

Environment Agency

Review of an Environmental Permit for an Installation subject to Chapter II of the Industrial Emissions Directive under the Environmental Permitting (England & Wales) Regulations 2010 (as amended)

Consultation on our decision document recording our decision-making process following review of a permit

The Permit number is: EPR/BJ7590IB
The Operator is: Iggesund Paperboard (Workington) Limited
The Installation is: Workington Board Mill
This Variation Notice number is: EPR/BJ7090IB/V005

Consultation commences on: 7 October 2016
Consultation ends on: 4 November 2016

What this document is about

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication by the European Commission of updated decisions on BAT conclusions.

We have reviewed the permit for this installation against the revised BAT Conclusions for the production of pulp, paper and board industry sector published on 30 September 2014 in the Official Journal of the European Union. Where appropriate, we also considered other relevant BAT Conclusions published prior to this date but not previously included in a permit review for the Installation. In this decision document, we set out the reasoning for the *draft* consolidated variation notice that we are *minded to issue*.

It explains how we have reviewed and considered the techniques used by the Operator in the operation and control of the plant and activities of the installation. This review has been undertaken with reference to the decision made by the European Commission establishing best available techniques (BAT) conclusions (BATc) for production of pulp, paper and board as detailed in document reference EU Official Journal (L 284) of Commission implementing decision 2014/687/EU of 26 September 2014. It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position. It also provides a justification for the inclusion of any

specific conditions in the permit that are in addition to those included in our generic permit template.

As well as considering the review of the operating techniques used by the Operator for the operation of the plant and activities of the installation, the *draft* consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issue. Where this has not already been done, it also modernises the entire permit to reflect the conditions contained in our current generic permit template.

The introduction of new template conditions makes the Permit consistent with our current general approach and philosophy and with other permits issued to installations in this sector. Although the wording of some conditions has changed, while others have been deleted because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the Permit in any way. In this document we therefore address only our determination of substantive issues relating to the new BAT Conclusions and any changes to the operation of the installation.

The document is in draft at this stage, because we have yet to make a final decision. Because the operator has requested a relaxation of certain otherwise mandatory standards, before we make this decision the IED requires us to explain our thinking to the public and other interested parties, to give them a chance to understand that thinking and, if they wish, to make relevant representations to us. We will make our final decision only after carefully taking into account any relevant matter raised in the responses we receive. Our mind remains open at this stage: although we believe we have covered all the relevant issues and reached a reasonable conclusion, our ultimate decision could yet be affected by any information that is relevant to the issues we have to consider. However, unless we receive information that leads us to alter the conditions in the draft Consolidated Variation Notice, or to reject it altogether, we will issue the Notice in its current form with an explanation of how we have addressed consultation responses.

In this document we frequently say “we have decided”. That gives the impression that our mind is already made up; but as we have explained above, we have not yet done so. The language we use enables this document to become the final decision document in due course with no more re-drafting than is absolutely necessary.

How this document is structured

1. Our proposed decision
2. How we reached our decision
3. The legal framework
4. Annex 1– Review of operating techniques within the Installation against BAT Conclusions.
5. Annex 2a – Review and assessment of derogation request(s) made by the operator in relation to BAT Conclusions which include an Associated Emission Level (AEL) value.
6. Annex 2b – Consultation responses
7. Annex 3 – Improvement Conditions
8. Annex 4 – Review and assessment of changes that are not part of the BAT Conclusions derived permit.
9. Annex 5 - Priority Compliance Issues

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1 Our proposed decision

We are minded to issue the Variation Notice to the Operator. This will allow it to continue to operate the Installation, subject to the conditions in the Consolidated Variation Notice that updates the whole permit.

As part of our *proposed* decision we have decided to grant the Operator's request for a derogation from the requirements of BAT Conclusions 40 and 50 for Chemical Oxygen demand (COD) and total Suspended Solids (TSS) as identified in the production of pulp, paper and board BAT Conclusions document. The way we assessed the Operator's requests for derogation and how we subsequently arrived at our conclusion is recorded in Annex 2 of this document.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the varied permit will ensure that a high level of protection is provided for the environment and human health.

The *draft* Consolidated Variation Notice contains many conditions taken from our standard Environmental Permit template including the relevant annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the Notice, we have considered the techniques identified by the operator for the operation of their installation, and have accepted that the details are sufficient and satisfactory to make those standard conditions appropriate. This document does, however, provide an explanation of our use of "tailor-made" or installation-specific conditions, or where our Permit template provides two or more options.

2 How we reached our draft decision

2.1 Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under Regulation 60(1) of the Environmental Permitting (England and Wales) Regulations 2010 (a Regulation 60 Notice) on 21 November 2014 requiring the Operator to provide information to demonstrate where the operation of their installation currently meets, or how it will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

The Notice required that where the revised standards are not currently met, the operator should provide information that

- Describes the techniques that will be implemented before 30 September 2018, which will then ensure that operations meet the revised standard, or
- justifies why standards will not be met by 30 September 2018, and confirmation of the date when the operation of those processes will cease within the installation or an explanation of why the revised BAT standard is not applicable to those processes, or
- justifies why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.

Where the Operator proposed that they were not intending to meet a BAT standard that also included a BAT Associated Emission Level (BAT AEL) described in the BAT Conclusions Document, the Regulation 60 Notice required that the Operator make a formal request for derogation from compliance with that AEL (as provisioned by Article 15(4) of IED). In this circumstance, the Notice identified that any such request for derogation must be supported and justified by sufficient technical and commercial information that would enable us to determine acceptability of the derogation request.

The Regulation 60 Notice response from the Operator was received on 30 March 2015.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review but not that it necessarily contained all the information we would need to complete that determination.

The Operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 60 Notice response that appears to be confidential in relation to any party.

