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Consulting Engineers Limited

Redcar – Fuel Preparation Facility

Redcar Holdings Ltd

Odour Management Plan

ENGINEERING CONSULTING

Document approval

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Contents

1 Introduction

Redcar Holdings Limited (Redcar Ltd) is applying to the Environment Agency (EA) for an Environmental Permit (EP) to construct and operate the Redcar Energy Centre (REC) which will comprise a fuel preparation facility, an Energy Recovery Facility (ERF) to incinerate incoming non-hazardous waste, and an IBA treatment/processing facility (IBA facility). REC will be located at the Redcar Bulk Terminal, approximately 4.5 km west of Redcar town centre and 8.5km northeast of Middlesbrough city centre.

During pre-application discussions (EPR/TP3502MS/A001), the EA requested that an Odour Management Plan (OMP) for the fuel preparation facility is developed and submitted with the EP application.

The aim of this OMP is to detail the provisions and controls which have been incorporated into the design phase of the fuel preparation facility to manage the risk of odour nuisance during operations. This OMP will be subject to review following completion of detailed design of the fuel preparation facility; therefore, this report should be regarded as being a preliminary OMP.

During the operational lifespan of the fuel preparation facility, this OMP will be a working document and will be referenced by operational staff on a day-to-day basis. It will be subject to regular periodic reviews at a minimum frequency of once per year.

The fuel preparation facility has been designed in accordance with the requirements of the current odour management guidance, including the following:

- Sector Guidance Note IPPC S5.06: Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste, EA;
- IPPC Reference Document on the Best Available Techniques for the Waste Treatments Industries (Waste Treatments BREF);
- Guidance Note H4: Odour Management, EA; and
- Odour Guidance for Local Authorities, DEFRA, March 2010[1].

1.1 Report Structure

In accordance with the requirement of the EA's H4 guidance, this report has the following structure:

- Section 2: Description of the fuel preparation facility and the operations to be undertaken.
- Section 3: Review of potential odour sources, pathways and receptors.
- Section 4: Odour management and control measures.
- Section 5: Abnormal events and appropriate response measures.
- Section 6: Complaints and contingency procedures.
- Section 7: Timescales for review of this OMP.

Furthermore, the points set out within BAT 12 of the Waste Treatment BREF relating to OMP have been addressed as follows:

- a protocol containing actions and timelines – refer to section 6;
- a protocol for conducting odour monitoring as set out in BAT 10 – refer to section 4.5;

[1] This guidance was withdrawn on 15 September 2017 and was replaced with '*Guidance on nuisance smells: how councils deal with complaints*'. However, the new guidance is not considered to be as prescriptive, so the 2010 guidance has been referenced throughout this document.

- a protocol for response to identified odour incidents, e.g. complaints – refer to section 6.2; and
- an odour prevention and reduction programme designed to identify the source(s), to characterise the contributions of the sources, and to implement prevention and/or reduction measures – refer to section 4.

2 Site Location and Description

2.1 The Site

REC will be located on approximately 10 hectares of land at the Redcar Bulk Terminal, approximately 4.5 km west of Redcar town centre and 8.5km north east of Middlesbrough city centre. The fuel preparation facility will form the majority of the western half of REC. A site location plan is presented in Appendix A.

The nearest receptors that are highly sensitive to odour are the residential properties on Tod Point Road, approximately 2.3km to the southeast of the site. The nearest receptors that are of medium sensitivity to odour are the industrial premises at the Redcar Bulk Terminal which lie around 1km to the west of the site.

The location of each sensitive receptor in relation to the site boundary is identified in Table 3 and Appendix C.

2.2 Site address

Redcar Materials Recycling Facility,

Redcar Energy Centre,

Land at Redcar Bulk Terminal,

Redcar,

TS10 5QW

2.3 Summary of Operations

The fuel preparation facility will be capable of processing up to approximately 200,000 tonnes per annum of non-hazardous waste, expected to be a mixture of municipal solid waste (MSW) and commercial and industrial (C&I) waste that has been pre-treated to remove recyclates prior to arriving at the fuel preparation facility in a baled form. It is expected that the fuel preparation facility would operate 24 hours a day, 7 days a week throughout the year except during shutdown periods for maintenance or repair.

The purpose of the fuel preparation facility will be to process the incoming waste (including de-baling, and shredding of bulky waste) to produce a waste-derived fuel or Refuse Derived Fuel (RDF). The RDF would be transferred for processing either within the adjacent ERF or an ERF off-site. A detailed description of each part of the process is provided below.

2.3.1 Waste types

The fuel preparation facility will accept baled non-hazardous waste in addition to bulky waste. Waste is expected to be sourced primarily from waste transfer stations.

