

Natural Resources Wales permitting decisions

Celsa Manufacturing (UK) Limited Tremorfa Melt Shop – addition of asphalt plant

Decision Document

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Permit Variation

The permit variation number is:	EPR/TP3639BH/V009
The applicant /operator is:	Celsa Manufacturing (UK) Limited
The Installation is located at:	Tremorfa Melt Shop, Tremorfa Works, Seawall Road, Cardiff, CF24 5TH

We have decided to issue the variation for Tremorfa Melt Shop operated by Celsa Manufacturing (UK) 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.

This variation is to add an asphalt plant to the facility. This plant will utilise recovered steel slag aggregate to produce hot asphalt, with a capacity of 320 tonnes per hour, and an expected annual production of up to 250, 000 tonnes per annum. The asphalt plant is listed in the environmental permitting regulations 2016 as a Section 3.5 Part B (e) activity - coating road stone with tar or bitumen and is permitted as a directly associated activity.

In addition, the existing Section 5.4 Part A(1) (b) (iii) slag treatment recovery activity is amended, to permit the processing of weathered slag using crushing and screening using mobile equipment. The equipment is to be permanently sited and operated within the installation boundary, and hence is included as part of the installation.

New emissions point to air and to groundwater are introduced by this variation. The emissions stack from the asphalt plant emits residual particulate from dust extraction system and combustion gases from direct heating after particulate control with a bag filter. The emission to groundwater is of surface water from areas of hardstanding. There are no changes to the permit boundary as a result of this installation as the new activity takes place on currently permitted land.

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.

Key issues of the decision

Receipt of application

Confidential information

A claim for commercial or industrial confidentiality has not been made, and we have not identified information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on commercial confidentiality.

Consultation

The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements. We do not usually consult on normal variations and have not done so in this case.

A copy of the Application and all other documents relevant to our determination (see below) are available for the public to view. Anyone wishing to see these documents could arrange for copies to be made.

Further details along with a summary of consultation comments and our response to the representations we received can be found in Annex 3. We have taken all relevant representations into consideration in reaching our determination.

Operator

We are satisfied that the operator is the person who will have control over the operation of the facility after the grant of the permit. The activities added will be run on a day to day basis by two 3rd party companies (Harsco Metals and G R Plant Ltd) under contractual arrangements with the operator, but Celsa Manufacturing (UK) limited remains the operator, with overall control, as detailed in section 2 of the application “main installation report” 018-1666 Rev02, dated March 2020. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator on the basis of information submitted with the application.

The facility

The extent/nature of the facilities taking place at the site required clarification.

The decision on the facility was taken in accordance with RGN 2 (understanding the meaning of regulated facility) including appendices 1, 2 and 4.

Tremorfa Melt Shop is an installation listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations (EPR). It produces steel billet from scrap using an electric arc furnace and continuous casting. Electric arc furnace slag is a by-product of the process and when processed can be used as a mineral aggregate,. Various other Directly Associated Activities (DAA), including waste activities, are already part of the installation and are detailed in the permitting history.

This variation permits the following changes:

- An asphalt production plant will be added, using processed steel slag as the main aggregate. Under EPR, it is a Section 3.5 Part B(e) activity– Coating road stone with tar or bitumen. It will be regulated by Natural Resources Wales as it is a DAA to the installation.
- The existing Section 5.4 Part A(1) (b) (iii) waste operation for the treatment of slags and ashes for recovery, is modified to allow the crushing and screening of weathered slag from the installation. This is to provide permanent aggregate supply for the section 3.5 Part B (e) activity above.
- These new activities take place within the existing permit boundary, which was modified to accommodate additional processes under a previous variation
- All other permitted activities continue unaffected by this variation.

The new asphalt plant comprises of reception, and storage facilities for the constituent components used to manufacture asphalt (aggregate and bitumen being the principal materials by mass). Bitumen is stored in electrically heated, insulated tanks, in order to reduce its viscosity to a workable level. Before they are introduced into the asphalt plant itself, aggregate materials are kept damp (typically around 3% moisture) in dedicated, partially enclosed storage bins in order to minimise dust release. Therefore a rotating drum, which is fired by a 19.5MW_{th} direct-heating natural gas burner, is used

to heat and dry the aggregate, before it is fed to a batch mixing vessel where bitumen and other components are added. There is no back-up fuel supply such as fuel oil. Once blended, the mix is fed to a hot storage vessel before being loaded to HGV for delivery by road. When dried, and before the addition of asphalt, the dust release potential from the aggregate is high. Therefore all parts of the processing equipment is enclosed, with negative pressure air extraction transporting released particulate via a recovery skimmer, to a bag filter plant. Emissions from the bag plant are released to air via a 22m high stack, and comprise both cleaned air from particulate control, and the products of combustion from the natural gas burner used for direct heating/drying. The asphalt plant has a mixture of sealed concrete hardstanding where required, with drainage of rainwater to a newly built soakaway, and unsurfaced slag in unused areas.

