Cyfoeth Naturiol Cymru
Natural Resources Wales

Natural Resources Wales permitting decisions

Castle Cement Limited (Padeswood Cement Works)

Decision Document

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Minor Technical Variation

The variation number is: EPR/BL1096IB/V019

The application number is: PAN-019893

The operator is: Castle Cement Limited

The Installation is located at: Padeswood Cement Works, Padeswood, Mold, Flintshire, CH7 4HB.

The application is for a minor technical variation to add a new solid recovered fuel (SRF) facility to the permit.

We have decided to issue the variation for Padeswood Cement Works operated by Castle Cement Limited.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise, we have accepted the applicant's proposals.

1. Receipt of the application

The application was received on the 14/11/2022 and picked up for duly making assessment on the 14/12/2022. The application was deemed duly made on the 05/01/2023.

No claim for commercial or industrial confidentiality has been made.

2. What the existing installation does

Padeswood Cement Works manufactures cement from limestone, pulverised fuel ash, shale and sand and gypsum.

The existing regulated facility is an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations and the following directly associated activities.

- **Section 3.1 Part A(1) (a):** Producing cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other kilns with a production capacity exceeding 50 tonnes per day.

Associated Recovery codes:

R01 – Use principally as a fuel or other means to generate energy

R05 – Recycling / Reclamation of other inorganic materials

R11 – Use of waste obtained from any other operations numbered R01 – R10

R13 – Storage of wastes pending recovery operations R01 – R12 (excluding temporary storage, pending collection, on the site where it is produced).

- **Section 3.1 Part A(2) (a):** Grinding cement clinker
- **Section 3.1 Part B (a):** Storing, loading or unloading cement or cement clinker in bulk prior to further transportation in bulk.
- **Section 3.1 Part B (b):** Blending cement in bulk or using cement in bulk other than at a construction site, including the bagging of cement and cement mixtures, the batching of ready-mixed concrete and the manufacture of concrete blocks and other cement products.

Directly associated activities include:

- Waste Storage and handling:
    1. R13 - Storage of wastes pending recovery operations R1 toR12 (excluding temporary storage, pending collection, on the site where it is produced).
    2. D15 - Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)
- 1.925 MW Hot Gas Generator providing auxiliary heat to Mill 5.
- Rail loading facilities.

3. Proposed changes

This application is to vary the permit to allow the operator to use Solid Recovered Fuel (SRF) as a fuel within the existing main burner at the site, Kiln 4. The use of SRF within the Kiln will provide economic and environmental benefit by replacing fossil fuels.

The existing permit already allows the use of waste-derived fuels in Kiln 4 but a pre-operational measure for use of SRF within the burner requires the operator to *"...provide details to the transport system to the main burner and monitoring programs for agreement by Natural Resources Wales"* (as detailed in Table 1.4 of the permit).

The application provides the details of the new SRF feed installation required by the pre-operation measure. Please see below for overview of the proposed SRF transport process.

The design of the SRF feed installation is a modified version of the site's existing SRF feed to the calciner. Improvements in the design have been made based on the operators experience of this existing unit.

The SRF will be mainly derived from municipal waste and will be delivered to the site by road and offloaded into the new SRF installation unit by walking floor trailer. The calciner uses coarser SRF so the two specifications will be distinguishable in site on arrival and trained staff will direct the SRF to the correct feed unit. Kiln 4 requires better

quality (more uniform) SRF than the calciner to keep energy variations low for good thermal stability.

A composite sample will be analysed weekly and tested on site. A monthly composite will be sent for ETS analysis at an independent ISO 17025 laboratory. This testing is to ensure compliant with the permits existing fuel specification parameters.

There is to be no storage of SRF on site and so SRF is to be unloaded and used immediately. Once off loaded at the docking station, the SRF is transported by elevating chain conveyers to a screen which removes particles larger 50mm. Screened out material is collected within an oversized collection bin. Oversized collection trailer will be covered at all times to prevent dust, debris and other fugitive emissions.

Those under 50mm are transported by reversible screw to the wind-sifter. The wind-sifter removals small abouts of heavier impurities which are collected in a permanently berthed trainer.

Separated oversized SRF and heavy impurities may be of use in the calciner or will be sent back to the supplier.

Kiln 4 is currently run on a mixture of coal, cemfuel (liquid waste fuel) and MBM. Once the new SRF feed installation is commissioned, the operator proposes to initially use a mixture of the existing fuel types and SRF with the intension of replacing the existing fuels as much as possible.

The feed installation will include a new dosing unit (a gravimetric feeder) to feed the SRF into the existing kiln. This will ensure continuous feeding and stable kiln operation.