The proposed list of European Waste Catalogue (EWC) codes which will be accepted at the fuel preparation facility for processing is presented in Table 1.

Table 1: Waste to be processed in the fuel preparation facility

EWC Code	Description of Waste
WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING	
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 07	wastes from forestry
WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD	
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 08	wastes from sorting of paper and cardboard destined for recycling
WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES	
04 02	**wastes from the textile industry**
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
WASTES FROM ORGANIC CHEMICAL PROCESSES	
07 02	**wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 13	waste plastic
07 02 15	wastes from additives other than those mentioned in 07 02 14
07 02 17	wastes containing silicones other than those mentioned in 07 02 16
07 05	**wastes from the MFSU of pharmaceuticals**
07 05 14	solid wastes other than those mentioned in 07 05 13

EWC Code	Description of Waste
WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS	
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 05	plastics shavings and turnings
WASTE PACKAGING, ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED	
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
15 01 09	textile packaging
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
WASTES NOT OTHERWISE SPECIFIED IN THE LIST	
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 19	plastic
16 03	**off-specification batches and unused products**
16 03 04	inorganic wastes other than those mentioned in 16 03 03
17 02	**wood, glass and plastic**
17 02 01	wood
17 02 03	plastic
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01

EWC Code	Description of Waste
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE	
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 05	**wastes from aerobic treatment of solid wastes**
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 09	**wastes from the preparation of water intended for human consumption or water for industrial use**
19 09 01	solid waste from primary filtration and screenings
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 04	plastic and rubber
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS	
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 10	clothes

EWC Code	Description of Waste
20 01 11	textiles
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 03	**other municipal wastes**
20 03 01	mixed municipal waste
20 03 02	waste from markets
20 03 07	bulky waste

2.3.2 Waste reception

Waste will be delivered to the fuel preparation facility via road in enclosed waste delivery vehicles. The vehicles will enter the site via a weighbridge which will be used to record the mass of each incoming load. Weighbridge staff will check the documentation accompanying each incoming load to ensure the load meets the fuel preparation facility's Waste Acceptance Criteria (WAC) and the list of acceptable wastes, which will be detailed in the EP. Vehicle loads may be inspected periodically at the weighbridge layby to confirm the nature of the wastes being delivered to the fuel preparation facility. Although there is no specific WAC to limit the age of waste received at the fuel preparation facility, the waste received at the fuel preparation facility will typically be less than 4 weeks old.

The vehicles will then proceed to the main fuel preparation facility building and enter the building via fast acting roller shutter doors (which will be kept closed when waste deliveries are not occurring). Therefore, the waste reception and storage area within the main fuel preparation facility building will be enclosed. Once within the main building, the waste delivery vehicles will deposit the waste in the main waste storage areas, with the waste visually inspected as it is unloaded. It is expected that the layout of the fuel preparation facility would comprise multiple waste storage bays.

Once a delivery has been made, road delivery vehicles exiting the site will then be weighed again upon exit in order to determine the mass of waste that has been delivered to the fuel preparation facility. Waste deliveries will be supervised by suitably trained staff and will take place within areas covered by CCTV. It is anticipated that around 57 waste delivery vehicles will access the site each day, split between a mixture of RCVs and HGVs.

2.3.3 Waste processing

Incoming waste will be processed promptly upon receipt, resulting in relatively short retention times for incoming waste stored at the fuel preparation facility. Most waste will be processed within 4 – 6 days. From the waste storage bays, the waste will be loaded into the bale breaker using a wheeled loader. Once de-baled, the 'liberated' material will be held in an intermediate storage bunker prior to loading into a moving floor feeder using a wheeled loader. The moving floor feeder will feed into a bridge conveyor system, which will transfer the fuel to the adjacent ERF for processing.

Bulky waste received would be fed into a stand-alone shredder. Shredded waste would be held in an intermediate storage bunker prior to loading into a moving floor feeder using a wheeled loader.

The moving floor feeder will feed into a bridge conveyor system, which will transfer the fuel to the adjacent ERF for processing.

An indicative process flow diagram is provided within Appendix A of the Supporting Information.

2.3.4 Waste export

Refuse-derived fuel (RDF) produced by the fuel preparation facility will be transferred for recovery at the adjacent ERF, using a conveyour system.

Small amounts of 'rejected' or 'unacceptable' material will be stored within a dedicated quarantine area at the fuel preparation facility and will be transferred off-site to a suitably licensed waste management facility in a timely manner.

2.3.5 Waste storage arrangements

It is expected that the layout of the fuel preparation facility will allow for a number of dedicated waste storage bays, constructed of reinforced concrete. A dedicated quarantine area will also be reserved for the storage of 'unacceptable' waste that has been identified once it has already been unloaded at the site, prior to transfer off-site.