The maximum production rate of the plant is stated as 320 tonnes per hour. The anticipated maximum annual production based on batch operation is 250 000 tonnes per year.

The regulated facility already includes a Section 5.4 Part A(1) (b) (iii) waste operation for the treatment of slags and ashes for recovery. This variation formally adds the crushing and screening of weathered slag from the installation, to provide aggregate for the section 3.5 Part B (e) activity, although it is noted that crushing and screening have previously been permitted on the site. These processes will only be used to supply the on-site asphalt plant (and recover metal from the slag at an anticipated rate of 6%), so the anticipated annual production will not exceed 300 000 tonnes per annum.

This activity comprises of 1 scalping screen, 1 cone crusher, 2 finishing screens and 1 trommel screen. Each of these are standard “mobile plant” equipment powered by diesel engines, which will be refilled in-situ using existing site equipment and procedures. There will be no new fuel storage as a result of the variation, except within the fuel tanks of the equipment itself, which are all less than 500l. The total maximum daily fuel use of the plant is estimated at 900l. There are 5 small point source emissions associated with the plant diesel engine exhausts, and fugitive emissions from aggregate processing. This processing will take place in a dedicated part of the Rover Way site, which has been prepared / organised for the purpose. There is no

hardstanding, but instead the equipment is to be situated on compacted slag surfacing, as is usual for equipment of this type.

Mobile equipment such as this would not always be listed on an installation permit, but in this case it is included in line with our guidance RGN2, as the equipment is to be permanently sited and operated within the installation boundary. While they will retain the capability to be moved short distances under their own power (and may be moved e.g. for cleaning purposes), they will remain permanently “installed” in the part of the Rover Way site designed and arranged for their operation.

Legislation

NRW is satisfied that this 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. It enhances the recovery of slag as a useful by-product of steelmaking for road surfacing at the source of its generation.

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

The medium combustion plant directive (MCPD) does not apply to the asphalt plant burner, as it is used for direct heating, which is excluded from the scope of MCPD.

The site

The operator has provided plans which we consider is satisfactory, showing the extent of the site of the facility and internal layout. The site boundary is unaffected as new activities are to be conducted on currently permitted land. Plans have been provided showing the internal layout and emission points.

A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.

Site condition report

The operator has provided a description of the condition of the part of the site on which the asphalt plant will be constructed.

We consider this description is satisfactory. The decision was taken in accordance with our guidance on site condition reports – guidance and templates (H5). This information was considered in more detail during variation V008, when the land was added to the permit in anticipation of the additional activities. There are no additions to the permitted area in this variation.

Biodiversity, Heritage, Landscape and Nature Conservation

The application is within the relevant distance criteria, for an EPR installation with emissions to air, of a number of sites of heritage, landscape or nature conservation, and protected habitat. These included Natura 2000 sites, Sites of Special Scientific Interest (SSSI's) and locally designated wildlife sites.

Nearby ecological reports include the Gwent Levels SSSI, Severn Estuary SSSI and the Severn Estuary SAC/SPA/RAMSAR, and a number of locally designated wildlife sites.

A full assessment of the possible impacts of the proposal on protected sites has been carried out as part of the permitting process. We initially considered that the variation had the potential to affect the features of the protected sites. We therefore asked the applicant for various information, including on air quality, fugitive dust, and noise disturbance impacts on protected sites. After detailed assessment of the information provided, we have concluded that the proposals are not likely to have a significant effect on any Natura 2000/Ramsar sites, alone or in combination with other proposals. We have also concluded that the activity is not likely to damage any of the flora, fauna or other features of sites of special scientific interest or locally designated ecological sites within screening distance.

The emissions to air from the new plant have been modelled, and we have determined that they are insignificant, as their impact at all designated sites are less than 1% of (annual average), or 10% (24-hour average) of the environmental standards for the protection of ecological sites. This is the case both for direct impacts as nitrogen dioxide, and for acid and nutrient nitrogen deposition. There is no ecological standard

for particulate matter, but a standard assessment has been made of deposition risk to habitats (dust), which again concluded insignificant impact. Finally, the risk of disturbance from noise has been assessed, and has been found to be insignificant, as new noise sources would be no louder, nor different in character to existing sources, meaning it would not be readily distinctive against the existing soundscape.

We consider that effects/emissions from the application (for example particulate and nitrogen oxide emissions, noise, odour, fugitive dust, soakaway for surface water) will not significantly affect the features of the protected sites. Permit limits in place for certain emissions (particulate and nitrogen oxides from the stack) form part of the overall risk management strategy and ensure that Best Available Technique is applied to controlling emissions. These implicitly protect the habitats sites and human health but are not in place specifically or exclusively to mitigate impact on habitats.