2.2 Review of our own information in respect to the capability of the installation to meet revised standards included in the BAT Conclusions document

Based on our records and previous experience in the regulation of the installation we consider that the operator will be able to comply with the techniques and standards described in the BAT Conclusions other than for those techniques and requirements described in BAT Conclusion 5, 14, 16, 40 and 50. In relation to these BAT Conclusions, we do not fully agree with the operator in respect to their current stated capability as recorded in their Regulation 60 Notice response. We have therefore included Improvement Conditions in the Consolidated Variation Notice to ensure that the requirements of the BAT Conclusions are delivered before 30 September 2018 or 31 December 2021 in the case of the BAT AELs subject to the derogation request. See Annex's 1 and 2 for details.

2.3 Requests for Further Information during determination

Although we were able to consider the Regulation 60 Notice response generally satisfactory at receipt, we did in fact need more information in order to complete our permit review assessment, and issued a further information request on 22 June 2015. We received a response to that request on the 29 July 2015. A copy of the further information request was placed on our public register.

In addition to the response to our further information request, we received additional information during the determination from the Operator in relation to the request for a derogation on the 27 May 2016. We made a copy of this information available to the public in the same way as the response to our information request.

Having carefully considered the Regulation 60 Notice response and all other relevant information, we are now putting our draft decision before the public and other interested parties in the form of a draft Consolidated Variation Notice, together with this explanatory document.

We are now providing the public with an opportunity to comment on our proposed decision and conclusion to the Permit Review which includes our draft Consolidated Variation Notice and this decision document. We will consider all relevant representations we receive in response to this consultation and will amend this explanatory document as appropriate to explain how we have done this, when we publish our final decision.

2.4a Water Framework Directive (WFD)

Water Framework Directive (WFD)/Dangerous Substance Screen has been reviewed and amended to include priority pollutants under the WFD Hazardous pollutants regime. We have required all Operators to monitor both their discharge to water and the incoming water twice annually for these substances to help better assess the issue and potential sources of any elevated results.

A report has been produced detailing a monitoring programme conducted to assess the chemicals present in waste water and waste paper sludge from permitted paper mill sites to gather further information for WFD purposes and to assess compliance with restrictions. This report along with a review of historically monitored parameters has been used to rationalise the requirement for inclusion of these substances in this standard suite within the permit:

Table 1. Review of historic monitoring within paper & pulp sector

Substance	Action (remove, keep or add)	Justification
Aldrin	Remove	Limited usage in wood treatment, banned since 1980's across UK & EU. No recent detects
Atrazine	Remove	Agricultural herbicide with little relevance to the sector other than in background water quality. Banned in 2004 across EU. No recent detects.
Azinphos-methyl	Remove	Agricultural insecticide with little relevance to the sector other than in background water quality. Banned in 2006 across EU. No recent detects.
Chlorpyrifos	Keep	OP insecticide with various approvals in UK, some usage in forestry and a recent detect in sludge samples.
Cypermethrin	Keep	SP insecticide still approved for use in forestry applications in UK. PHS/ PS under WFD across EU. Recent detects in effluent samples
Dichlorvos	Remove	OP insecticide removed from market gradually from 2002 in UK and 2012 in EU. Limited direct relevance to the sector and no recent detects.
Dieldrin	Remove	OP insecticide with historic usage for wood treatment. Restrictions and bans since 1970's. Very

		limited recent detects and no direct relevance to sector.
Endosulphan (Alpha & Beta)	Keep	Organochlorine pesticide whilst recently banned in EU, still in use in many other non-EU countries. Recent detects.
Endrin	Remove	Organochlorine insecticide. Numerous restrictions in place since 1970's. No recent detects.
Fenitrothion	Remove	OP mainly used as an insecticide. EU wide authorisations withdrawn from 2007 and of limited relevance to the sector. No recent detects.
Hexachlorobenzene	Remove	Previous approvals as a fungicide, banned in UK from 1975 and EU since 1998. No recent detects.
Nonylphenols (and NPE's)	Add	Whilst severely restricted across EU for many years. NPE's were detected in 70% of samples in recent study. NP was detected at 6/9 sites. Potential sources unknown.
PCP	Keep	No current approval in UK/EU, but still in use elsewhere as a wood preservative. Several recent detects.
Simazine	Remove	Herbicide no longer authorised across EU and of little relevance to sector. No recent detects.
TBT	Keep	Range of historic uses including wood preservative and is still likely to be in use in a wide range of applications across the world including as is wood preservative. Several recent detects.
Trifluralin	Remove	Main use as agricultural herbicide, no longer approved for use in UK /EU. No recent detects.

Metals

Various metals are required to be monitored within the Pulp & Paper BREF.

The BREF states “relevant metals” and provides the following as examples: Zn, Cu, Cd, Pb, Ni.

Our Data would indicate adding mercury is warranted due to its widespread presence in the environment and some effluents. We have therefore included a twice annual screen for the following metals: Zn, Cu, Cd, Pb, Ni and Hg.

2.4b Assessment of substances liable to pollute

The WFD requires Member States to prior regulate, all substances in a discharge which are “liable to cause pollution”. Previously discharges from the Paper and Pulp Industry were controlled on a “liable to contain” approach set by the Dangerous Substances Directive through either numeric limits, or descriptive conditions. Under the “liable to cause pollution” approach numeric emission limits are only applied to those pollutants calculated to have the potential to cause pollution.

We have used this permit review to regulate discharges to surface waters from this installation using the “liable to cause pollution” approach, details of which is set out in our Horizontal Guidance Note H1 Annexe D1.

The H1 methodology uses a number of sequential steps to determine if a substance warrants detailed modelling and hence any emission limits being required, namely

- Screen out insignificant emissions that do not warrant further investigation
- Determine if significant load test is failed
- Decide if detailed water modelling is needed
- Assess emissions against relevant standards and set limits where required

Monitoring data has been subjected to checks and review prior to running through the screening process. Here we deal with such issues as results that are consistently at or below the limit of detection (LOD), waters abstracted and returned to the same environment and applying standard percentages of EQS if no upstream/ background water quality data is available. See H1 Annex D1 for the detailed procedures.