Waste storage bays will have sufficient holding capacity to allow effective buffering between waste deliveries and processing rates. The bays will be segregated by fire walls and will be fitted with appropriate fire detection and prevention measures (such as temperature detectors, water cannons or a sprinkler system, etc). Routine waste inspections will take place within waste storage and quarantine areas in the fuel preparation facility building.

There will also be a 'tipping area' for rejected material from the ERF within the fuel preparation facility building.

It is proposed to update the OMP with a full summary of the storage arrangements (including capacities) at the fuel preparation facility following completion of detailed design.

3 Potential Sources, Pathways and Receptors

The potential odour sources, pathways and receptors are detailed in sections 3.1, 3.2 and 3.3.

3.1 Odour sources

The key operations at the fuel preparation facility associated with the receipt, handling, processing and storage of waste which could lead to emissions of odour are identified in Table 2.

Table 2: Odour Inventory

Process/activity	Location	Emissions potential
Transportation (import and export from the fuel preparation facility).	Roads on approach to site, site entrance, weighbridge.	Emissions from surface of wastes being transported in vehicles/trailers, particularly if they are inadequately enclosed or covered.
Unloading of waste.	Waste reception area within main process building.	Emissions generated by agitation of waste during uncovering of loads and tipping of waste into waste storage bays. Possible escape from the building though open doors, or other points of air exchange.
Waste processing.	Main process building.	Emissions from wastes being disturbed/agitated on conveyors, emissions during shedding of waste. Possible escape into the atmosphere through any open doors or other points of air exchange.
Waste storage.	Waste storage bays located within main building.	Some fugitive emissions may be generated from the surface of waste that is stored (e.g. in waste piles), particularly if the building is not adequately enclosed or if piles are disturbed in any way.

3.2 Pathways

Odours emitted from the sources identified in section 3.1 are emitted to air and have the potential to be conveyed to nearby receptors via transfer through the air (dispersion).

The extent to which odour is detectable downwind and the intensity and character of such odours is dependent upon the following factors:

- The nature and magnitude of odorous emissions released from the source;
- Wind direction and wind speed; and
- Atmospheric turbulence (vertical and horizontal) and the level of dilution and dispersion odours undergo as they travel downwind.

All these factors can exhibit substantial variation over time. As shown in Appendix G, the prevailing wind direction for the site is from the southwest, with an average wind speed between 4.5 – 5 m/s. Therefore, receptors to the northeast of the site are most likely to be affected by odour emissions.

3.3 Sensitive receptors

The identification of potentially sensitive receptors has been conducted on the basis that the level of exposure to odour that is likely to generate annoyance in residential properties (i.e. people's homes) tends to be considerably lower than the levels which may generate annoyance at industrial or commercial premises where higher tolerance to odour exposure can generally be expected. The sensitivity of receptors has been defined as follows:

- high sensitivity receptors include residential dwellings, hospitals and schools;
- medium sensitivity receptors include places of work, commercial, industrial and retail premises, and playing/recreation fields; and
- low sensitivity receptors include farms, footpaths and roads.

Typically, odour sensitive receptors within 1 km of the site should be considered. However, for the fuel preparation facility, there are few receptors within 1km of the site boundary, due to the location of the site. Therefore, a number of additional receptors up to around 3 km from the site have been considered. The odour sensitive receptors are listed in Table 3. A drawing showing the location of receptors in relation to the site is presented in Appendix C.

Table 3: Sensitive Receptors

ID	Receptor Name	Sensitivity	Location		Approx. distance from site boundary (m)
			X	Y	
R1	Tesco DC	Medium	455521	524198	1.8
R2	Intertek	Medium	454076	524732	2.2
R3	Hartlepool Power Station	Medium	452988	526955	3.0
R4	Frutarom UK	Medium	453507	527302	2.7
R5	Birkbrow Motors	Medium	457837	523976	2.8
R6	Broadway West	High	458050	523878	3.0
R7	York Road	High	458903	525055	3.2
R8	Northumbrian Water	Medium	456751	524385	1.8
R9	Redcar Bulk Terminal	Medium	454849	525945	1.0
R10	Paddy's Hole	Medium	455616	527344	1.3
R11	Broadway East	High	458776	524150	3.4
R12	Tod Point Road	High	457942	525050	2.3

4 Odour Management and Control Measures

4.1 Monitoring

An Environmental Management System (EMS) will be in operation which will include a range of monitoring and recording procedures. This OMP will form part of the EMS and will be reviewed and updated accordingly during the course of the project.