Environmental Risk Assessment

Air

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stack and its impact on local air quality. The site is not in an air quality management area, with the nearest (Cardiff Stephenson Court) being approximately 2km away.

The Operator has assessed the new activity's potential emissions to air against the relevant air quality standards, and the potential impact upon human health and the environment. The primary pollutants of concern are particulate, from mechanical handling of mineral materials (slag), and from products of combustion of natural gas (oxides of nitrogen, NO_x). Other pollutants were screened for relevance (volatile organic compounds (VOC), sulphur dioxide, carbon monoxide) but were found either not to be present in the emissions (VOC, sulphur dioxide), or screened out during preliminary H1 assessment as insignificant (carbon monoxide). It is noted that VOCs will not be present in significant concentration in emissions, because any present in the natural gas will be completely combusted, and there are no VOCs in the asphalt mix (e.g. as thinners in the bitumen, or as viscosity-modifying additives).

Emissions of combustion products (oxides of nitrogen, carbon monoxide) from the 5 items of crushing and screening equipment were screened and found to be insignificant (each item of equipment being significantly less than 1MW_{th}), so were excluded from further assessment.

Air dispersion modelling has been used to predict the potential effects on local air quality of emissions from the asphalt plant's stack, the only potentially significant new source associated with the variation. The emitted gases mainly comprise of air extraction from various points in the asphalt plant, which are passed through a bag filter to remove particulates. This is in order to control the emission of particulate from the process, which arise from the aggregate materials once they are dried. The emissions also contain the products of combustion from the Natural Gas burner used to heat the asphalt by direct heating. These combustion gases are mixed with the extracted air and are emitted together. Therefore particulate matter and NO_x were modelled, being the only pollutants which did not screen out as insignificant.

Air dispersion modelling was undertaken using ADMS 5, a computer software package routinely used for such studies. The air impact assessments, and the dispersion modelling has been based on the activity operating for 82% of the year (300 days per year), which is the expected maximum utilisation of the plant. Emissions were modelled at the anticipated Emission Limit Value (ELV) of 50mg/m³ for particulate, and 12 mg/Nm³ for oxides of nitrogen (NO_x), which is based on plant specification and measurements at a similar operational facility, adjusted by a factor of 1.5 to allow for possible variation in emission. Normally, an applicant would model emissions at the ELV for all pollutants, i.e. the maximum permissible level for all substances. However, for this process type, there is not a standard ELV set for oxides of nitrogen in the relevant process guidance note, so an appropriate emission rate was selected based on available data. As detailed below, emission limits have been set accordingly. It is noted that the dispersion modelling remains conservative, as it assumes 24h operation, whereas in fact the plant will operate for a maximum of 10h per day.

We accept this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the Applicant used dispersion models, its selection of input data, use of background data and the

assumptions it made have been screened by Natural Resources Wales Air Quality Modelling specialists to establish the robustness of the Applicant's air impact assessment. The output from the model has then been used to inform assessment of impacts.

Impact of particulate emissions

For human health protection, the maximum modelled fine particulate (PM₁₀) impact has been assessed by assuming that all process particulate emissions are as fine particulate PM₁₀. The maximum contribution from the new activity at any point within the modelled grid domain is 1.27 µg/m³ (annual average), corresponding to 3.2% of the Ambient Air Directive (AAD) annual limit of 40 µg/m³, and 4.51 µg/m³ (24h average), corresponding to 9.0% of the AAD daily limit of 50 µg/m³. While the 24-h average impact is below the standard significance threshold for short term impacts of 10% of the EAL, the annual average impact is over the standard 1% significance threshold.

The applicant has therefore considered the annual PM₁₀ impact at locations of human occupation, i.e. where there are actually receptors present, rather than at the maximum point of modelled impact. At this location, the process contribution is 0.20 µg/m³ (annual average), corresponding to 0.5% of the Environmental Assessment Limit (EAL) of 40 µg/m, which is under the 1% threshold of significance. The PM₁₀ impacts of the new proposed plant on standards to protect human health are therefore judged insignificant at receptors.

There is no environmental standard for particulate matter for the protection of habitats. A separate assessment of the risk of smothering by deposition of fugitive dust has been made, and the risk found to be insignificant.

Impact of oxides of nitrogen emissions

For human health protection, the maximum modelled NO_x impact at any point within the modelled grid domain is 0.22 µg/m³ (annual), corresponding to 0.6% of the AAD annual limit of 40 µg/m³, and 1.03 µg/m³ (24h), corresponding to 0.52% of the AAD daily limit of 200 µg/m³. Both of these are below the significance thresholds for long

term and short term impacts, of 1% and 10% respectively. The NO_x impacts on human health are therefore judged insignificant.

