FICHTNER
Consulting Engineers Limited

R&P Clean Power

SERF

EA schedule 5 responses

Schedule 5 responses

Item 1 - "In the event of unplanned plant downtime, confirm what measures are in place to:

a. avoid odour issues arising

b. ensure that waste is not delivered to site, and

c. ensure waste present on site is removed in case of extended plant downtime"

In advance of a planned shutdown, BAT is to minimise the amount of waste stored in the bunker by reducing waste acceptance rates and diverting deliveries to other waste management facilities. During the shutdown itself, negative pressure will be maintained in the tipping hall by extracting air above the bunker through a shutdown abatement system. If the planned shutdown is of a limited duration e.g., less than three days, waste can continue to be accepted but at a reduced rate. For longer duration shutdowns, we would expect to stop accepting waste completely. In the event of an unplanned shutdown, the shutdown abatement system will be operated as above. Once the nature/cause of the unplanned shutdown has been determined, if the shutdown is expected to last less than three days, the plant would continue waste acceptance but at a reduced rate with some deliveries diverted to other facilities dependent on the remaining bunker capacity. For longer duration, unplanned shutdowns, all waste deliveries will be stopped and, additionally, that waste be removed from the bunker and transferred to other facilities. Site operators will also be performing more frequent odour test surveys during full outages.

Item 2 - Confirm whether a wet scrubbing or activated carbon odour filtration system is intended to be used. If wet scrubbing is to be used, provide details of how waste water arising from it will be handled / managed.

We will be installing carbon filters as part of the shutdown abatement system. An abatement system using wet scrubbers produces a liquid effluent that requires treatment before being discharged to sewer and, consequently, is not generally favoured. If we were to use wet scrubbers in the technical process then we would seek a variation to the environmental permit.

Item 3 - Confirm the maximum period that waste will be stored in the reception hall during normal operation, and how it will the first in first out principle be ensured.

The maximum storage time in the bunker would typically be ~ 4 days during normal operation. Daily 'turning' of the waste bunker, in accordance with the FIFO principle, should take place to ensure that the oldest waste is fed into the incineration process first and that anaerobic conditions do not develop.

Item 4 - Provide an updated 'Point Source Emissions to Air and Water' Plan which details where the odour emission point will be.

Please see attached

Item 5 - Update the Odour Management Plan to include the odour mitigation measures detailed in the AQ assessment produced by Air Quality Consultants and any additional information provided in response to points 1 to 3 above.

Please see attached

Item 6 - 'There may be the option to accept sludge wastes and, if such opportunity materialises prior to construction of the Facility, a dedicated tank for the storage of sludges will be incorporated in the design (location to be confirmed)'. Confirm whether these waste codes are wanted in the permit now or whether it is the intention to add through permit variation prior to construction.

These waste codes are not wanted in the permit now and it is intended to add them through permit variation prior to construction

Item 7 - "Provide clarification on the following statement in the 'Air Quality Assessment':

'waste will be pre-processed off site and delivered to the site as residual derived fuel (RDF), either in covered Heavy Good Vehicles (HGVs) or in wrapped bales'.

Note: This comment does not align with the wastes proposed to be taken at the site i.e. the application is not just requesting RDF."

That is correct, the waste processed on site will not be limited to RDF (waste code 191210) but will also include i) Other Wastes (Including Mixtures of Materials) from Mechanical Treatment of Wastes other than those mentioned in 19 12 11 (waste code 191212) and ii) Mixed Municipal Waste (waste code 200301). In section 3.1 of the Air Quality Assessment it states "The anticipated fuel throughput would be a maximum of 230,000 tonnes per annum (tpa) of non-hazardous residual (post-recycled) waste including Refuse Derived Fuel (RDF) from the adjacent Willshee's MRF".

Item 8 (Wastes to be Received) - Provide details of what specific wastes will be taken under 19 08 99 and 20 03 99 and justification as to why these specific wastes cannot be taken under a non '99' waste code. Note: '99' codes can only be included in the permit if they cannot be characterised under any other code and specific descriptors limiting the type of waste to be taken under the code are included in the permit.