Routine olfactory inspection of the site will be conducted during operational hours by trained staff. During the inspection, a walk-around of the site boundary, as shown in Appendix B, will be conducted and observations made concerning the type and nature of any odours detected, including the likely source. The monitoring will be recorded and incorporated into the documented site management systems.

In the unlikely event odour is detected at the site boundary, the source of the odour will be investigated. Once the source and cause of the odour has been identified, appropriate mitigation measures to abate the odour will be implemented. Should the results of odour monitoring continue to identify odour as escaping the site, activities at the site (such as waste acceptance, waste processing) will be ceased until the cause can be identified and rectified. Data sets and previous records of inspections would be reviewed to try and determine when and why higher levels occur (such as during particular weather conditions), with the aim of improving odour management measures at the site to prevent re-occurrence of higher levels.

The frequency of monitoring would be increased when activities with a high potential to produce odour are being carried out, and during prolonged hot or windy weather.

Full details of the monitoring to be undertaken are provided in section 4.5.

4.2 Waste pre-acceptance

Documented procedures for pre-acceptance and acceptance of all wastes will be developed prior to the commencement of operation, in accordance with the documented management systems for the fuel preparation facility. This will ensure that only suitable waste is accepted for processing at the fuel preparation facility and will allow for screening of ‘unacceptable’ wastes which may include particularly odourous wastes.

The waste pre-acceptance or ‘screening’ stage will involve the provision of information and representative samples of the waste, to allow Redcar Ltd to initially determine the suitably of the waste before arrangements are made to accept the waste at the site.

Contracts will be held with waste suppliers and also local authorities that will supply waste to the fuel preparation facility. The contracts will ensure that the waste suppliers provide the waste in accordance with the EWC codes listed within the EP. For each new waste enquiry with a new waste supplier, a comprehensive characterisation of the waste will be undertaken. Verifications of written information provided by the waste producer will be undertaken, and a visit made to the waste producer if required. Representative samples of the waste will be undertaken to determine the composition, with any deviations from the initial characterisation of the waste fully investigated and justified.

Regular audits will be undertaken of waste suppliers to ensure that only waste under the agreed specifications is delivered to the fuel preparation facility. This will include more detailed checks of the waste types produced and will ensure a representative analysis of the waste produced.

4.3 Waste acceptance

The second waste acceptance stage relates to acceptance procedures when the waste arrives at the site. The majority of waste characterisation work is undertaken during pre-acceptance checks (refer to section 4.2 above), with the second stage of waste acceptance serving to confirm the characteristics and nature of the waste identified during pre-acceptance checks.

It is expected that a booking system will be implemented at the fuel preparation facility so that waste arrives during scheduled delivery slots. In addition to the pre-acceptance checks, this will minimise the time the delivery vehicle is kept waiting.

Upon arrival at the fuel preparation facility, the date and time of the receipt of waste will be recorded and the waste type/unique identification number confirmed. The accompanying waste transfer note (or similar documentation) will be reviewed to confirm the waste quantities, producer, EWC codes etc.

The waste delivery vehicle would be weighed at the weighbridge to confirm the quantity of the waste that is being delivered to the site. Procedures will be implemented on site for the periodic inspections of wastes at the weighbridge against the agreed specifications. This verification and compliance testing will serve to confirm identity of the waste, including consistency with pre-acceptance information. Particularly odorous waste will not be accepted at the fuel preparation facility. Furthermore, waste would not be accepted at the fuel preparation facility and will be rejected if sufficient storage/processing capacity is not available (for example if the waste processing equipment is not operational).

Waste deliveries would be supervised by suitably trained staff and will take place within areas covered by CCTV. Inspection, unloading and sampling areas will be marked on the site plan and have suitably contained drainage.

Should a particularly odorous load be accepted at the fuel preparation facility, the waste will be immediately placed in the main quarantine area and removed by the end of the working day. Details of the load and its rejection will be recorded, to assist in identifying waste suppliers which persistently do not meet waste acceptance requirements. Should the waste not fall into the approved list of EWC codes within the permit, or otherwise present a significant risk of odour emissions, the EA will be informed.

4.4 Control measures

4.4.1 Waste delivery vehicles

All waste delivered to the fuel preparation facility will be in enclosed vehicles. This will contain fugitive emissions within the delivery vehicles.

4.4.2 Main process building

The main process building is an enclosed area which will be accessed via roller shutter doors. The doors will be kept closed at all times, except when waste deliveries are occurring.