A summary of the assessment for liable to pollute for substances regulated at this installation is provided in Table 2 below. Assessments are based on the last three years of data submitted under the existing Environmental Permit

Table 2. Outcome of hazardous substances review process

Substance	Control of Substance under Previous Regime	Data Review	Screening Stage Screening for Insignificance / Significant Load	Setting Emission Limit	Control under (WFD)
Mercury	monitor	All data below LOD	n/a	n/a	Remove from Permit
Cadmium	ELV 2.5ug/l	Numerous results showing positive results and some elevated LOD's (limit of detection)	Unable to screen out as insignificant. Future IC will require modelling of temperature and hence opportunity to model Cd at same time.	retain	Retain with existing ELV of 2.5ug/l but link to IP5 for future modelling work.

3 The legal framework

The Consolidated Variation Notice will be issued, if appropriate, under Regulations 18 and 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 other relevant legislation which also have to be addressed.

We consider that, *if we issue* the Consolidated Variation Notice, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

Annex 1: decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the production of pulp, paper and board, were published by the European Commission on 30 September 2014. There are 53 BAT Conclusions. This annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the Consolidated Variation Notice.

The overall status of compliance with the BAT conclusion is indicated in the table as

- NA Not Applicable
- CC Currently Compliant
- FC Compliant in the future (within 4 years of publication of BAT conclusions)
- NC Not Compliant

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Table 3. Decision checklist for relevant BAT Conclusions			
	Summary of BAT Conclusion requirement for production of pulp, paper and board	Status NA/ CC / FC / NC	Assessment of the installation capability and any alternative techniques proposed by the operator to demonstrate compliance with the BAT Conclusion requirement
	BAT Conclusions that are not applicable to this installation	NA	General BAT Conclusions for Pulp & Paper Industry 9, 11 and 15; BAT conclusions for Kraft Pulping 19 - 32 inclusive; BAT conclusions for Sulphite Pulping 33 -39 inclusive; BAT Conclusions Processing Paper for Recycling 42 – 46 inclusive; BAT Conclusions for papermaking and related processes 48.
	BAT Conclusions where we accept the operator's Reg 60 notice response that they are currently compliant and no further explanation is required.	CC	General BAT Conclusions for the Pulp and Paper Industry 1, 2, 3, 4, 6, 7, 8, 10, 12, 13, 17, 18, 41, 47, 49, 51, 52, 53; BAT conclusions for Mechanical / Chemical Pulping 41; BAT Conclusions for Papermaking and Related Processes 47, 49, 51, 52 and 53.
	BAT Conclusions where improvements will be undertaken on site within the 4 year period in order to achieve compliance with the narrative and/or BATAEL prior to the 4 year deadline	FC	General BAT Conclusions for the Pulp and Paper Industry 5, 14 and 16. BAT conclusions for Mechanical / Chemical Pulping 40 (Table 17). BAT Conclusions for Papermaking and Related Processes 50 (Table 20).
	BAT Conclusions where the Operator has responded that they are not compliant and have not submitted any plans to become compliant	NC	Pulp & Paper Production BAT Conclusions;

Key Issues

BAT Conclusions for the production of Pulp and Paper.

Iggesund Paperboard is an integrated board mill and BATC 40 - table 17 (waste water loads from CTMP mills) applies as well as BATC 50 - table 20 (waste water loads from paper making activities) and therefore we have set the BAT AEL's as annual emission limits within table S3.3 of the permit.

In this case the Operator has been shown to be operating above the applicable range for the annual emission loads for COD & TSS and the Operator has applied for a derogation until 31 December 2021. We have set an improvement condition requiring regular updates on the planned improvements (see Annex 3 for details).

The Mill has previously indicated that they are an integrated and multi product mill and we have therefore agreed a site specific ELV to impose these annual BAT AEL's via a mixing calculation in accordance with page 3 of the BAT Conclusions chapter. This product mix has been stated as 70% paper making and 30% pulping activities and we have agreed the figures involved with the Operator and included an additional permit condition as note 1 underneath table S3.3 requiring the Operator to inform us if the product mix changes in the future by more than 10% in any one direction. At that point the mixing calculation will need to be re-done.

Substance	BAT AEL's for Installation Weighted 70:30 Table 17 BAT 40: Table 20 BAT 50	BREF Source	Performance at time of Permit Review	Based on data from:
Chemical Oxygen Demand (kg/t)	8.45 -14.45 kg/t	BAT 40 table 8.17 and BAT 50 table 8.20	47 kg/t	Average 3 years data supplied in Regulation 60 response
Total Suspended Solids (kg/t)	0.35 – 0.74 kg/t	Weighted apportionment of 30% paper (Table 20) and 70% CTMP mill (Table 17).	11 kg/t	
Total Nitrogen (kg/t)	0.11 – 0.16 kg/t		0.1kg/t	
Total Phosphorus (kg/t)	0.0016 – 0.011 kg/t		0.01kg/t	
AOX (kg/t)	-		-	
Biochemical Oxygen Demand (mg/l)	Approx. 25mg/l		N/A	

BATC 5 also sets what is termed a BAT AEPL (BAT Associated Environmental Performance Level) for the amount of waste water the site should generate per tonne of paper produced. For this site the weighted BAT AEPL is 7.35 – 17.20 m³/t.

In this case the Operator has been shown to be operating above of the applicable range for waste water flow, at some 36m³/t and we have therefore set an improvement condition that will require improvements in water usage (see Annex 3 for details) as part of the derogation request determination.

Where relevant and appropriate, we have incorporated the techniques described by the Operator in their Regulation 60 Notice response as specific operating techniques required by the permit, through their inclusion in Table S1.2 of the Consolidated Variation Notice.

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Annex 2a: Assessment, determination and decision where an application(s) for Derogation from BAT Conclusions with associated emission levels (AEL) has been requested.

The IED enables a competent authority to allow derogations from BAT AEL's stated in BAT Conclusions under specific circumstances as detailed under Article 15(4):

'By way of derogation from paragraph 3, and without prejudice to Article 18, the competent authority may, in specific cases, set less strict emission limit values. Such a derogation may apply only where an assessment shows that the achievement of emission levels associated with the best available techniques as described in BAT conclusions would lead to disproportionately higher costs compared to the environmental benefits due to:

- (a) the geographical location or the local environmental conditions of the installation concerned; or
- (b) the technical characteristics of the installation concerned.