Lower NO_x limits exist for the protection of habitats than for human health, owing to their higher sensitivity to the pollutant. The impact of NO_x on protected habitats is summarised in the relevant section above, with reference to those limits.

Conclusion

PM₁₀ and NO_x impacts from the variation are therefore assessed to be insignificant, on the basis of reasonably precautionary (reasonable worst case) input data.

It is noted that the quoted concentration of NO_x reported for the process appears significantly lower than would be expected for a typical natural gas burner, at 12mg/Nm³. This is because the measurement point is within the combined extraction/exhaust system of the asphalt plant, and comprises natural gas combustion products used for direct heating, and significant additional air, used for particulate collection and control [and drying]. The emission, when corrected for oxygen, is similar to other natural gas combustion sources.

Emission limits to air

We have decided that emission limits should be set for the parameters listed in the permit.

The emissions of the following substances have been identified as having potentially significant impact and ELVs have been set for those substances.

- The particulate matter limit has been set at 20mg/m³ on a precautionary basis, primarily to protect human health on the basis of air emission impact assessment and expected emission levels. The limit is considered to be at typical BAT level for a process and air emissions abatement plant of this type.
 - The application main installation report and plant specification states a guaranteed emission of less than 20mg/m³, indicating that this is technically achievable;
 - The limit set is lower than the general limit in Local Authority “part B” guidance PGN 3/15 (2012) for roadstone coating of 50mg/m³. This was done taking into account the local environmental context, the expected performance of the

plant, and the general technical improvement in the years since the issue of this guidance for facilities operating bag plant abatement to comply with considerably lower emission limits.

- Although not directly relevant to the asphalt plant, the Iron and Steel BREF (2012) has BAT-AELs for broadly comparable mechanical processes (coal crushing, slag crushing/screening, ore pellet crushing grinding & drying). None of these processes identify BAT AEL's higher than 20mg/m³, indicating that this is a reasonable ELV within the context of a regulated steel works site. Other BREFs (e.g. waste treatment), while again not directly relevant, indicate that this performance level should be easily achievable.
 - The applicant's original emissions modelling modelled a significantly lower emission level, on the basis of actual emissions at a similar plant. We do not believe it reasonable to set emissions limits this low, but regard it as evidence that a limit of 20mg/m³, rather than 50mg/m³ is appropriate. The resubmitted modelling did indicate that environmental impacts at an emission of 50mg/m³ would nevertheless screen out as insignificant, but there is no technical reason to set limits as high as this.
 - The emission limit set will ensure that the ambient air concentrations of particulate, as subject to limits under the Ambient Air Directive, will not be negatively affected by the changes to the installation.
 - Emissions testing has been set at annual frequency, in line with process guidance notes, other referenced BREFs, and existing permitted emissions. It will be supplemented by a particulate CEM, for process monitoring purposes.
- The NO_x limit has been set on a precautionary basis, with regard to BAT, and for ongoing protection of local air quality for both human and ecological receptors.
 - The operator initially questioned our intention to set a limit for NO_x, citing the fact that it is not a key pollutant of focus in PGN3/15 statutory guidance for roadstone coating. However, with reference to clause 5.37 of this guidance, we believe that a limit is appropriate:
"In areas where air quality standards or objectives are being breached or are in serious risk of breach and it is clear from the detailed review and assessment work under Local Air Quality Management that the permitted process itself is a significant contributor to the problem, it may be necessary to impose tighter emission limits or, in the case of this particular note, additional limits for pollutants not listed in table 4.1, such as NO_x." (PGN3/15(2012)).

- Given the other regulatory changes (increasing focus on other sources of NO_x such as medium combustion plant and road vehicles), and tightening emissions limits since publication of this guidance, the wider regulatory context indicates that a precautionary limit would be appropriate. While there is not a serious risk of local breach of air quality standards, nutrient nitrogen ecological critical loads are being approached.
- We have set a limit of 12 mg/Nm³ NO_x, as this is the modelled performance in the applicant's air emissions dispersion modelling, which indicated an insignificant environmental impact, with respect to the Ambient Air Directive limits. If a limit were not set at this level, potentially harmful, higher emissions could not be ruled out.
- The modelling included a safety factor (150%), to allow for operational performance, so this limit should be achievable at all times of operation.
- The emission limit set is necessary to ensure that the ambient air concentrations of nitrogen dioxide, as subject to limits (for human health and ecological protection) under the Ambient Air Directive, will not be negatively affected by the changes to the installation.
- While the Medium Combustion Plant Directive explicitly does not apply to this process, we note that it sets a level of 100mg/Nm³ NO_x, at 3% oxygen correction for other natural gas combustion sources. It is considered that there is no technical reason why a similar performance level should not be achieved for natural gas combustion in the asphalt plant. The estimated oxygen-corrected limit for the Asphalt plant would be approximately 70-120 mg/Nm³, (data not available for more accurate conversion), i.e. is directly comparable in magnitude. This indicates regulatory consistency and shows that the limit imposed is appropriate.
- Emissions testing has been set at annual frequency, in line with referenced BREFs and existing permitted emissions.
- We do not consider that this limit goes beyond BAT, but establishes BAT, having regard for a range of relevant regulatory guidance.