Reducing the level of odour emissions within the main process building will improve the working environment and reduce the risk of fugitive emissions. The following control measures have been identified to reduce odour emissions within the building:

- Waste will be confined to designated unloading and storage areas. Continual processing of waste (and prioritisation of older wastes for processing) will prevent build-up of odourous material on the floor of the building.
- It is expected that incoming waste will typically be processed within 4 – 6 days. Baled waste will not be stored at the fuel preparation facility for longer than 3 months in accordance with the requirements of the EA's Fire Prevention Plan guidance, although is expected to be processed much quicker than this.
- Waste will be disturbed only when necessary for processing, as disturbance of waste will increase odour emissions.
- Waste that is not covered by the waste codes detailed in the EP will be rejected and removed from site.

4.4.3 Waste export

Once the waste has been processed, intermediate storage bunkers will temporarily store the waste prior to transfer to the adjacent ERF by conveyor.

The tipping area will store rejected material from the ERF prior to transfer off-site.

Any vehicles which export waste from the fuel preparation facility will be covered or otherwise enclosed to prevent fugitive emissions of odour.

4.5 Odour monitoring

A programme of periodic odour monitoring will be implemented at the fuel preparation facility. This will include the following:

- Olfactory (sniff) testing at the site boundary; and
- Measurements of wind direction and speed.

Olfactory testing will be undertaken around the site boundary. Where odours at the boundary are identified, this will be reported to the site management team. An investigation into the source and root cause of the odours will be undertaken and appropriate actions plans to mitigate the odour impacts from the fuel preparation facility as explained in section 6.

4.5.1 Competence

In order to ensure repeatability of the odour monitoring results, more than one competent odour assessor/member of staff will be on-site at all times. This will ensure that odour monitoring will continue if one individual is away or unavailable. Furthermore, as colds, sinusitis or sore throats can affect the sense of smell, having more than one trained individual will allow the monitoring to continue in the event of illness. However, if all individuals are suffering from illness etc then this fact will be recorded on the odour monitoring forms. Redcar Ltd will ensure that the number of trained individuals on-site at any one time, will not exceed four people so to maintain consistency of the results.

It is important for the individuals undertaking the monitoring to not spend, or have not spent, significant time in waste processing areas, as their sense of smell must not have become accustomed to the odours arising. These individuals should avoid strong foods or drinks (including coffee) for at least half an hour before conducting the monitoring. Furthermore, strongly scented toiletries and the use of deodorisers within vehicles will be avoided.

4.5.2 Monitoring locations

The proposed locations for odour monitoring are presented in Appendix D. The locations will be reviewed prior to commencement of operations to ensure that there are no accessibility constraints associated with them.

4.5.3 Monitoring frequency

In order to generate a detailed odour record, regular monitoring of boundary odour would be carried out. This will ensure a detailed set of data is maintained throughout the year.

Odour monitoring will also be undertaken upon receipt of any complaints in order to identify and record the odours present at the time of the complaint. Refer to section 6 for details of the odour complaints investigation procedure.

The strategy is flexible; therefore, the monitoring will not be conducted at a set time of day. Instead, the monitoring will be conducted when there is a high risk of odour generation, i.e. during peak delivery times where the doors to the main building will be frequently opening.

4.5.4 Data collection and recording

Before commencing the odour monitoring, the individual undertaking the monitoring will record all pertinent details, such as date, time, weather conditions and activities being undertaken. This has been summarised within the monitoring template presented in Appendix E. The use of an anemometer to determine wind direction will be considered during the detailed design phase of the fuel preparation facility – this would be particularly useful in the event of any odour complaints being received.

To quantify the odour at a specific level, the 'Intensity' and 'Offensiveness' will be recorded. These are based on a scale of 1 to 5 for 'Intensity', and 1 to 4 for 'Offensiveness', as presented in Table 4 (Odour Intensity) and Table 5 (Odour Offensiveness).

Table 4: Odour Intensity

Scale	Intensity Rating
1	No detectable odour
2	Faint odour (barely detectable, need to stand still and inhale facing into the wind to detect)
3	Moderate odour (easily detectable while walking and breathing normally)
4	Strong odour
5	Very strong odour (probably causing nausea)

Table 5: Odour Offensiveness

Scale	Offensiveness Rating
1	No detectable odour
2	Potentially offensive
3	Moderately offensive
4	Very offensive

As well as recording the Intensity and Offensiveness, general comments on the odour will also be recorded, such as persistence, transience, and potential source.

4.5.5 Action limits

If a score of 1 is recorded for Intensity and Offensiveness at a monitoring location, odour from the fuel preparation facility cannot be detected and no action is required.

If monitoring locations score a 2 or higher for Intensity or score a 2 or higher for Offensiveness, then a more detailed investigation into the activities being undertaken and the root cause of the odour will be undertaken. This will attempt to identify the source of the odour and possible ways to improve operations at the fuel preparation facility to prevent odour being generated from on-site activities.

