors of the compost Manger system, explained that the current windrow sizes reflect those seen at sites across the UK. It was then explained by Dr Crouch and Mr Longmuir, that these larger windrows are suitable provided that the right nutrient balance between carbon and nitrogen (at least 25 parts of carbon (C) for each part of nitrogen (N)), adequate moisture to form and maintain the biofilm (around 40-60%) and enough structural porosity to ensure a free air space to keep oxygen levels above a 5% minimum. They then went on to explain that the key parameter for ensuring adequate oxygen supplies throughout the windrow was the internal structure of the windrow. The operators of the site have considerable amount of experience and it was understood that an experienced Freeland's employee (20years) trains new operators on how to structure a windrow. It was explained that the stored carbon waste is mixed with the incoming nitrogen-based waste (grass and leaves) in a way to allow sufficient aeration within the windrow. The monitoring records on the compost manager database show an average oxygen level over 10% within the windrows. Even though these measurements were taken at a depth of 1.2 metres, Dr Crouch explained that for these areas to record such oxygen levels means there is a chimney effect occurring within the windrow that is pulling in the air. He also explained that this demonstrated that the structure of the windrow was correct since the oxygen levels were sufficiently high at this depth. Finally, he also explained that the structure is generally uniform across the windrow and so if the oxygen level is greater than 10% at 1.2 metres then it it's likely that the oxygen in the centre is high enough to prevent anaerobic conditions.

Dr Crouch presented a histogram of the oxygen distribution of batches previously sampled throughout the UK. The graphic display consisted of almost 1million data points. Upon reviewing the histogram, the data was linearly distributed with a median average of around 15% oxygen. Approximately 28% of readings were below 10% and 15% of readings were below 5% oxygen. The monitoring results witnessed during and after the audit correlate well with the UK distribution with a significant portion of oxygen readings above 10% at the Lamby Way site.

With regards to the size of the windrow, Dr Crouch explained that water saturation has a determinantal effect on the oxygen ingress within the windrow and can lead to anaerobic conditions. During the winter months, which usually experience significantly more rainfall, it is important to structure the windrows in a way that also better resists moisture penetration from rain. High moisture content reduces the pore space available for air as well as reducing the structural strength of the material. This permits greater compaction and less interstitial or void space for air in the pile. The moisture graphs provided for the 5 different batches shows a

moisture range between 30% and 60 %. These figures agree with what is recommended within the guidance. With regards to the warmer months, the windrow sizes help to maintain the moisture levels within the windrows to ensure they don't dry out and hinder the bacterial action. This helps to control the temperatures and subsequent odours within the windrows.

We then went on to discuss the effects of temperature on the composting process. Temperature monitoring is important, the temperature will assist in providing assurance to the operator that suitable sanitisation temperatures have been achieved. A reduction in windrow temperatures during the sanitisation or stabilisation phase may indicate that, due to less availability of oxygen and subsequent microbial activity, a turn is required to reintroduce oxygen, reform the airways and remix the feedstock within the windrow. A drop in temperature in the compost pile before material is stabilized can mean that the pile is becoming anaerobic and should be aerated. High temperatures do not persist when the pile becomes anaerobic. To maintain high temperatures during decomposition, compost must be aerobic. Dr Crouch presented a histogram of the Temperature Distribution of batches previously sampled throughout the UK. The graphic display consisted of over 1 million data points. The data approximated to a normal (bell-shaped) distribution around the median average. The median was around 65°C, which is often used as a control point for PAS-100 sites; approximately half the readings were above this value, and half below. Only 20% of readings taken were below 55°C and around 20% of readings were above 72°C. The temperature profiles of the 5 different batches show temperatures being maintained around the 70^{O}C region throughout the duration of the composting process therefore indicating that anaerobic conditions are not present in all areas where the probe reaches. No significant drop in temperature is evident, on two occasions where the temperature has dropped the oxygen levels have risen, indicating that there were aerobic conditions present. The permit and Pass100 requires the compost piles to maintain temperatures above 65^{O}C for 7 consecutive days or above 55^{O}C for 14 consecutive days. Dr Crouch and Mr Longmuir explained the difficulty in trying to keep the windrows above 65^{O}C and below 70^{O}C. However, some temperature readings were approaching 80^{O}C at certain points in the composting process. At this point there is the potential for ammonia escape and the generation of odour. Temperatures higher than 70°C start to kill off beneficial composting organisms and encourage the production of ammonia. The temperature recordings appear to indicate that the windrows are not turning anaerobic, however could there be significant ammonia generation when the temperatures are excessive. Given the volatile nature of ammonia coupled with the warmer outside temperatures in the summer this an odour source that needs further attention.