Following discussions with the fuel suppliers, R&P Clean Power proposes to remove European Waste Codes (EWC) 19 08 99 and 20 03 99 from the list of permitted wastes for the Facility.

As part of this update, we have revised Table 4 (*EWC codes of wastes to be processed at the Facility*) in Section III (*Supporting Information*). In addition to the removal of the two aforementioned codes, the table has been updated to include additional residual waste streams that are considered suitable for the combustion technology to be employed at the Facility.

We kindly request that the EA reviews the updated list, provided as a separate document (attached), and advises whether there are any concerns regarding the inclusion of the proposed additional EWCs.

Item 9 (Wastes to be Received) - Provide a specific description of the wastes that will be received under EWC code 19 12 12. Note: This is a very broad code and we need to understand that any wastes taken under this code would be appropriate to be received at the facility.

EWC 19 12 12 refers to "*Other wastes (including mixtures of materials) from mechanical treatment of waste, other than those mentioned in 19 12 11*" and is classified as a mirror non-hazardous code. While the definition is broad, R&P Clean Power anticipates that the Facility's proven and robust waste handling and combustion technologies will be capable of processing most wastes falling under this code, provided they are confirmed as non-hazardous and not suitable for recycling or recovery.

Examples of acceptable wastes under EWC 19 12 12 include:

- Mixed residues from the mechanical sorting of municipal solid waste (MSW):
  - Non-recyclable plastics;
  - Composite or contaminated packaging materials;
  - Foils, films, and small pieces of soiled paper or card.
- Rejects from materials recovery facilities (MRFs), i.e., non-recyclable fractions remaining after sorting of dry mixed recyclables.
- Residuals from the mechanical pre-treatment of commercial and industrial (C&I) waste:
  - Shredded textiles, rubber, and other non-hazardous dry fractions;
  - Contaminated organic materials (e.g. food-stained paper).

To maintain the operational integrity of the Facility and minimise dust generation, non-combustible inert wastes and trommel fines will not be accepted for processing.

Item 10 (Wastes to be Received) - Provide a specific description of the wastes that will be received under waste codes falling under sub chapter 02 02 of the EWC. Note: We need these details to confirm that the Animal By-Products Regulations will not apply to the facility.

The waste streams accepted under EWC 02 02 03 (*materials unsuitable for consumption or processing*) and 02 02 04 (*sludges from on-site effluent treatment*) will be non-hazardous, residual wastes derived from food manufacturing and processing activities where all materials have already been fully processed and declassified (or never classified) as animal by-products prior to arrival at the Facility.

The inclusion of these EWC codes is intended to capture residual, mixed, and treated food industry wastes that are suitable for thermal recovery, and which present no biosecurity risks or regulatory requirements under the Animal By-Products Regulations (ABPR). These wastes may include:

- Non-hazardous packaging waste with meat residues (e.g. trays, films)
- Processed food residues (e.g. off-spec cooked products)
- Washdown solids and screening waste
- Effluent treatment sludges from on-site treatment plants associated with food production facilities

No Animal By-Products requiring management under the Animal By-Products Regulations will be accepted at the Facility.

Item 11 (Groundwater and surface protection) - Provide details of the engineering of the fuel bunker, demonstrating that liquid retention, both in operational and fire scenarios will be ensured.

To prevent groundwater ingress and the seepage of leachate from waste, the bunker structure will be designed to comply with the requirements of EN 1992-3: Design of Concrete Structures – Liquid Retaining and Containment Structures. The bunker will be constructed to achieve the following tightness class as specified by the standard:

- Tightness Class 2 for the base slab, all walls, and piers up to the reception hall floor level.

A visual inspection and dryness test will be undertaken on the bunker walls and slab, once the surround groundwater has reached its natural level (temporary lowering of groundwater may be required during construction of the bunker). The dryness test requires that all exposed faces of the bunker structure remain visibly dry for a minimum of 21 days prior to the first waste deliveries. Damp patches, defined as areas that may leave a slight film of moisture on the hand without droplets or noticeable wetness, must diminish over time. Any ongoing seepage must be treated and rectified before the first waste is delivered to site.