5 Abnormal Events – Contingency and Emergency Plans

This OMP assumes that the site will be running under expected (i.e. 'normal)' operating conditions. However, there are a limited number of potential events which could result in odorous emissions from the site if not appropriately considered in advance.

5.1 Abnormal events and response measures

The plausible abnormal events, and planned responses in the event of these occurrences are presented in Table 6.

Table 6: Abnormal Events and Response Measures

Event	Location	Likely effect	Response measures
Meteorological conditions			
Temperature inversion (cold odourous air trapped beneath a layer of warm air under still conditions).	Any location	Increased risk of detectable odour outside of the site boundary.	Olfactory monitoring to focus on the down-flow boundaries of the site, to monitor for the early signs of low-level odour movement.
Storm conditions (such as strong winds).	Any location	Risk of increased impact from any area of site.	Short term (< 24 hours): Undertake risk assessment of odour generation and impact, by increasing frequency of odour assessment and monitoring. Medium/long term (> 24 hours): Temporary suspension of incoming waste and/or transfer of odorous wastes off-site to an alternative waste treatment facility.
Hot conditions.	Any location	Increased odour generation.	Risk assessment of odour generation and impact by increasing frequency of odour assessment and monitoring. Any wastes identified as generating an odour will be prioritised for processing and/or transfer from the fuel preparation facility.
Operations and equipment			
Severely odorous wastes received from a waste producer.	Main process building	Increase in odour within the building while severely odorous waste is present. Any fugitive emissions become more serious.	Reject any waste which is believed to be severely odorous and does not comply with the waste acceptance procedures, if this is identified before the delivery vehicle has left the site.

Event	Location	Likely effect	Response measures
			If the delivery vehicle has left the site, immediately place severely odorous waste in the designated quarantine area. Transfer this waste off-site to a suitably licensed waste management facility at the earliest opportunity. Additional deliveries of waste from the waste producer may be suspended. If odour emissions are believed to be less severe and the waste can be processed, prioritise processing of the waste to reduce the duration of time it is stored within the main building.
Development of anaerobic conditions in waste storage areas	Main process building	Increase odours within the building.	Waste will typically be stored on site for short periods before processing. Waste will be processed and removed on a first-in, first-out principle. It is expected that waste will typically be processed within 2 – 3 days. Waste of any type will not be stored on site for longer than 4 weeks. Frequent visual and olfactory checks of waste storage areas will be undertaken. Good housekeeping and regular washdown of waste storage areas will be undertaken.
Plant breakdown	Any location	Risk of increased impact from any area of site where normal operations are affected during and after the breakdown	A supply of critical spares will be maintained on site. If spares and/or a qualified engineer are not available, the relevant operations and their predecessors in the process will be suspended if necessary to prevent significant increase in odour emissions.

5.2 Staffing issues

Human error and accidents may cause elevated levels of odour to be created either through the stopping or breakdown of the process or the failure of equipment. Contingency mitigation measures will be developed as part of the detailed design, construction and commissioning of the fuel preparation facility. This will include procedures to be implemented in the event of a lack of suitably trained and competent staff to operate the fuel preparation facility.

5.3 Planned odorous events

If, at any time, it is necessary to undertake temporary actions that are likely to cause elevated levels of odour, Redcar Ltd will contact the EA and any other relevant stakeholders before such actions are taken to inform them of the operations being undertaken and that the elevated levels of odour will be of a temporary nature.

6 Odour Action Plans/Contingencies

The measures outlined in this OMP are aimed at preventing odour emissions occurring to the extent where complaints may be made regarding odour by nearby sensitive receptors. Nevertheless, Redcar Ltd considers that having an established complaints procedure is an essential part of implementing a successful OMP.

As such, the EMS will include procedures for managing external complaints. This will include for complaints in relation to odour emissions from the site. The procedures will include those for the recording of the initial complaint, the approach to investigation, and proposed response time. This will align with the requirements of the EP. It is expected that management at the fuel preparation facility will handle any complaints that are received. Management will be responsible for logging any complaints received in the site's incident reporting system, with the EA informed as soon as possible following receipt of a complaint. They will also be responsible in submitting a short report to the EA detailing the complaint and whether any remedial actions have been implemented.

Public comments, complaints and concerns could be received by email, telephone or letter, either directly to the site or via the relevant authorities (such as the Local Planning Authority or the EA). Redcar Ltd will aim to respond to complaints within 2 working days of receipt, with a maximum time of 7 days implemented to respond to a complaint. A board displaying the relevant contact information will be displayed at the gatehouse.