It is considered that the ELVs described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.

Water

There are no point source emissions to surface water or to sewer added as a result of this variation. The risk of fugitive / unplanned emissions to water have been risk assessed using a source-pathway-receptor model. The number and quantity of harmful liquids required in the process is also low. The only new liquid storage tanks are for bitumen, as described below. Vehicles and plant will be fuelled existing site equipment and procedures, so there are no new fuel tanks. Limited quantities of chemicals will be stored at appropriate locations in Intermediate Bulk Containers on portable secondary containment bunds. Although there are some potential sources of contamination (e.g. fuel/oil from vehicles), the overall risk to surface water is low.

Soil and groundwater

The operator has provided a description of the condition of the site.

We consider this description is satisfactory. The decision was taken in accordance with our guidance on site condition reports – guidance and templates (H5). The operator has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED. As noted above for water, the site is designed with appropriate primary and secondary containment to minimise the risk of accidental/fugitive pollution.

With respect to groundwater the site is located on Made Ground (unclassified), superficial deposits (Secondary Aquifer) and bedrock deposits (Secondary B Aquifer). The site is not within a Source Protection Zone (SPZ).

It is noted that the proposed asphalt plant includes storage of bitumen in 3 x 60 tonne heated tanks, which are not equipped with secondary containment, except for a “small containment lip”. The applicant argues that secondary containment is unnecessary as the asphalt is highly viscous (immobile) and requires heating to move [by pumping]. The area under the tank is surfaced with concrete, aiding the clean-up of spills. Other standard measures to prevent spillage and loss of containment (such as operational high and low level alarms and high-high level secondary alarm) are fitted. We accept that the risk from this storage without containment is low, and note that any additional clean-up cost of an incident which is related to the design employed, is at the risk to

the operator rather than to the wider environment, as the material would not be mobilised a significant distance.

Parts of the site (including the slag processing area) are unsurfaced (hard packed slag forms the working area). These require no specific rainwater drainage, and rainwater will percolate to ground. This is considered acceptable, given that existing measures are in place to minimise the risk of contamination (e.g. from oil or fuel), for the whole minerals site where slag is handled and stored.

Other areas of the site (Asphalt plant) will be newly surfaced (asphalt and concrete) and require rainwater drainage. The applicant proposes infiltration drainage for rainwater runoff via a soakaway, constituting an emission to groundwater of up to 10 litres per second. As described above, measures are in place to minimise accidental contamination. It is also proposed that rainwater from hardstanding will drain to a settlement lagoon before being discharged to the soakaway. The main purpose of this is to remove slag-originating silt, which would otherwise compromise the soakaway, but it also prevents a buffer volume in the event of water contamination, and allows the use of a scum board to act as an oil interceptor. The settlement lagoon is included on the site inspection and maintenance programme, ensuring the ongoing integrity of its structure/lining.

The emission to soakaway will consist of surface rainwater runoff. The applicant does note that the pH of the discharge may be increased, owing to the widespread presence of steel slag on the site, which has a high pH. Given the fact that the whole site is built on reclaimed slag and other landfilled waste, the emission will not significantly affect the environment, where soil and groundwater are already at high pH, as indicated in the site condition report. The whole minerals site currently has infiltration drainage of rainwater, and the collection/soakaway from new areas of hardstanding will not affect the overall drainage practice. In fact, the soakaway will result in slight improvement on current permeable infiltration, owing to the use of settlement lagoon to remove fine slag silt.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent pollution of ground and surface water.

Emission limits to water

There are no emissions to receiving waters or sewer, and hence no numeric limits associated with these. Owing to the issues noted above with potential pH of the rainwater discharge, and use of settlement lagoon and oil interceptor for discharge cleaning, we have imposed monitoring requirements on the soakaway, for pH, suspended solids, chemical oxygen demand and total petroleum hydrocarbons, to provide confirmation that system performance is as expected and non-polluting.

It is considered that the monitoring parameters and technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.

Soil

Odour

The operator has considered the risk of odour from the proposed operations in their application. They have assessed the risk of annoyance from odour as being very low, but have nevertheless included odour checks in part of proposed weekly site inspections. Any issues identified would be recorded, investigated, and preventative action taken.

We are in agreement with this approach, and consider that the risk from odour is low, as the proposed operations contain few odour sources. Bitumen may have a slight odour risk, but is largely contained within the process. Tar (which has higher odour potential), including coal tar, or recovered asphalt pavement containing tar, will not be used in the process. Receptors are at some distance from the operations, and normal good operating controls are in place to minimise risk. The permit contains a condition relating to odour, allowing additional measures to be taken if any odour risk is identified.