Nitrogen loss is greater at high temperatures because ammonia vaporizes, which takes place when the C:N ratio is low. The site discussed that they maintain their C:N ratio with the use of their stockpiled oversized wood material which is mixed with the carbon-based leaves and grass waste which arrives daily from the council collections.

One of the final topics discussed was that of pH, higher pH can cause the generation of ammonia. However, upon discussion it is not clear how pH can be monitored within a composting windrow. The pH of the effluent from within the interceptor shows pH of up to pH9 but this effluent is captured from all areas of the site including pre- and post-composted material and so is not a suitable indicator for windrow pH. However, pH of the final compost is measured on occasion. While on the site visit the following pH recordings were witnessed 2019: 8.2, 8.1, 7.9; 2020: 8.2, 8.6, 9.0; 2021: 8.0, 8.2, 8.9. Dr Crouch and Mr Longmuir both explained that the rise in pH is inevitable as the concentration of salts increases as the composting process progresses. The guidance states that the pH conditions in the waste mass will retain ammonia in the aqueous phase as ammonium. pH is a significant factor in determining the proportion of ammonia and ammonium. As pH increases so will the proportion of ammonia. This demonstrates the importance of feedstock management and effective composting in the prevention of odour arising from ammonia.

The high temperatures and high pH indicate that potentially optimal conditions for ammonia generation are occurring. Given ammonia's volatile nature coupled with the high internal and external temperatures over the summer months means that more stringent control maybe needed to minimise this from occurring.

Action1: Do you agree with this interpretation of ammonia generation and are you able to provide your understanding on this? What are the current appropriate measures utilised at site to try and minimise ammonia generation? Are you able to implement tighter temperature controls over the summer months? **Due 15th April 2022.**

6 Metre Windrow Trial

On March 2021, WWOE and Freelands agreed to undertake a trial using a smaller 6metre windrow to compare with the sites usual 8m windrows. One of the key differences was that the probe in the 6m windrow was able to penetrate deeper into the centre of the windrow. However, for each of the parameters; Oxygen, temperature and moisture the results are similar (see the table below). The slightly lower oxygen concentration in the 6 metre windrow may suggest that the biological activity is greater in the smaller windrow. Therefore, does this mean that for the larger windrows (if constructed properly) the rate of oxygen consumption and hence rate of composting will be less since they are limited by oxygen diffusion rate at the pore scale and so the level of oxygen within the windrow will be higher in the larger windrow. With regards to assessing the effect of using smaller windrows for improved odour control no conclusion can be drawn since no odour assessments were conducted during the trial.

Date	15/03/2021	22/03/2021
Width	6m	8m
Tonnes	230	770
Av. Temp	70	69
Av. O2	13	16
Av. CO2	7	5
Av Moisture	45	46

Odour Management Plan.

A composting pile is a highly dynamic ecosystem and is never odour-free. Even under optimum conditions for aerobic decomposition of organic matter, odours are going to form. Therefore, it's essential that the OMP provides suitable protection and is adhered to, to try and minimise the effect such odour has on the local receptors. WWOE have made several changes to the OMP over the past two years. Following the site visit on the 18th November and a recent review of issue 5 of the OMP I have some final comments.

On page 6 it states, "All potentially sensitive receptors are detailed within Table 3 of this OMP". As we have seen over the past two years the most sensitive receptors are the inhabitants of Rumney and Trowbridge. Please can you expand Table 3 beyond 500m so that it considers the two most significant receptors, the inhabitants of Rumney and Trowbridge.

Page 8: "There are three primary potential odour sources associated with the composting facility.

- the development of anaerobic conditions during the composting process
- the breakdown of stored wastes awaiting treatment; and
- contaminated wastes."

What about the development of conditions that generate ammonia? Ammonia has odorous properties, and its generation can occur through poor composting control. How will the OMP control the generation of ammonia?

Page 9: with regards to temperature 80^{O}C seems too high and as mentioned earlier excessive temperatures can cause odorous chemicals such as ammonia to generate. Should this temperature be lower (maybe 70-75^{O}C)? What would you regard excessive temperatures to be?