The competent authority shall document in an annex to the permit conditions the reasons for the application of the first subparagraph including the result of the assessment and the justification for the conditions imposed.

A summary of the derogation granted is recorded in an Annex to the permit conditions of the Consolidated Variation Notice in accordance with the requirement of IED Article 15(4) as described above.

As part of their Regulation 60 Notice response, the operator has requested a derogation from compliance with the BAT AEL values included in the following BAT Conclusions as detailed below.

The operator has requested a time limited Derogation application to run until 31 December 2021 for the BAT AELs for Waste Water emissions to water (the Solway Firth) from the on-site effluent treatment plant (ETP). One derogation is requested for Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS) detailed in the BAT conclusions 40 and 50 for the production of Pulp, Paper and Board (ref: 2014/687/EU, 30/09/2014).

The operator has not asked that a derogation for Total Nitrogen and Total Phosphorus be considered at the same time. Current levels of Total Nitrogen and Total Phosphorous are within the relevant BAT AELs.

The operator has presented a case for a derogation based on the technical characteristics of the installation under Article 15 (4) of the Industrial Emission Directive (IED). The basis for the derogation request is that the mill is unique and not represented in the data set used to compile the BAT AELs for mechanical pulp mills within the revised BREF. The data set used for mechanical pulp mills does not include any examples where the same level of brightness needs to be achieved from a purely mechanical pulp coupled with high levels of

bleaching with hydrogen peroxide, (this is more normally achieved by a chemi-mechanical pulp process or CTMP mill that would then need to use less bleaching).

The purely mechanical nature of the pulping plant and high levels of bleaching make it difficult to adjust processes to be compatible with a secondary treatment plant, which the operator proposes to install in order for BAT AELs to be complied with. Further, all four of the CTMP mills that are referenced in the BREF are located on inland waters (Waggeryd Cell, Fors AB, Rottneros & Korsnas Rockhammer Mills in Sweden) and have operated secondary biological effluent treatment for some considerable time. The current on-site ETP provides only coarse screening and primary (settlement) treatment and then discharge via a short sea outfall to the Solway Firth.

The BREF provides a list of suitable techniques to be used in order to achieve the BATAELs. Compliance with the BATAEL is to be achieved by using a suitable combination of those techniques, in this case:

BAT 40: various techniques to reduce pollution load and waste water flow from the pulping activity

BAT 13: substitution of high nitrogen & phosphorus containing chemicals with ones containing low levels.

BAT 14: use of Primary [physico-chemical] AND Secondary [biological] treatment.

BAT 15: use of tertiary treatment where further reduction in nitrogen & phosphorus need to be achieved.

As meeting the nitrogen and phosphorus BATAEL levels is not currently and is not predicted to be an issue in the future, the only applicable techniques are BAT 14 and BAT 40 along with other water saving techniques referred to in BAT 47 under paper making and techniques to reduce emissions of residual coatings referred to in BAT 49. However these further techniques would not reduce levels of COD and TSS anywhere near sufficiently to comply with the BAT AELs. In this case the operator is currently discharging at some 3 times the BAT AEL for COD and 6 times the BAT AEL for TSS.

The operator has also presented a case based on the configuration of the mill, the products made and the results of recent lab trials that demonstrate they are operating more like a CTMP mill rather than simply a mechanical pulp mill. We agree that they are operating more closely to a CTMP mill and so have applied the BAT AELs from Table 17 under BAT 40.

The operator supplied production data from the last 3 years as part of the Regulation 60 response. We have reviewed that data and concluded that a mixing calculation is required at the ratio of 70% Table 17 BAT AELs (CTMP pulp mill) and 30% Table 20 BAT AELs (paper making) the resultant BATAELs ranges that should apply to the emission are as follows:

Parameter	BAT AEL
Chemical Oxygen Demand (COD)	8.45 – 14.45 kg/t (t is tonne of paper produced per year)
Total Suspended Solids (TSS)	0.35 – 0.74 kg/t
Total nitrogen	0.11 – 0.16 kg/t
Total phosphorus	0.0016 – 0.011 kg/t
waste water flow	7.35 – 17.20 m ³ /t (This is a performance standard and not a BAT AEL).

Although information was provided in their response to allow us to commence assessment of the derogation request it was insufficient to enable us to complete the determination and further information was requested and subsequently supplied on 27 May 2016 which provided the finalised options study for upgrading the ETP as well as finalised Cost Benefit assessment Tool (CBA). This provided sufficient information to allow determination of the derogation request to proceed.

On review and assessment of this information we have decided to grant the derogation requested by the operator in respect to the BAT AEL values described in BAT Conclusions 40 and 50 for Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS), but have included other Emission Limit Values in the Consolidated Variation Notice that will ensure suitable protection of the environment.

As part of their response they stated that the reason for their derogation request was due to the Technical characteristics of the installation. The site currently only operates primary effluent treatment (screening & settlement) and this coupled with the high levels of bleaching currently used to achieve final product brightness requirements means that a large amount of re-configuration and review of the sites operation is required ahead of a secondary biological ETP being installed.

The way in which we have considered, assessed and determined the derogation request is detailed below.

The derogation request is based on the technical characteristics of the mill; they currently produce a highly bleached pulp from a mechanical pulping process and due to this and their coastal location they currently only operate primary effluent treatment on site. To install a full secondary (biological) treatment plant by the September 2018 deadline under IED would lead to a disproportionately expensive solution being installed. Much work is planned in the mill both at the pulping and paper making stages of the process as well as complete reconfiguration and upgrade to the ETP, once loadings and flows from the mill have been reduced as far as practicable.

The work plan includes new white water silos to allow greater re-use of water on site, new bleaching chemistry to reduce COD levels from the bleaching process as well as reduced emissions from the on-site coating activities and improvements throughout the paper making machine.