Noise

The applicant has provided a detailed noise impact assessment in accordance with BS4142:2014 with their application, including characterisation of noise sources, and assessment of impacts at human and ecological receptors, based on measurements

and modelling. Noise is not considered to be a significant problem from the proposed variation.

The new asphalt and crushing/screening equipment will be designed to meet BAT for noise for processes/equipment of this type. Transport of material by site mobile plant and using HGV lorries already occurs on the site and will not undergo significantly change, except in frequency of outgoing road transport. The main noise sources are; materials movement by mobile plant, crushing and screening using “permanently sited” mobile equipment, and the asphalt plant itself, which will mainly be “hum” noise from fans (for the extraction/air cleaning plant) and motors to convey material through the process. The loudest noise source will be the crushing/screening, which are clearly intrinsically noise generating activities, but emission is minimised through use of modern BAT equipment. The application and permit state that they will only be operated during daytime hours of 07:00 – 17:00, as an indication of a “adverse impact, depending on the context” was predicted for early morning weekend operation, at +8dB over background. By avoiding early morning operation, the next highest predicted noise impact at receptors was for daytime weekday operation, at +6dB over background. This noise level could be an indication of a “adverse impact, depending on the context”.

However, the noise impact assessment concluded that the operational noise from the proposed activity, with restrictions on crushing/screening hours, is unlikely to cause any adverse impact on nearby sensitive receptors, as a result of either absolute or relative noise levels. It is reported that there will be little or no tonality, impulsivity (“bangs/crashes”) or on/off character to the main noise. In effect, most of the noise will be continual “hum” during the daily operating period of the plant. Although individual vehicles / plant may start/stop, the noise report states that the new noise is “not expected to be readily distinctive against the residual acoustic environment”. The existing soundscape comprises of industrial sound [including existing mobile equipment] and road traffic, and new noise will be of “similar character”. Hence the conclusion is supported by the data, despite the moderate 6dB maximum increase in noise as a result of the operations, which it is noted is the lowest noise level (>5dB) to potentially indicate adverse impact.

A noise emission clause is included in the permit, and a noise and vibration management plan will be in place. Some control measures on site will include the following:

- Equipment/vehicles etc will be regularly maintained to ensure no equipment will produce excessive noise.
- Silencers will be fitted to all machinery (where possible).
- Noise generating equipment to be shut off when not used.
- Speed limit of 10mph will be in place at the site.

Although not mentioned in the application, we note that the Cardiff Motocross circuit is between the site and the Severn Estuary. It appears unlikely that this site was running when noise measurements were made, from the log of audible activities. This provides further qualitative evidence that the proposed industrial activity is unlikely to cause significant disturbance at ecological sites (or human receptors) compared to other ongoing activity.

As is standard for applications of this type, we have imposed an improvement condition (IC8) for the operator to confirm predicted noise impacts through environmental monitoring, once the plant is operational. This work was also recommended by the applicant's noise assessment consultant.

Fugitive emissions

The operator has considered the risk of fugitive emissions from the proposed operations in their application. The majority of the possible fugitive emission risks (for example exhaust gases from mobile plant, odour/fume from hot bitumen, accidental release of liquids from storage) are minimised through general good practice/design arrangements, and are in many cases discussed in more detail elsewhere in this document.

There is also the potential for the fugitive emission of dust and particulate from the proposed activities. Fugitive dust emissions can occur on site at several points of the storage and processing cycle, such as material loading onto the pile, stockpile disturbances by strong wind currents and loadout from the pile, as well as by the actual crushing/screening activities which are to be permitted. The movement of trucks and

loading equipment in the storage pile area is also a source of dust, as are wind-blown areas of unmade ground. Mechanical handling and treatment, such as this can be a substantial source of dust and fine particulate. Dust emissions from these operations will be controlled with wet suppression, i.e. water. The asphalt plant itself is enclosed, with dust extraction and bag filtration, which minimises this as a possible dust source. The standard of construction, enclosure, and particulate capture is very high.

The risk from fugitive dust emissions was considered in some detail in the application, both under the heading of “fugitive emissions to air” and as part of the BAT assessment for activities likely to give rise to dust emission. A dust emissions order-of-magnitude estimate for materials handling was made using the US EPA – AP42 methodology, as directed by the Iron and Steel BREF BAT16, and a draft Dust Management Plan (DMP) was provided, which had been drafted by Harsco Metals, and focused on activities within the Asphalt plant boundary. Likely impacts of dust from proposed activities were assessed (primarily as a requirement of planning legislation) according to Institute of Air Quality Management (IAQM) guidance. The applicant concluded that the residual effects of dust were negligible and potential impacts on the Severn Estuary SAC/SPA/Ramsar/SSSI were not significant.