Page 10: 3.3.2 “Stored Waste - The storage of wastes prior to processing is a source of risk with regards to the production of odours. During their storage and prior to processing, wastes will begin to naturally breakdown through decomposition. Uncontrolled decomposition of the wastes may lead to the development of anaerobic conditions which are a significant source of odour issues at composting facilities”. In section 3.3 you mention contaminated waste and your actions to limit the effects of odours. What are you intending to do to reduce this storage time and prevent the onset of anaerobic conditions and odours?

Page 11: “Due to the high levels of contamination, waste could be stored awaiting processing for up to 12 months”. This needs to be changed to 6months to comply with your fire prevention plan?

Page 11: With regards to Section 3.4 Oxygen levels and carbon/nitrogen ratios can both influence the potential for significant odour generation. These along with their critical limits and methods of management need to be included in Table 2.3 Active Composting. Also, your critical limits for windrow size need to be incorporated into the table.

Page 15: Table 4 only includes sensitive receptors within a 500m distance? I would expect to see a much greater distance being covered. Please update to include the inhabitants of Rumney and Trowbridge.

Page 15 sates: “Although not in the prevailing wind direction the nearest residential properties are to the north of the site. Due to residential properties being considered high risk turning and screening are suspended while there is from a southerly direction”. However, during the summer there seemed to be a high correlation between odour complaints and poor dispersion conditions such as calm hot days. I would like to see a statement stating that turning and screening will be suspended during these times as well.

Table 4 - Odour Risk Assessment and Management Plan

Your odour risk assessment should be a thorough look at your workplace to identify those things, situations and processes that may cause odour beyond the site boundary. After identification is made, you should analyse and evaluate how likely and severe the risk is. When this determination is made, you can next, decide what measures should be in place to effectively eliminate or control the odour from happening. Therefore, I would like you to expand this risk assessment to include the following activities in the risk assessment and the processes in place to prevent or minimise the development of odours.

- Windrow turning
- Screening
- Shredding
- Anaerobic conditions
- Ammonia generation and release
- Contaminated wastes
- Odours wastes arriving on site
- Waste storage times
- Compost storage times

NRW need to know what measures you will take to reduce the risk of odour to the most sensitive receptors. It already mentions “receptors sensitive to odour, for example residential properties, educational facilities and commercial properties are not in the direction of the prevailing wind”. This is correct but you need to account for the times when the wind veers from its prevailing direction towards these more sensitive areas. Therefore, please add detail on what measures you will put in place when the wind direction is towards

Rumney and Trowbridge.

Please update table 4 Odour Risk Assessment and Management Plan with all the scenarios mentioned above and the measures you will utilise to reduce the risk of odours at the sensitive receptors.

With regards to appropriate measures for preventing or minimising the effects of odours on sensitive receptors. I would like to see a commitment to monitoring weather forecasts to enable potential contingency actions to be implemented due to changes in weather throughout the day. In section 6.3 of your OMP it states the following "Certain meteorological conditions, such as wind direction and temperature inversions, can result in poor dispersion of fugitive waste odours. This can potentially lead to an increased risk of odour annoyance at sensitive receptors. Given the coastal setting of the compost site, on hot calm days consideration should be made for the onset of onshore breezes which have the potential to push odorous stagnant air towards receptors. Please update your plan and section 6.3 to include such scenarios.

With regards to the weather station, there is a recommendation in the industry guide for the prevention and control of odours at biowaste processing facilities section 7.2.2 page 27, which states "Correct siting of weather stations is crucial to delivery of reliable and beneficial information. As a rule of thumb, wind speed and direction should be measured at a distance 10 times the height of any nearby buildings. If mounted on a building, it will need to be mounted two and a half times the height of the building. Information can be downloaded and stored for future reference and may be used to correlate a particular incident with the prevailing weather conditions". WWOE may want to consider changing the height of their weather station if they are considering relying on it for odour management. If not, then you will need to utilise additional weather resources when making decisions that could cause odorous impacts on sensitive receptors.

In section 7.3 Abnormal Meteorological Conditions, its states "Suspend certain site procedures that could cause an odorous release". What are these site procedures? Do they include screening and turning?