The geographical location is a secondary criteria in that it helps explain why the site currently has primary effluent treatment only. The operator has not presented a case based primarily on the geographical location, nor have we accepted that it is anything other than a secondary criteria and helps explain why the site technical characteristics (primary treatment, coupled with high levels of bleaching) mean that compliance by 30 September 2018 would be disproportionately expensive compared to the environmental benefits gained.

The Environment Agency has reviewed the application and concluded that the derogation should be granted based on the following:

- That the application is based on the technical characteristics of the installation and is therefore within the scope of derogations allowed under article 15(4) of the Industrial Emissions Directive.
- The mill currently only has primary effluent treatment on site due largely to the geographical location of the mill on the coast. Therefore, there is considerable work needed to reconfigure various processes on site prior to the secondary treatment being installed, particularly given the current purely mechanical nature of the mill and high levels of bleaching. If secondary treatment were already installed, meeting the BATAELs may only require an upgrade to it or reduction of load to it; either of which are likely to be achievable with far less work and investment being required.
- The Operator acknowledges that they are not currently operating to BAT with only primary (settling) effluent treatment on site and give a firm undertaking to invest in secondary (biological) treatment in order to achieve what we have agreed to be, the most applicable BAT AELs.
- They make the clear case that the preferred option (time limited derogation to the end of 2021) will be the most cost effective option for the site and that all other options would be disproportionately costly compared to the environmental benefits gained. The Operator has completed our CBA tool which confirms this to be the case.
- Improvement work is already underway at the installation, with changes to processes resulting in reductions in water consumption and TSS already having been measured. The aim is to achieve BAT compliance by 2021. The expected reductions by 2021 are:
 - 75% lower COD per tonne paperboard
 - 90% lower TSS per tonne paperboard
 - 45-50% lower water consumption per tonne paperboard (this helps as the BAT AELs are annual load based limits).

- The operator has demonstrated that the costs of achieving the BAT AELs by 2018 are disproportionate to the environmental benefits. The additional costs represented in terms of Net Present Value (NPV) range is £26 - £37 million compared to the derogation proposal. The range shown is a function of taking the lowest costs and largest benefits compared to the highest costs and least benefits and is the approach advocated within our CBA tool; the conclusion being that neither figure affects the outcome of that assessment as both figures clearly demonstrate that the BAT option is disproportionately expensive compared to the derogation proposal.
- The discharge from the installation has previously been subject to detailed dispersion modelling as part of previous permit and variation determination processes. This modelling work has concluded that any observable impacts due to the discharge will be minimal. The Operator has also conducted detailed shoreline studies that clearly demonstrate that any environmental impact from the current discharge is either not detectable or minor.
- The Environment Agency is therefore minded to allow this derogation request subject to the following conditions:
 1. That all work to comply with the applicable BAT AELs for the site are completed by the 31 December 2021 deadline.
 2. The current permit limit of 280 tonnes for weekly load of COD discharged to sea will remain in force.
 3. The current concentration limit of 2,250mg/l for COD will be suspended until the 31 December 2021 deadline. This is due to the programme of improvement works, that is already underway that will lead to periods of higher concentrations of COD as various improvements are completed, such as reducing the amount of water the site uses and hence discharges. This will however be offset by the reduction in water usage and hence the load should remain fairly constant. We propose to supplement this with a requirement to conduct additional (more frequent) shoreline studies to monitor any localised impacts. If any are found we will review the limits in place at the time. There is no BAT AEL for COD concentration limits). TSS levels will remain controlled by the existing permit limits.
 4. The revised permit will also contain an improvement condition requiring regular six monthly progress updates to be submitted to the Environment Agency.

Annex 2b: Advertising and Consultation on the draft decision

To be completed in Final decision document following consultation on the draft decision.

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Annex 3: Improvement Conditions

Based on the information in the Operator's Regulation 60 Notice response and our own records of the capability and performance of the installation at this site, we consider that we need to set improvement conditions so that the outcome of the techniques detailed in the BAT Conclusions are achieved by the installation. These improvement conditions are set out below - justifications for them is provided at the relevant section of the decision document (Annex's 1 and 5) or below.

IP5

We have set Improvement condition IP5 in order to review the ELV for cadmium once the effluent treatment plant has been upgraded. As part of the permit review process, we have reviewed all data for such substances, set under the previous dangerous substances regime. However, in this case we found that the Limit of Detection (LOD) was often too high, due to interference from the primary treated effluent to allow an accurate assessment to be made. The IP will require a further period of monitoring and assessment by the Operator on completion of the upgrade to the ETP which will inform the Environment Agency as to the appropriateness of the current ELV and we will review/amend accordingly on completion of IP3

IP6

We have set Improvement condition IP6 to ensure that the discharge from the upgraded ETP does not cause any undue impacts through elevated temperature. As the site reduce water usage, there is a concern that temperature of the effluent may increase and could cause some localised impacts. Hence the IP condition requires the Operator to fully assess the extent of and the potential impact at the edge of the mixing zone against WFD standards in place at the time.

IP7

We have set Improvement condition IP7 to ensure that a flow proportional sampler is installed within a reasonable timeframe. This is because the existing auto-sampler is only capable of time proportional sampling and as flow proportional samples are BAT for the sector, we have required the operator to install a replacement auto-sampler to ensure that all data collected is in line with BAT and comparable against appropriate standards.

There are some existing improvement conditions relating to the operation and reporting of emissions from the onsite combustion activities and so these have been carried forward into the consolidated permit. We also consider that we need to set improvement conditions relating to changes in the permit not arising from the review of compliance with BAT conclusions. The justifications for these are provided in Annex 5 of this decision document.