We were not fully satisfied by the submission. From the type of site and operations, we assessed that there was potential for significant emissions of fugitive dust and PM₁₀ from the site, if operations were not continuously subject to a high degree of dust control. It was noted that the application referred to a maximum of 35% of the aggregate feedstock to the asphalt plant comprising of fine material 0-3mm. Process Guidance Note PG3/16 for mobile crushing and screening notes that fine material under 3mm is at highest risk of causing dust emission. The main control technique proposed was manual wetting of dusty material, so there is potential for controls to become ineffective. Therefore we assessed the intrinsic potential for fugitive dust release as high. The applicant had stated the probability of exposure (at receptors) as low.

We therefore asked for further information on the application via a Schedule 5 notice. This included the requirement for an updated, comprehensive Dust Management Plan covering all activities on the Rover Way site and clarification of the management

responsibility between Celsa Manufacturing, Harsco Metals, and GR Plant Ltd. We also required further specific information in the application/DMP to ensure that the dust management strategy was based on a specific, measurable level performance parameters, as the initial submission was not specific in some aspects for dust control. Finally, we asked that the emissions order-of-magnitude assessment was updated to include estimated emissions from actual crushing and screening activities, as these were absent.

We were satisfied with the further information provided. All activities on site will be managed operated and maintained in accordance with the Celsa management system to ensure any fugitive emissions are minimised, with a suite of dust management plans applying to different areas/activities. Further management systems/plans (e.g. Celsa, GR plant) provide detail relevant to specific areas/activities. The key process indicator will be that no visible dust emissions will be seen leaving the site boundary, and no dust emission will normally or continuously be visible from operations on site. Further quantified detail on arrangements has been provided, such as maximum storage of fine processed slag outside of the asphalt plant (1200 tonnes), and the extent of provision of cleaning/wetting equipment. Confirmatory dust monitoring (“frizbee gauges”) will be undertaken at two points on the site boundary to confirm that the level of dust leaving the site is low.

Total dust emissions for storage, handling and crushing/screening have been calculated using the internationally recognised US EPA AP42 method. Total PM₁₀ emissions from the activities were estimated at 200kg/year, or <1kg/day. Total particulate/dust emissions are of the order of 2-3 times higher, so an estimate of 1000kg/year or <3kg/day would be conservative. The deposition concentration at receptors would therefore clearly be low, as these depositions, even at worst case, would be spread over several square kilometres, and would be highest nearest the site, dropping significantly before the human or ecological receptors. This estimate, however, is reliant on good dust control through wetting, so we have included improvement conditions (IC5 and IC6) in the permit to undertake dust monitoring, to ensure that this is the case.

The response from the applicant also indicated that permanent fixed dust suppression system was to be installed, but that details were not yet finalised. We have therefore included a further improvement condition (IC7) in the permit to agree the specification of this system with Natural Resources Wales, and to install it in a timely manner.

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

A Fire Prevention and Mitigation Plan (FPMP) is not required for this variation, as no combustible wastes are involved. Before processing, slag is classified as a waste, but is derived from a high temperature process, and is non-combustible and uncontaminated with combustible material. Other wastes and activities on site do require a FPMP and this requirement is unaltered.

Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.

The monitoring requirements for the process and point source emissions have been imposed in order to ensure that performance levels for NO_x and particulate matter emission from the Asphalt plant specified in the application are achieved during ongoing operation.

The monitoring requirements for the soakaway discharge to groundwater have been imposed to ensure that the discharge consists only of uncontaminated surface water.

We made these decisions in accordance with the relevant guidance.

We are satisfied that the operator's techniques, personnel and equipment will have either MCERTS certification or MCERTS accreditation as appropriate and that the plant will be designed/equipped to enable MCERTS compliant air emissions measurements.

Reporting

We have specified reporting in the permit. The reporting requirements are standard for a facility of this type when operating as part of an installation.

We made these decisions in accordance with our guidance.

Operating techniques and BAT

We have reviewed the techniques used by the operator and compared these with the relevant guidance.

Due to the nature of the proposed activities, a number of key guidance documents could be considered relevant. The applicant originally completed a BAT assessment against the Iron and Steel BREF for crushing and screening activities, and against the process guidance note 3/15 (2012) for roadstone coating. We requested that the applicant also assessed crushing and screening activities against process guidance note 3/16(2012) for mobile crushing and screening, and where necessary made reference to further sector guidance (including BAT 14 of the Waste Treatment BREF) during our determination.

The proposed techniques/ emission levels for priorities for control are in line with the benchmark levels contained in the relevant BREF conclusions and Process Guidance Notes and we consider them to represent appropriate techniques for the facility. The key emissions/impacts of potential concern are addressed above, and control techniques applied discussed as relevant.