The SFR installation feed will use a bag dust filter to prevent fugitive emissions of dust to air. Collected dust will be recycled back into the process.

There will be no changes to the existing activities, activity capacity, storage capacities or emissions as a result of the variation.

The variation will also update the operators address.

4. Consultation

As this application is for a minor technical variation, no external consultation was required.

5. Requests for information

Further information was requested by way of a Schedule 5 Notice requiring a Noise Impact Assessment and if relevant, a Noise Management Plan. The Schedule 5 Notice was sent on 30/01/2023 with a response date of 24/02/2023. The initial response received on 15/02/2023 was not satisfactory. Further information was provided on 08/03/2023 and the request was considered satisfied.

A second Schedule 5 Notice was sent on 02/05/2023, with a response date of 16/05/2023, requesting information relation to the dust bag filter. The applicant's response to the Schedule 5 Notice was provided on 15/05/2023 and the request was considered satisfied.

A third Schedule 5 Notice was sent on 17/05/2023, with a response date of 31/05/2023, requesting information relation to the BAT Assessment. The applicant's response to the Schedule 5 Notice was provided on 31/05/2023 and the request was considered satisfied.

An informal request for information, relating to the new dosing unit, was made on 10/04/2023 to which a response was received on 13/04/2023.

6. Legislation

The variation will be issued under Regulation 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an installation as described by the IED;
- subject to aspects of the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed.

NRW is satisfied that our decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

All applicable European directives have been considered in the determination of the application.

7. The site

There are no proposed changes to the site boundary.

The site plan on the permit has been updated as part of this variation to show the new non-kiln point source emission to air (see section 11.1 for more information).

8. Environment Management System

The site's existing management system is ISO14001 accredited. The applicant has stated in the application that following the variation they will have in place an Environmental Management System (EMS) that will meet the requirements for an EMS in our guidance *"How to comply with your environmental permit guidance".* Where required, this will be updated to include details on the new SFR installation feed. As noted above, the site already has an existing SFR installation feed, and it is considered the control measures and procedures in place for this will be appropriate for the new SRF feed.

Staff who are responsible for the operation of the new SRF feed installation will have their training needs assessed. Training programs will be developed to ensure the operation of the fuel feed system is safe.

There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions following this permit variation. The decision was taken in accordance with RGN 5 on Operator Competence.

9. Financial Provision

There is no known reason to consider that the operator will not be financially able to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.

10. National Site Network, Sites of Special Scientific Interest (SSSI), and non-statutory designated sites

As there is no conceivable impact pathway to any designated site as a result of the variation:

- A Habitat Regulation Assessment (HRA) to assess impact upon National Site Network is not required;
- An Appendix 4 assessment to assess impact upon SSSI's is not required Environmental Risk Assessment;
- Further assessment of impact on non-statutory designated sites is not required.

11. Environmental Risk Assessment

11.1 Air

There are no changes proposed to the existing combustion processes at Kiln 4 as a result of this variation. A new non-kiln point source emission to air, A16, will be added to the permit for the SRF feed dust bag filter. The applicant has confirmed this will be considered a small source of particulate matter (under 10 000 Nm^3/hr) as defined in the Best Available Techniques reference document for Cement, Lime and Minerals. There is no anticipated impact to air quality as a result of this new point source emission to air although it is considered appropriate to impose limits and monitoring requirements for particulate matter to ensure significant pollution of the environment is prevented and a high level of protection for the environment secured.

Table S3.2 (Non-Kiln point source emissions to air) of the permit will be updated to add emission point A16 and impose a limit on particulate matter of 10 mg/Nm^3. The frequency of measurements or performance checks shall be based on a maintenance management system. These permit conditions have been set in line with the relevant BAT conclusions.

11.2 Water

There are no additional point source emissions to water proposed as part of this permit variation, nor is there no change to the existing permitted emissions to water.

There will be no additional point source emissions to sewers, effluent treatment plant to other transfers of water off-site.

11.3 Odour

The operator has provided an environmental risk assessment with the application which specifically assesses the risks associated with the SRF installation feed. Sensitive receptors have been identified within approximately 500m of the site. Risk of additional odour pollution as a result of the variation has been determined to be low. SRF is already delivered on site and existing odour management measures, as part of the site's management system, will continued to be applied. These include:

- Delivery trucks to be covered to contain odours;
- Delivery of SRF is by walking floor trucks which feed deposit SRF directly into the SRF feed installation which in contained within a building.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of odour.

11.4 Noise

The operator has provided an environmental risk assessment with the application which specifically assesses the risks associated with the SRF installation feed. Sensitive receptors have been identified within approximately 500m of the site. Noise from the SRF feed installation equipment (chain conveyors, screening plant, wind-sifter / blowers, dosing unit) and delivery vehicles have been considered. Risk of additional noise pollution as a result of the variation was determined to be low.