6.1 Engagement with the community

Redcar Ltd is committed to maintaining a comprehensive communications programme to ensure that local stakeholders are kept informed on the development of the Facility. A communications plan will be developed and implemented as part of the facilities EMS. This will provide details on how Redcar Ltd will interact with external stakeholders.

A board displaying the relevant contact information will also be displayed at the gatehouse. This will include for an emergency 24-hour contact number so that complaints/enquiries etc can be registered at all times.

6.2 Odour complaint investigation

The following actions will be taken on receipt of an external odour complaint or the identification of odour at the site boundary:

- Any complaints received at the fuel preparation facility will be logged in the site's incident reporting system. The EA will be informed as soon as possible following receipt of a complaint.
- The site management will be given the details of the odour complaint as soon as possible, including the location, nature, time, and date of the complaint.
- Should a complaint be received, a "sniff test" (olfactory monitoring) will be conducted as soon as is practicable by a suitably trained member of staff in the area of which the complaint is regarding, to assess the presence of any odours, including odour characteristics and intensity. Where possible, the likely cause of the odour will be identified.
- For all complaints, reference will be made to the site activities at the time of the complaints, and further onsite investigations will be conducted to determine whether any abnormal operation are (or were) occurring. The following key potential causes of abnormal odour emissions will be investigated:
  a. Is the waste arriving in appropriate vehicles/containers?

b. Are there any unusual characteristics evident in the waste on site (composition, age, condition etc.)?
c. Are there any unusual weather conditions at the site (e.g. periods of very hot weather, strong winds)?
d. Are operations (waste processing and movement within the site) in 'normal operation'? Or is any plant and equipment found to be faulty or otherwise not working properly?
e. Are there any unusual activities taking place off site?

- If the investigations identify that the source of the odour is an off-site source, feedback will be given to the complainant, and a complaint logged with the off-site source of the odorous emissions.
- Once any on-site cause of the odour complaint has been established, appropriate actions will be immediately implemented (see section 5.1), and a strategy devised to prevent reoccurrence.
- Feedback will be given to all complainants on the findings of any investigations if they are known, and a summary will be provided of any remedial measures taken to rectify odour problems and ensure that the problem has been suitably resolved. The complainant will be asked if the perceived problem is still occurring to measure any improvement achieved.
- Redcar Ltd will submit a short factual report to the EA detailing:
  - the complaint(s) received;
  - the investigations conducted;
  - the findings of those investigations;
  - whether the complaint was substantiated;
  - any remedial measures implemented; and
  - any ongoing improvement actions to be implemented.
- Records of all complaints, subsequent investigations, and remedial actions will be retained on site for a minimum of five years. The site management will ensure that records are readily retrievable and maintained as fit for retention. As applicable, records will be stored in accordance with data protection legislation.

6.3 Action plans

In the event that an odour complaint is proven to be justified and attributable to operations undertaken at the fuel preparation facility, or a 'non-conformance' occurs, a defined action plan will be implemented. The following potential odour 'non-conformances' have been identified:

- abnormal odour emissions occur;
- significant odour is detected onsite that is believed to pose a risk of offsite odour impact; and/or
- significant odour is detected off-site during the "sniff testing" exercise, that is attributable to the fuel preparation facility.

In the event that any of the above occurs, the following actions will be taken:

- If not previously undertaken, a walk-around of the entire site and a review of the activities undertaken at the fuel preparation facility will be conducted in order to identify the likely cause(s) of the odour.
- Upon identification of the likely odour source(s), appropriate corrective and preventative measures will be identified and implemented, depending on the outcome of the investigations. The measures will consider, but not be limited to the following:

a. Suspension of receipt of highly odorous waste in the relevant waste reception areas and the closure of all doors until excessively odorous wastes are processed or removed from site.
b. Suspension of future receipt of the odorous waste stream until confirmed acceptable.
c. Review of the effectiveness of waste acceptance, reception and handling procedures.

Details of any odour 'non-conformances' including the nature of the incident, results of investigations, action taken and any required amendments to the OMP will be made available to the EA on request.

It is expected that management at the fuel preparation facility will handle any complaints that are received. Management will be responsible for logging any complaints received in the site's incident reporting system, with the EA informed as soon as possible following receipt of a complaint. They will also be responsible in submitting a short report to the EA detailing the complaint and whether any remedial actions have been implemented.

7 Document Review

7.1 Review requirement and timescale

The OMP will initially be formally reviewed by Redcar Ltd following detailed design of the fuel preparation facility. Scheduled reviews will then be undertaken six months after the commencement of operations, and on an annual basis thereafter to ensure that the controls described are effective and reflect best available techniques. In addition, the OMP will be reviewed following any relevant changes in site operations or procedures that are likely to have implications from an odour generation/impact perspective.