Table 4. Record of improvement conditions set

Reference	Improvement Condition	Completion date
IP1	<p>The operator shall provide a report in writing to the Environment Agency for acceptance which provides the net rated thermal input for LCP186 and LCP 187. The net rated thermal input is the ‘as built’ value unless the plant has been modified significantly resulting in an improvement of the plant efficiency or output that increases the rated thermal input (which typically requires a performance test to demonstrate that guaranteed improvements have been realised).</p> <p>Evidence to support this figure, in order of preference, shall be in the form of:-</p> <ul style="list-style-type: none"> - Performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes), - Performance test results after a significant modification (quoting the specified standards or test codes), - Manufacturer’s contractual guarantee value, - Published reference data, e.g., Gas Turbine World Performance Specifications (published annually); - Design data, e.g., nameplate rating of a boiler or design documentation for a burner system; - Operational efficiency data as verified and used for heat accountancy purposes, - Data provided as part of Due Diligence during acquisition. <p>*Performance test results shall be used if these are available.</p>	31/12/16
IP2	<p>The operator shall submit a report in writing to the Environment Agency for acceptance. The report shall define and provide a written justification of the “minimum start up load” and “minimum shut-down load”, for each unit within the LCP as required by the Implementing Decision 2012/249/EU in terms of:</p> <ul style="list-style-type: none"> - The output load (i.e. electricity, heat or power generated) (MW); and, - This output load as a percentage of the rated thermal output of the combustion plant (%). <p>And / Or</p> <p>At least three criteria (operational parameters and / or discrete processes as detailed in the Annex) or equivalent operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down as detailed in Article (9) 2012/249/EU.</p>	31/12/16

<p>IP3</p>	<p>The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the BAT conclusion AELs where a derogation has been applied for and granted. The report shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> - Current performance against the BAT conclusion AELs. - Methodology for reaching the AELs. - Associated targets / timelines for reaching compliance by 31/12/21 for emissions of Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS) at W1 as defined in table S3.2 of this permit – time limited derogation. - Any alterations to the initial plan – for progress reports. <p>The report shall address BAT conclusions 40 and 50.</p> <p>The operator shall submit reports on progress with the approved compliance plan on a six monthly frequency specified by this condition.</p>	<p>Initial Report 01/03/17</p> <p>Progress reports by 01/09/17 01/03/18 01/09/18 01/03/19 01/09/19 01/03/20 01/09/20 01/03/21 01/09/21</p>
<p>IP4</p>	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved, but will be achieved before 31 December 2021. The report shall include, but not be limited to, the following:</p> <ul style="list-style-type: none"> - Methodology for achieving BAT. - Associated targets / timelines for reaching compliance by 31 December 2021 - Any alterations to the initial plan <p>The report shall address BAT conclusions 5, 14 and 16.</p> <p>The operator shall submit reports on progress with the approved compliance plan on a six monthly frequency specified by this condition.</p>	<p>Initial Report 01/03/17</p> <p>Progress reports by 01/09/17 01/03/18 01/09/18 01/03/19 01/09/19 01/03/20 01/09/20 01/03/21 01/09/21</p>

IP5	<p>The operator shall submit for approval a report that investigates and reviews the emissions of cadmium from the on-site effluent treatment plant to the receiving water body. The investigation shall include the following:</p> <ul style="list-style-type: none"> - A minimum of twelve months intensive sampling at a minimum monthly frequency commencing after commissioning of the upgraded effluent treatment plant - The Limit of Detection or Minimum Reporting Value shall be agreed with the Environment Agency prior to commencement. - A review of abstracted water quality and potential sources from raw material inputs and process chemistry. - An impact assessment shall be carried out in accordance with the methodology in the Environment Agency H1 screening tool and using the results from the sampling programme. The outcome of this exercise shall determine whether detailed modelling of the discharge is required. <p>If required, detailed modelling shall be carried out to fully assess the impact.</p>	31/03/23
IP6	<p>The operator shall submit for approval by the Environment Agency a report that investigates the impact of the temperature as a result of the discharge from the on-site effluent treatment plant to the receiving water body. The investigation shall assess the extent and potential impact at the edge of and beyond the mixing zone against the Water Framework Directive (WFD) proposed or current temperature standards for tidal waters available at the time.</p> <p>The results of the shoreline survey as specified in table S3.2 shall be reviewed to establish if additional modelling and/or monitoring is required.</p> <p>The report shall also consider the opportunities for reducing the residual temperature of the discharge by evaluating all options for heat recovery throughout the pulping and paper making operations on site, having tracked the changing temperature profile throughout the period.</p>	31/03/23
IP7	<p>The operator shall install an auto-sampler for the collection of flow proportional samples at emission point W1 as defined in table S3.2 of this permit.</p>	31/12/17

Annex 4: Review and assessment of changes that are not part of the BAT Conclusions derived permit review.

Review of Site Report

We have reviewed the Operators response to the Reg 60 Notice regarding the adequacy of their existing site report in fulfilling the requirements of a Site Condition Report for the purposes of IED. We have concluded that the existing report has been created and maintained by the Operator to a satisfactory standard and providing the Operator complies with the additional requirement for periodic monitoring, as contained within condition 3.1.5 it will comply with the revised requirements under IED.

Energy Efficiency

We have amended condition 1.2.3 (added by variation V004) to provide clarity on CHP requirements.

Operating techniques

Standard Permit Condition 2.3.5

We have amended condition 2.3.5 to include a date for ceasing the direct discharge of untreated effluent in an emergency at W1. This was the subject of improvement condition IP1 which was received 26 November 2012. This response was discussed with the operator during a site visit 11 June 2013 and recorded on the Compliance Assessment Report (CAR) form reference BJ7590IB/0186639. We accepted the “short term need” for the retention of this option, however we acknowledged the requirement to review (timescale not set) and discussions moved on to an effluent strategy. On this basis we have set the date to be on the completion of IP3. This will allow for removal of the emergency discharge as part of detailed design of the final solution for the upgraded effluent treatment plant and will also be covered in the associated variation to the permit, which will be required at that time.

Standard Permit Condition 2.3.12

We have added condition 2.3.12 due to the deletion of pre-operational measure POM3 which was never completed as the waste streams are not mixed.

POM3	The operator shall not mix bottom ash and APC residues until it can be demonstrated that both waste streams are non hazardous and mixing will not be detrimental to any potential reuse or recovery options. The operator shall not carry out any mixing until written acceptance has been provided by the Agency.
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2.3.12 Bottom ash and APC residues shall not be mixed.