The design of the SRF installation feed is considered to represent Best Available Techniques for noise where it is enclosed and located centrally within the site.

A full Noise Impact Assessment (NIA) was requested from the operator by way of Schedule 5 Notice (see section 5 of this document for more information).

As the SRF feed installation is not currently operational, impacts have been modelled. The NIA compares noise impacts from the site without the SRF feed installations (using a 2021 baseline model) against the baseline plus the modelled impact of the SRF feed installation at 12 noise sensitive receptors.

The assessment concluded that the new SRF feed installation will be barely audible at the assessed receptors (less than <1dB change). The noise from the SRF feed installation is predicted to be below the existing site noise (>10dB below the existing site noise levels). The modelling also indicated that at some receptors, noise from the

site is predicted to decrease slightly due to the new buildings associated with the proposal screening some existing on-site noise sources.

NRW noise specialists have audited the submitted NIA and checks agree with the applicant's conclusions. However, the NIA submitted does not compare the predicted sound impacts against actual background sounds levels (i.e., against a baseline where the site is not operational at all) in line with the standard guidance for assessing industrial and commercial sound impacts (BS 4142:2014). Therefore, we consider is necessary to impose an improvement condition in the varied permit which requires the operator to reassess noise impacts, in line with the BS 4142 guidance once the SRF installation feed is commissioned. Should the new SRF feed be shown to have adverse impacts on noise levels, then the operator will be required to submit a Noise Management Plan detailing additional noise controls (see Annex 1 for more information).

11.5 Fugitive emissions

The operator has provided an environmental risk assessment with the application which specifically assesses the risks associated with the SRF installation feed. Fugitive emissions of dust, litter, mud and debris, pests, leaks and spills were considered and risk of additional fugitive emissions as a result of the variation was determined to be low.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of fugitive emissions.

12. Energy Efficiency

There is no change in the operation of the Kiln. The SRF fuel will replace existing fuels of the same calorific value. The operator will continue to be required to adhere to the permits energy efficiency condition (condition 1.3) following this variation.

13. Operating techniques

The operator has reviewed the use of SRF fuel in the main kiln burner against the Best Available Techniques (BAT) Conclusions (BATc) outlined in 'Best Available Techniques Reference Document for the Production of Cement, Lime and Magnesium

Oxide' (2013). The use of the fuel in the kiln is already permitted so our review of the applicant's proposed operating techniques has focused on the SRF installation feed (i.e., the transport mechanism from delivery to kiln).

The proposed techniques are in line with the relevant Cement, Lime and Magnesium BATc, which we consider relevant for this proposal, and we consider them to represent appropriate techniques for the facility.

14. The Permit Conditions

14.1 Incorporating the variation

We have specified that the applicant must operate the permit in accordance with descriptions in the application. The relevant descriptions have been specified in the Operating Techniques table (Table S1.2).

The variation will remove the pre-operational measure for future development currently outlined in Table S1.4 as the measure has been satisfied under the application.

14.2 Improvement conditions

Based on the information on the application, we consider that we need to impose improvement conditions. See section 9.4 and Annex 1 of this document for more information.

14.3 Waste types

There are no changes to the permits specified waste types following this variation.

14.4 Raw materials

There are no changes to the permit specified raw materials following this variation.

14.5 Monitoring and Reporting

Please see section 11.1 for information on monitoring and reporting requirements imposed for the new dust bag filter (emission point A16). No other monitoring or reporting requirements will change following this variation.

15. OPRA

The OPRA score remains unchanged following this permit variation (116).

ANNEX 1: Improvement Conditions

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Due date**
IC9a	Following successful commissioning and establishment of routine steady operation, the Operator shall undertake a noise impact assessment following BS4142:2014 and guidance set out in Noise and Vibration Management: Environmental Permits. The assessment should include an objective assessment of narrow band (FFT) measurements to identify any tonal elements from on-site sources and off-site at sensitive receptors. The assessment should include consideration of the Welsh Government's Noise and soundscape action plan 2018-2023. Upon completion of the work, a written report shall be submitted to Natural Resources Wales for approval.	Within 9 months of commissioning the new SRF feed or as otherwise agreed by Natural Resources Wales
IC9b	Following completion of IC9a, should the written report indicate it is required, a Noise Management Plan shall be submitted to Natural Resources Wales detailing any required noise controls. This shall be completed in line with guidance set out in Noise and Vibration Management: Environmental Permits.	Within 3 months of completion of IC9a (if applicable) or as otherwise agreed by Natural Resources Wales

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