The fuel stored in the bunker will have a sufficiently low bulk density to allow ample air space, ensuring adequate capacity for firewater in the event of a fire incident. Compliance with standard EN 1992-3 will ensure that the bunker structure maintains its watertight integrity, effectively withstanding the additional pressure exerted by any firewater that may accumulate within the bunker.

Compliance with the above design and testing requirements will be explicitly incorporated into the project's technical specifications as part of the engineering, procurement, and construction (EPC) contract.

Item 12 (Groundwater and surface protection) - Provide further information on what appropriate measures will be in place to prevent surface and groundwater pollution in the event of a credible flooding incident.

Flood risk was assessed during the planning application process through a review of both the Environment Agency's (EA) Flood Map for Planning and hydraulic modelling undertaken by JBA Consulting. According to the EA's mapping, the majority of the site lies within Flood Zone 1, indicating a less than 1 in 1,000 annual exceedance probability (≤0.1% AEP) of flooding from fluvial sources. However, peripheral areas near the eastern boundary fall within Flood Zones 2 and 3, with associated flood probabilities of 0.1–1% AEP and ≥1% AEP respectively.

The flood risk assessment (FRA) identified key mitigation measures to manage and further reduce flood risk:

- The development will include a "cut and fill" strategy to create elevated development plateaus. These raised areas will host the Facility, ensuring long-term protection from flooding and provision of safe access and egress routes.
- A comprehensive stormwater network will be developed, incorporating Sustainable Drainage Systems (SuDS) features such as a basin, swale, and wetland pond across the wider site. The system will be designed to accommodate a 1 in 100-year storm event, with an added 40% allowance for climate change impacts.

The Environmental Statement (ES) and the accompanying FRA conclude that—with these mitigation measures in place—there will be no significant long-term flood risk to the site, nor any significant risk of surface water or groundwater contamination, or adverse impact on water resource zones. In the event of a credible flood, the Facility will remain secure, with floodwaters prevented from entering the site, thereby averting any pollution incident.

The raised development areas and SuDS infrastructure are formal conditions of the planning permission. Compliance with these design measures will be strictly incorporated into the project's technical specifications under the Engineering, Procurement, and Construction (EPC) contract.

In addition to the primary, design-based flood resilience strategies, secondary measures will also be implemented to further protect against surface and groundwater pollution in the unlikely event of flooding.

In addition to the primary, design-based flood resilience strategies, secondary measures will be implemented to further safeguard against surface and groundwater pollution in the unlikely event of flooding.

1. As detailed in the response to item 13, all potentially hazardous materials (e.g., diesel, chemicals) will be stored within bunded areas, providing an additional physical containment barrier to prevent accidental release during flood conditions. Pollution-risk equipment, such as mobile machinery, will be securely stored above the predicted flood level to avoid contact with floodwaters.
2. As outlined in the response to item 11, the waste storage bunker will be engineered as a water-retaining structure, ensuring that no water—whether internal or flood borne—can escape the bunker, thereby preventing any potential contamination of surrounding areas.
3. The detailed design of the drainage system—including foul, effluent, and surface water infrastructure—will specifically address flood risks. This will include the incorporation of penstock valves and other control mechanisms to prevent any unintentional discharge of polluted water during flooding. For example, in scenarios where foul water could leak into a flooded area, appropriate isolation or containment systems will be employed to ensure environmental protection.
4. R&P Clean Power will implement an Accident Management Plan (AMP) (Appendix 9), integrated into the Facility's Environmental Management System (EMS). The AMP outlines procedures for identifying and managing environmental incidents, including those arising from flood events. It will be routinely reviewed and updated to reflect evolving risks, and its implementation will be subject to regular auditing.
   a. If deemed necessary by the AMP, pumps will be maintained on-site to facilitate controlled discharge of water from flooded areas.
   b. In extreme cases, the plan may call for temporary shutdown of the Facility during a flood event to ensure operations do not pose any environmental risk.
5. A schedule of regular inspection and maintenance of the site's drainage systems will be in place. This includes routine checks of discharge points, culverts, interceptors, and traps to avoid any uncontrolled washout of contaminants.
6. The site management team will actively monitor flood risks and remain subscribed to alert services such as the Environment Agency's Flood Warning System, ensuring prompt and informed decision-making in the event of an emerging flood threat.