Action 2: Please make these changes to your OMP **by 15th April 2022.**

Conclusion

Upon reflecting on the meeting and reviewing the subsequent data provided by WWOE, a better understanding of the sites measures to prevent or minimise odorous emissions was made. Factors that influence odour generation include: feedstock composition, activity rates of the decomposers doing the work, availability of the nutrients in the feedstocks to the microbes, how well mixed the feedstocks are and several physical factors, such as moisture content, particle size, oxygen content and diffusion, and temperature. When comparing the sites activities against the guidance there are several similarities and differences to conclude:

- The moisture content of the windrows is comparable to what is stated in the guidance. As mentioned above, moisture is critical in the prevention of anaerobic conditions. The site state that the current 8metre windrow sizes provide the optimal insulation for excessive moisture ingress and evaporation. The data provided showed the windrows to be within the guidance moisture limits.
- A typical optimum bulk density that is desirable at the windrow formation stage for open air windrow composting would be between 500–650 kg/m3. This means that most particles will be between 25 and 40 mm in diameter. The feedstock composition, initial shredding screen selection and subsequent blending of feedstocks will determine the density achieved. The site utilises a shredder to reduce the bulky waste. Some of the waste within the windrows looked to be bigger than 40mm. There is no written guidance or procedures on blend ratios, however, training by experienced staff is relied upon.
- The guidance states that oxygen should be kept above 5% throughout the windrow. The site is unable to demonstrate that the whole cross section of the windrow is greater than 5%. However, they have

reasoned that there must be a sufficient oxygen if at 1.2metres depth the probe is measuring between 10 and 15% oxygen and that the key to getting adequate oxygen supply is getting the structure right.

- The guidance requires a carbon/nitrogen ratio around 25:1. The site maintains a large supply of woody material that is mixed by experienced staff to provide the required ratio.
- The guidance states that windrows should be constructed to approximate dimensions of 2.7 metres wide and 3metres high. The site constructs 8m wide windrows.
- The guidance states that for temperature if profiles are allowed to increase to 70-80°C, the production of NH3 will be unavoidable and therefore can produce poor organic stabilisation and objectionable odours. The permit requires an internal temperature of at least 65^{O}C for at least seven consecutive days. The temperature profiles provided do show temperatures in excess of 70°C and occasionally approaching 80°C.However trying to keep a windrow above 65^{O}C and below 70°C is difficult.
- With regards to pH the guidance states a range between pH 5.8 - 7.8. pH is a significant factor in determining the proportion of ammonia and ammonium. As pH increases so will the proportion of ammonia. The pH ranges of compost samples sent for testing were 2019: 8.2, 8.1, 7.9; 2020: 8.2, 8.6, 9.0; 2021: 8.0, 8.2, 8.9. These are higher than the guidance and suggested and possibly indicate that ammonia is being produced. The explained that pH control is difficult since the increase in concentration of salts such as potassium is inevitable as the waste mass is consumed during composting.

A better understanding of the sites operations and control measures was achieved during the site visit on the 18th November. However, there is still a degree of uncertainty on several aspects. Freeland's reason that larger windrows (if constructed properly) run cooler than smaller ones because the composting rate is limited by oxygen diffusion rate at the pore scale and heat removal rates are high due to good peripheral air circulation. This would show good oxygen levels and temperatures at their probes, but not necessarily in the core of the row. This implies that at the pore scale and particularly in the centre, conditions are closer to anaerobic. Therefore, it can be said that such high-volume throughput methods are inherently more odorous than intensively turned smaller rows. It can be concluded that the current operation is a compromise between throughput and minimising anaerobic/high temperature conditions that deviates from the guidance on some aspects (windrow size in particular), making some odour generation inevitable. Consequently, a decision was made to seek further technical advice on the current operations due to their deviation from current guidance. The findings from this audit were discussed with NRW's Biowaste Treatment Sector Group as well as SEPA and the EA. With regards to windrow size and oxygen content the Biowaste Sector Group were asked if the large 8-metre windrows are likely to represent BAT for odour management given the increased level of process control available and the limited space available for the required waste processing capacity. The specialist advice given was that this is unlikely to represent BAT. They highlight that a key limiting factor for passive aeration is windrow size – especially during the first phases of the composting process. The limiting factor is that oxygen will fail to penetrate the core of the windrow. Where this can happen the core of the windrow will become anaerobic and during turning give odour. Where windrows are too large, too dense, or too wet or a combination it impacts the ability of the windrow to passively aerate and perform the permitted activity. There may be the added factor of seasonality with waste types that contributes to these issues. It is the composting industry that established optimal windrow size as guidance to the industry to support aerobic processes and avoid odour generation. The guidance: 'An industry guide for the prevention and control of odours at biowaste processing facilities' published by the Composting Association suggests a "typical" windrow to be 3.5 m wide and 4 high – with adjustments for seasonality which may require a reduction in windrow size to avoid odour from anaerobic conditions. The waste treatment BREF on page 408 table 4.35 gives an optimum height as 1.5m - 3m also indicating that the windrows could increase in size towards the latter stages of the process – the maturation stage.