Any required changes to the conditions set out within this document shall be formally agreed with the EA prior to their implementation.

Appendices

A Site Location Plan

B Site Layout Plan

C Sensitive Receptor Locations

D Odour Monitoring Locations

E Odour Assessment Report

Site		Date	
Weather		Wind (strength / direction)	
Temperature (°C)		Pressure (mbar if known)	
Ground Conditions		Cloud Cover	
General Air Quality		Time: Start	
		Time: Finish	
Activity on Site			

Plan attached showing location & extent of odour

YES / NO

Complaint Received?

YES / NO

If **YES** complete the complaints form presented within Appendix F:

Complaints form completed?

YES / NO

If **NO** provide justification in comments section below.

Additional Comments:

Action Required:

Signed: …… **Date: ……**

Test Location & Time	Intensity (1 – 5)	Offensiveness (1 – 4)	"Dilution to Threshold" Ratio	Comments: (including persistence, transience, potential source)

Note: The "Dilution to Threshold" Ratio is obtained from the Nasal Ranger and is only required if an odour is detectable, i.e. a 2 or higher for Intensity.

F Odour and dust complaint form

Dust and/or odour complaint form	
Customer details	
Customer Name -	
Address – Postcode –	
Customer Contact Details -	
Tel -	
Email -	
Date -	
Complaint Ref Number -	
Complaint Details -	
Investigation details	
Investigation carried out by -	
Position -	
Date & time investigation carried out -	
Weather conditions -	
Wind direction and speed -	
Investigation findings -	
Feedback given to EA and/or local authority -	
Date feedback given -	
Feedback given to public -	
Date feedback given -	
Review and improve	
Improvements needed to prevent a reoccurrence -	
Proposed date for completion of the improvements -	
Actual date for completion -	
If different insert reason for delay -	
Does the dust and/or odour management plan need to be updated -	
Date that the dust and/or odour management plan was updated -	
Closure	
Site manager review date	

Dust and/or odour complaint form	
Site manager signature to confirm no further action required	

G Wind roses from Teesside International Airport

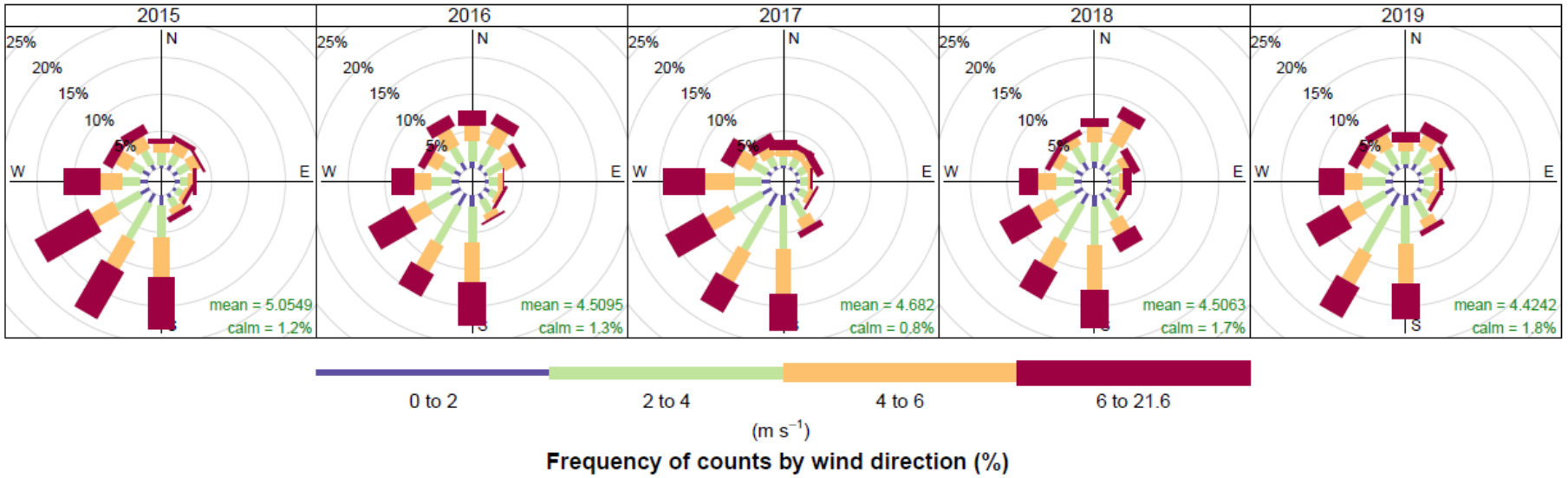

Figure 1: Wind roses from Teesside International Airport (previously Durham Tees Valley Airport)

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