Improvement Conditions

We have deleted IP6 relating to noise, which was completed and recorded on the CAR form 6 February 2014. Standard permit condition 3.4.2 ensures that the necessary controls are in place.

IP6	<p>The operator shall undertake monitoring of all noise sources associated with the Biomass CHP plant and include Leq, statistical parameters and 3rd octave band frequency analysis. The monitoring shall be used to quantify all noise sources.</p> <p>The operator shall also carry out a noise assessment in accordance with BS4142:1997 "Rating industrial noise affecting mixed industrial and residential areas". The assessment shall be used to verify the noise modelling data submitted in the application is valid.</p> <p>Where it is identified that there is a reasonable likelihood of complaints (as defined by BS4142:1997) or the attenuation/mitigation of the newly installed equipment is not considered BAT then the operator shall propose improvements along with timescales for completion. In this case the operator shall also develop a noise management plan.</p> <p>A report detailing the findings of the noise monitoring and BS4142:1997 assessment along with the noise management plan, where required, shall be submitted to the Agency.</p>	6 months after the start of operation of the Biomass CHP plant
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We have deleted IP7 relating to fly ash and bottom ash. Work has been done by the operator with the ash going to recovery routes. Standard permit condition 1.4.2 ensures that the necessary controls are in place.

IP7	<p>The operator shall carry out sufficient analysis to characterise the properties of the fly ash and bottom ash. Based on findings the operator shall implement recycling or reuse of the ash stream(s) in line with the proposals identified in POM2. If it is not feasible to reuse or recover the ash stream(s) the operator shall submit a report detailing the best environmental option for disposal.</p>	6 months after the start of operation of the Biomass CHP plant
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We have deleted IP8, operational experience has demonstrated that dust is not a major concern at the fuel handling plant.

IP8	The operator shall carry out an assessment of the effectiveness of the dust control measures for the fuel handling plant. The assessment shall quantify dust arisings under a range of operating conditions and fuel mixtures using a minimum of 12 months of operational data. A report of findings shall be submitted to the Agency highlighting any operational issues and if necessary providing proposals and timescales for implementing local exhaust ventilation (LEV) or abatement.	15 months after the start of operation of the Biomass CHP plant
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We have deleted IP9 as we are sufficiently confident with the operation of the CHP plant following an Operator Monitoring Assessment (OMA) audit at the site.

IP9	The operator shall carry out a review of a minimum of 12 months emission monitoring data and performance parameters to demonstrate that the operation of the Biomass CHP plant is optimised. A report summarising the findings shall be submitted to the Agency.	18 months after the start of operation of the Biomass CHP plant
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Pre-operational measure (table S1.4) and waste code (table S2.2)

We have retained POM4 (renumbered to POM1) and removed the quantity restriction for EWC 03 03 10 (filter cake). This will form part of the new effluent treatment strategy.

POM4/POM1	The operator shall provide a written demonstration that burning of the effluent filter cake will produce sufficient calorific value to be considered as a waste recovery operation rather than a waste disposal operation. The operator shall not burn any effluent filter cake until written acceptance has been provided by the Agency.
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Table S3.2 – Point Source Emissions to Water

W1 – Included additional monitoring requirements – Biochemical Oxygen Demand (BOD), total nitrogen, total phosphorus, EDTA/DTPA and temperature to ensure consistency across the sector and to help understand changes which may be identified through the shoreline survey. Monitoring is to be done to correct standard and frequency.

W2 – Added visible oil and grease to ensure that the appropriate controls are in place.

Annex 5: Priority Compliance Issues & Detailed assessment of Reg 60 responses where future action likely

Compliance Issue Priority BAT indicated in Bold Text	Relevant Permit Condition	Compliance stated by Operator CC/FC/NC/NA	Compliance assessment conclusion CC/FC/NC/NA	Summary of Permitting Officer Assessment against BATc techniques	Compliance Action to Implement BAT Conclusions
Environment Management System: BAT 1	1.1.1	CC	CC	Evidence of application of relevant techniques provided in Regulation 60 response. Latest surveillance audit (21/05/14) supplied and showed no non-conformances.	Validate compliance by Inspection
Raw materials: BAT 2	1.3.1	CC	CC	Evidence of application of ongoing chemical assessment COSHH and environmental aspects fully considered and subject to annual review	Validate compliance by Inspection
Raw materials: BAT 3	1.3.1	CC	CC	Regulation 60 response confirmed Hydrogen Peroxide is used extensively along with DTPA as chelating agent. Usage optimised and trials undertaken for replacements	Keep progress towards replacement of DTPA under review. Recent trial with DTPA part substituted with EDTA and another compound should be followed up on.
Raw materials handling: BAT 4	1.1.1	CC	CC	Log yard run off to Siddick pond via gully pots and oil interceptors.	Consider a broader suite of monitoring, including ammonia.

				Monitoring both visual and chemical undertaken daily on W2 emission for COD, Conductivity and TSS.	Log yards can be a potential source of ammonia emissions.
Water usage: BAT 5	1.3.1	CC	FC	Water balance provided and lots of work planned to reduce water consumption and increase rates of re-use on site. Report recommendations require active follow up to ensure appropriate recommendations are put in place during work to ensure compliance with the BATAEL's.	See key issues section. Water consumption as m3/ t average 2012-14 has been 36m3/t (2014 was 33m3/t). Use water balance as key document to track improvements during work to comply with the BATAEL's. BAT 5 is contained in IP 3 as part of improvement programme to install secondary biological effluent treatment.
Energy consumption: BAT 6	1.2.1	CC	CC	Evidence provided in the Regulation 60 response identifying application of a range of techniques associated with BATC 6. Evidence submitted of ongoing management and reduction of energy use. RFI response confirmed there 4	Identify if they are progressing certification for Energy MS or not