Upon discussions with the Biowaste group they highlighted the importance of employing the most

appropriate controls when monitoring the compost process. To ensure that monitoring points are representational of the windrow, it is essential that any probe can reach the centre core of that windrow. If this is not possible then process controls are not effective. A guidance on the appropriate measures for the biowaste treatment sector has been produced by the EA (following full consultation with the industry) which is due to be published by the end of March. This guidance states that an operator must locate their monitoring points so that it provides representative data. If you insert monitoring probes into the windrows and static piles you must work out the length of the probe needed to obtain representative data based on the size of the waste pile. You must obtain data from within the core of the pile. For example, a 4m stack will need a probe over 2m in length to make sure you can take a representative sample of the core. When discussed with the Biowaste group they challenge how this is possible with a 1.2m probe on 8m wide windrows. Upon liaising with the EA, they state that the windrows at the site are too big and that representative monitoring isn't possible in the current set up. They suggest that if an operator insists on them and regulator agrees, then the operator must invest in custom made probes that are of sufficient length to reach the core. That these are purchased in sufficient numbers to run simultaneous readings along the core.

Have you ever been able to measure the oxygen and temperature readings at the very centre of your windrows and if so, what was the result? Even if the windrows remain aerobic there is still the very real chance of ammonia production at elevated temperatures. As mentioned previously this can contribute to the development of objectionable odours.

Action 3: What is being done to limit this from occurring, can tighter temperature controls be employed to limit this? by **15th April 2022.**

As part of their discussions the Bio sector group highlighted the suitability of the current pad at the site. It is NRW's understanding that the site is possibly operating beyond its available capacity. Without the actual pad drawings, I have had to try to estimate the dimensions of the pad. My estimate that the pad is 140m long and 83 metres wide. Only part of the northern half of the pad is typically occupied by the open windrows. This area is approximately 80m x 45m giving an area of 3600 m^2.

Action4: As the operator please can you review the capacity of the pad and how this is calculated based on the maximum throughput and the design and construction of windrows (based on the required residence times and windrow dimensions). Please review the size of the pad that is available for composting to calculate what can reasonably processed in the required residence times. This should include a site layout plan clearly showing stockpile dimensions and suitable separation distances. Suitable separation distances must be in place to ensure that activities such as turning can be carried out and to avoid contamination between stockpiles. **By the 15th April 2022.**

It can be concluded that the current operation is a compromise between throughput and minimising anaerobic/high temperature conditions that deviate from the guidance on some aspects (windrow size in particular), making some odour generation inevitable. In the short term it is imperative that the odour management plan is robust enough to prevent or limit the impact on local receptors. NRW would like to see the site utilise all the weather resources available, including forecasting, to try to plan and execute their operations so that the most odorous operations (turning and screening) are conducted during periods that are the least impactful on the Rumney and Trowbridge areas.

End.

If you have any queries about this report, or to discuss completion of any actions, please contact the NRW Officer named above.

Important information

Legal status of this report

Your permit is issued to you under the Environmental Permitting Regulations. You have a responsibility to comply with the conditions of your permit and prevent pollution/harm of the environment. You must also ensure that you comply with any other relevant legislation that may apply to your site's operations.

This report explains the findings of our assessment and any action you are required to take. We categorise non-compliance using our guidance for assessing non-compliance at regulated sites.

When we find potential non-compliance/s we will normally give you advice on how to maintain compliance.

To correct non-compliance, we may:

- require you to take specific actions
- issue a notice
- review the conditions of your permit.

Any advice and guidance we give will be without prejudice to any other enforcement response that we consider may be required.