As noted above, we have assessed that NO_x emission limits from the asphalt plant natural gas burner are broadly aligned with MCPD, which while not directly applicable, can be used to determine BAT for the process, where this is not specifically given in the (dated) PGN3/15.

We consider that the emission limits included in the permit reflect the BAT for the installation.

The permit conditions

Updating permit conditions during consolidation

We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permit(s).

The operator has agreed that the new conditions are acceptable.

Raw materials

The operator has specified limits and controls on the use of raw materials and fuels in their application (Main installation report 018-1666 Rev 02 dated March 2020). These are captured in the “operating techniques” table S1.2. Only slag from the Celsa Steel plant will be processed in the crushing/screening equipment. The asphalt plant will utilise steel slag, bitumen and other raw materials (natural aggregate, reclaimed asphalt pavement, filler, fibre and minor additives), as required, but will not use tar or coal tar, and will not use Reclaimed Asphalt Pavement from 3rd party sources, only original Harsco supplied material which has not been laid and is returned unused.

Waste types

We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.

There are no changes as a result of this variation as the EWC code for the slag (which meets end of waste criteria before being manufactured into asphalt) were already listed in the necessary part of the permit.

Improvement conditions

Based on the information on the application, we consider that we need to impose improvement conditions in relation to the measurement and management of fugitive dust emissions (IC5 & IC6) , for the implementation fixed dust suppression system for the asphalt plant (IC7), of and of noise impact assessment via environmental monitoring, once the plant is running (IC8). Details of the improvement conditions used can be found at Annex 1.

Incorporating the application

We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.

These descriptions are specified in the Operating Techniques table in the permit and include the Application Main Installation Report, which is the main technical reference in the application, detailing key technical and operating aspects of the variation, the Dust Management Plans, and the additional information received in response to Schedule 5 questions.

Operator Competence

There are no changes to the operator competence profile associated with this variation. Technical competence for waste activities is unaffected, and it has been confirmed that relevant management system content will be amended to accommodate the changes introduced by the variation. The decision was taken in accordance with RGN 5 on Operator Competence.

OPRA

The OPRA score at permit issue is 193. The OPRA calculation sheet has been updated, but the score is unchanged.

ANNEX 1: Improvement Conditions

IC 5:

The Operator shall submit a written report to Natural Resources Wales for approval detailing the intended monitoring of emissions of PM10 and/or total suspended particulates (TSP) from the activities newly permitted by variation V009.

The report shall include:

- • Methods of PM10 and/or dust emission monitoring.
- • Confirmation of location of monitoring devices.
- • A methodology to demonstrate that abatement techniques have been effective at minimising fugitive emissions escaping the site boundary.
- • Action and review levels with an overriding aim to ensure that PM10 and TSP emissions from the facility are eliminated or minimised.
- • Planned initial duration of monitoring and definition of the conditions under which sufficient information will have been collected, for monitoring to be reduced or ceased.

Due: Within one month of issue of variation V009 or as otherwise agreed in writing by Natural Resources Wales.

IC 6:

The Operator shall submit written reports to Natural Resources Wales for approval detailing the monitoring of emissions of PM10 and/or TSP, as referred to in IC5.

The reports shall give the results of PM10 and/or TSP monitoring, provide interpretation as to their meaning, and propose any modifications to the monitoring (including suspension / termination) or dust management techniques which may be necessary.

Due: First report within two months of issue of approval of IC5 or as otherwise agreed in writing by Natural Resources Wales. Second and subsequent reports every two months thereafter until it is agreed in writing with Natural Resources Wales that monitoring or reporting may be modified or ended.

IC 7:

The Operator shall submit a written report to Natural Resources Wales for approval providing details of the fixed dust suppression system for dust control within the asphalt plant.

The report shall include:

- Identification of sources to be treated.
- Technical specification of the suppression system and the area covered.
- Performance standards/guarantees.
- A proposed timetable for installation.

Due: Within 3 months of issue of variation V009 or as otherwise agreed in writing by Natural Resources Wales

IC 8:

Following completion of the asphalt plant and integrated scrap metal recycling centre, the Operator shall undertake noise monitoring at the nearest sensitive receptors. This shall include:

- A full noise monitoring survey and assessment meeting the BS4142:2014 standard including details of local conditions e.g. meteorological conditions (wind direction)
- 1/3rd octave and narrow band (FFT) measurements to identify any tonal elements or low frequency noise
- Reference to the World Health Organisation guidelines for community noise
- Reference to Noise Action Plan for Wales 2018-2023

Upon completion of the work, a written report shall be submitted to Natural Resources Wales. If rating levels likely to cause complaints or disturbance at sensitive receptors are detected as a result of the installation operation, the report shall include an assessment of the most suitable abatement techniques, an estimate of the cost and a proposed timetable for their installation.

Due: Within 6 months of issue of variation V009, or as otherwise agreed in writing by Natural Resources Wales.