				Thermo compressors fitted on BM2	
Odour control: BAT 7	3.3.1	N/A	CC	Original response did not address some generally applicable techniques. RFI did adequately cover and explained the dosing arrangements for incoming water and ongoing biocide addition.	As water loops become more closed (see BAT 5) odour may require higher level of control via biocides to prevent slime and hence process issues from developing.
Monitoring process: BAT 8	3.5.1	CC	CC	Evidence provided that relevant process monitoring is undertaken as specified in BATC 8 for water flow temperature & pH.	None
Monitoring air: BAT 9	3.5.1	N/A	N/A	Regulation 60 response confirms no chemical pulping occurs and hence monitoring is N/A	None
Monitoring water: BAT 10	3.5.1	CC	CC	Evidence provided that relevant monitoring will be undertaken as specified in BATC 10	All monitoring to be as per BATC Except for AOX where Operator confirmed no potential from the process and only ECF chemical pulp used on site.
Odour control: BAT 11	3.3.1	N/A	N/A	Regulation 60 response confirms no sulphur based pulping occurs	None
Waste management: BAT 12	1.4.1	CC	CC	Evidence provided that waste is segregated for application of Waste Hierarchy and recovery followed where possible	Sludge recovery options should be kept under review as improved primary settlement installed ahead of biological treatment, which again may alter sludge composition. Other

					wastes (eg; bark) recovered on site and bottom & fly ash recovered off site to agricultural land.
Emissions to water: BAT 13	1.3.1	N/A	CC	Regulation 60 response states high nutrient chemicals not used with only nitrogen containing compound being DTPA in use in pulping.	Note comments under BAT3.
Emissions to water: BAT 14	1.3.1 & 2.3.1	NC	FC	Currently only primary treatment installed. Proposed to install a MBBR once COD & TSS loadings reduced sufficiently.	Track via IP 4 and derogation determination.
Emissions to water: BAT 15	2.3.1	N/A	N/A	Solway Firth not classified as eutrophic waters	None
Emissions to water: BAT 16	2.3.1	N/A	FC	Concentrations of organic substances, Phosphorous and Nitrogen are generally within BAT AEL's. No local indicators further removal is needed.	Need to keep under review as move towards installation of secondary treatment. May well be that MBBR reduces concentrations of both N & P without need for further/ additional dosing; but needs to be kept under review.
Noise control: BAT 17	3.4.1	CC	CC	Good spread of use of techniques for noise control with regular use of noise surveys. Clear evidence of investment plans considering impact on noise footprint from site and	None.

				wood yard operations reduced at night.	
Decommissioning: BAT 18	3.1.5	CC	CC	Evidence provided indicates site report linked to records of accidents and spillages along with chemical inventory. Removal of old CHP sited as example of following decommissioning plan and updated records accordingly.	None
Mechanical Pulping waste water: BAT 40	1.3.1 & 3.5.1	NC	FC	Various measures in place (counter current flow & high consistency bleaching) various trials/potential improvements referred to as part of measures to meet BATAEL's (increased recovery of fibre from the pulp mill as well as alternative bleaching chemistry (Mg(OH) ₂ and increased white water storage/ re-use. Site operating well in excess of relevant BATAELs and subject of detailed improvement programme.	Links to BATC 5. Track all measures via IP3.
Mechanical Pulping energy: BAT 41	1.2.1	CC	CC	Measures referenced to reduce specific energy consumption of chip	None

				refiner; heat recovery to heat freshwater via steam condenser and use of clear filtrate, dilution water extensively used in process.	
Recycled Fibre raw materials: BAT 42	1.3.1	N/A	N/A		
Recycled Fibre water emissions: BAT 43	1.3.1	N/A	N/A		
Recycled Fibre water management: BAT 44	1.3.1	N/A	N/A		
Recycled Fibre water AEL's: BAT 45	1.3.1 & 3.5.1	N/A	N/A		
Recycled Fibre energy: BAT 46	1.2.1	N/A	N/A		
Paper making waste water: BAT 47	1.3.1	CC	CC	Refer to BAT 5 & 40 for descriptions of measures in place and improvements planned	None
Paper making water usage: BAT 48	1.3.1	N/A	N/A	Applicable only to Speciality Mills	None
Paper making water management: BAT 49	1.3.1	CC	CC	Response indicates measures in place to reduce purge water use through coater and increased re-use of coatings in process.	Keep under review as part of IP3 and IP4.

				Mechanical seals replaced in 2015 with specific reduction in water use observed.	
Paper making water emissions: BAT 50	1.3.1 & 3.5.1	N/A	FC	Paper making activities are part source for high COD & TSS. Site operating well in excess of relevant BATAELs and subject of detailed improvement programme.	Links to BATC 5. Track all measures via IP3 and IP4.
Paper making Volatile Organic Compounds: BAT 51	3.2.1	CC	CC	Regulation 60 response detailed no VOC based coatings used; only water based recipes used.	None
Paper making waste generation: BAT 52	1.4.1	CC	CC	All 3 generally applicable techniques in use (fibre/filler recovery/ broke recirculation and recovery of coatings). Re-use of fibrous sludge from primary settlement not practised.	Keep options for re-use of primary sludges under review as part of ongoing improvement work.
Paper making energy consumption: BAT 53	1.2.1	CC	CC	Management of energy use described under BATC 6. Various techniques in use and described in response including press section re-build in 2016.	Keep under review, particularly after final commissioning of new press section. Any future upgrades and improvements to the site infrastructure particularly the upgrade to the ETP should look to address any weaker areas

				RFI response provided more evidence and refers to increased frequency of vac pump refurbishment; now set to 2 per annum. We have accepted the Reg 60 response as being compliant although some BAT techniques are not currently installed.	(ie; lack of heat recovery, variable speed pumps being on a replacement programme)
Response to Question 4 of Reg 60: ability of site report to be considered as a site condition report under IED	3.1.5	CC	CC	Response indicated that current site report has been kept up to date and will be reviewed and amended in order to comply with IED.	Validate compliance by Inspection to ensure Operator amends site report where necessary, including the requirement for periodic monitoring where justified.
Note permit condition 2.3.1 will require Operate to operate as per Regulation 60 response documents referenced in Table S1.2.					

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