Assessment results and non-compliance categories (used in section 1):

Assessment result	Description
Assessed (A)	Assessed or assessed in part, no evidence of non-compliance found
Action only (X)	Action only relating to the activity assessment
Ongoing (O)	Ongoing non-compliance, not scored

Non-compliance category	Description	Score
C1 Major	Potential to have a major, serious, persistent and/or extensive impact or effect on the environment, people and/or property	60
C2 Significant	Potential to have a significant impact or effect on the environment, people and/or property	31
C3 Minor	Potential to have a minor or minimal impact or effect on the environment, people and/or property	4
C4 No environmental impact	Non-compliance at a regulated site that cannot foreseeably have any impact on the environment, people and/or property	0.1

How we use assessment scores

The number and severity of non-compliances recorded in a year will affect your annual subsistence fee the following year. A non-compliance factor is added to your site's Operator

Performance Risk Appraisal (OPRA) score when we calculate your fee to reflect the additional resource we use to assess permit compliance.

What are suspended scores?
In line with our guidance, we may suspend scores for up to six months to allow time for remedial action to be taken. Suspended scores will be re-instated if the action is not completed.

Full list of Industry and Waste action criteria (used in section 1 and 2):

A: Permitted activities
- A1 Specified by permit

B: Infrastructure
- B1 Infrastructure – Engineering for prevention and control of emissions
- B2 Infrastructure – Closure and decommissioning
- B3 Infrastructure – Site drainage engineering (clean and foul)
- B4 Infrastructure – Containment of stored materials
- B5 Infrastructure – Plant and equipment

C: General management
- C1 General management – Staff competency/training
- C2 General management – Management system and operating procedures
- C3 General management – Materials acceptance
- C4 General management – Storage, handling, labelling and segregation

D: Incident management
- D1 Incident management – Site security
- D2 Incident management – Accidents, emergency and incident planning

E: Emissions
- E1 Emissions – Air
- E2 Emissions – Land and groundwater
- E3 Emissions – Surface water
- E4 Emissions – Sewer
- E5 Emissions – Waste

F: Amenity
- F1 Amenity – Odour
- F2 Amenity – Noise
- F3 Amenity – Dust/fibres/particulates and litter
- F4 Amenity – Pests/birds and scavengers
- F5 Amenity – Deposits on road

G: Monitoring and records, maintenance and reporting
- G1 Monitoring and records, maintenance and reporting – Monitoring of emissions and environment
- G2 Monitoring and records, maintenance and reporting – Records of activity, site diary/journal/events
- G3 Monitoring and records, maintenance and reporting – Maintenance records
- G4 Monitoring and records, maintenance and reporting – Reporting and notification to Natural Resources Wales

H: Resources efficiency
- H1 Resource efficiency – Efficient use of raw materials
- H2 Resource efficiency – Energy efficiency

Enforcement response
Any permit condition non-compliance is an offence and we may take legal action against you. Action we take can include prosecution, serving a notice on you and/or suspension or revocation of your permit. See our Enforcement and Sanctions Guidance for further information.

Data protection notice
You should make sure that anyone named in this report knows that the information it contains will be processed by Natural Resources Wales to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s).

We may also use and/or disclose the report in connection with:

- offering or providing you with our literature or services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law
- assessing customer service satisfaction and improving our service
- Freedom of Information Act or Environmental Information Regulations requests.

We may also pass it on to our agents or representatives to do these things on our behalf.

Disclosure of information – this report will be available to view on-line
If you think this report contains commercially confidential information that should not be placed on our public register, you must contact your local Natural Resources Wales office within **fifteen working days** of receiving this report, using the contact details in the accompanying email or letter. You must give a full explanation of why it should not be added to our public register, including specifying which information is commercially confidential. We will assess your request and respond to you within 20 working days to let you know if we agree to your request.

What do I do if I disagree with the report or have a complaint?
If you disagree with this compliance assessment report, you should contact the lead officer without delay to discuss your concerns.

If you are unable to resolve the issue with the lead officer or their line manager you should contact our Customer Contact team on 0300 065 3000 (Monday to Friday 08:00 – 18:00), or email enquiries@naturalresourceswales.gov.uk for details of how to raise your dispute further through our Complaints and Commendations procedure.

If you are dissatisfied with our response, you can contact the Public Services Ombudsman for Wales by phone on 0300 7900203 or by email at ask@ombudsman.wales

Welsh Language Standards
We are committed to establishing Natural Resources Wales as a naturally bilingual organisation. We will provide compliance reports in your preferred language.