Item 13 (Groundwater and surface protection) - Confirm that storage tanks containing liquids potentially hazardous to the environment and associated bunding / spill mitigation, will be constructed as per the guidance in CIRIA C736 'Containment systems for the prevention of pollution'.

We confirm that all vessels containing fluids potentially hazardous to the environment will be equipped with impermeable secondary containment bunds designed in accordance with CIRIA C736 guidelines 'Containment Systems for the Prevention of Pollution'.

The requirement to comply with CIRIA C736 will be explicitly included in the project's technical specifications as part of the engineering, procurement, and construction (EPC) contract.

In addition to meeting the requirements of CIRIA C736, concrete bunds will also be designed in accordance with EN 1992-3: Design of Concrete Structures – Liquid Retaining and Containment Structures.

All bunds will undergo a 7-day water test to verify their integrity and confirm the absence of leaks.

Item 14 (Groundwater and surface protection) Provide further detail of the on-site engineering and management practices and drainage system characteristics that will be in place to ensure that all surface water leaving the site will be clean and uncontaminated.

The Facility's drainage system has been designed to prevent the discharge of potentially contaminated water, ensuring protection of surface water and groundwater in both routine operations and emergency scenarios.

- The surface water drainage system will incorporate oil separators in accordance with EN 858-1 (*Separator systems for light liquids such as oil and petrol – Principles of product design, performance, testing, marking, and quality control*). In the event of a high-level alarm within an oil separator, the system will generate an alert through the plant control system, enabling prompt operator response.
- All areas where reagents, chemicals, or auxiliary fuels are delivered, or where residues are collected or transferred to vehicles, will be provided with bunded or curbed areas. These zones will be equipped with drainage isolation valves or divertor systems to prevent any contaminated washdown or spillage from entering the clean surface water system. Operators will be required to manually close isolation or divertor valves prior to unloading or collection operations in these areas. Drainage from these zones will not discharge to the clean surface water network but instead to a designated containment or treatment system.
- The Facility drainage system will be capable of retaining firefighting water, thereby preventing the uncontrolled release of potentially contaminated firewater in the event of a fire. This system will be designed in compliance with the relevant provisions of NFPA 850, particularly Section 5.5, which addresses firewater containment requirements for power generation facilities.

The above measures will be incorporated into the project's technical specifications and enforced under the Engineering, Procurement, and Construction (EPC) contract, ensuring full compliance with applicable design and performance standards.

Sustainable Drainage Systems (SuDS) will be implemented across the site to intercept and attenuate runoff generated by the development. These systems will provide controlled discharge at greenfield runoff rates to the Darkland Brook. In the unlikely event of a severe fire coinciding with a worst-case rainfall event, discharge from the SuDS system to the Darklands Brook will be inhibited until one of the following conditions is met:

1. Sampling and analysis confirms that the retained water within the SuDS attenuation features is uncontaminated surface water; or
2. The retained water is removed from site via tanker and transported to a suitably licensed waste management facility for appropriate treatment or disposal.

Item 15 - "Provide a BAT assessment considering SNCR vs SCR. For both SNCR and SCR the assessment shall include but not necessarily be limited to:

• The cost

• The impacts of NO2

• The amount of NOx abated

• Cost per unit of NOx abated

• Energy efficiency

• Emission of N2O"

See attached

Item 16 (Emergency Diesel Generator) - Confirm that Emergency Diesel Generator will meet 2g TA Luft and US EPR Tier 2 standards.

We confirm that the Emergency Diesel Generator (EDG) to be installed within the facility will meet 2g TA Luft and US EPR Tier 2 standards. The requirement to comply with these standards will be explicitly incorporated into the project's technical specifications, forming part of the engineering, procurement, and construction (EPC) contract.

The contract will also include testing requirements to verify that the EDG operates in accordance with 2g TA Luft and US EPR Tier 2 standards prior to the commencement of commercial operations, making compliance a condition for acceptance of the works.