

Permitting Decisions- Variation

We have decided to grant the variation for Huntsman Polyurethanes (UK) Limited operated by Huntsman Polyurethanes (UK) Limited.

The variation number is EPR/BS8656IX/V010

The consolidated permit variation was issued on xx/04/26 (*minged to draft – to be completed*]

The variation implements a derogation in accordance with article 15(4) of Industrial Emissions Directive (IED) until the next permit review. The derogation relates to Best Available Techniques Conclusions for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector Section 3.4 Table 3 direct emissions to a receiving water body of Chromium and Nickel. The derogation covers emission of process effluent from the Aniline & Mononitrobenzene Plant via S1 to Sembcorp drain containing Total Chromium up to 75 µg/l (BAT-AEL 2.5-25 µg/l) and Total Nickel up to 150 µg/l (BAT-AEL 5.0-50 µg/l).

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

Purpose of this document

This decision document provides a record of the decision making process. It summarises the decision-making process to show how the main relevant factors have been taken into account.

This decision document provides a record of the decision-making process.

How this document is structured

1. Our decision
2. How we reached our decision
3. The legal framework
4. Key Issues - Highlights key issues in the determination
5. Decision considerations - summarises the general decision making process in to show how all relevant factors have been taken into account
6. Annex 1 – Decision checklist regarding relevant BAT Conclusions.

7. Annex 2 – Review and assessment of derogation request(s) made by the operator in relation to BAT Conclusions which include an Associated Emission Level (AEL) value.
8. Annex 3 – shows how we have considered the consultation responses *[minded to draft – to be completed]*

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

Read the permitting decisions in conjunction with the consolidated environmental permit variation notice.

1 Our decision

We have decided 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.

As part of our decision we have decided to grant the Operator's request for a derogation from the requirements of Best Available Techniques Associated Emission Levels in Best Available Techniques Conclusions for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector Section 3.4 Table 3 direct emissions to a receiving water body of Chromium and Nickel until the next permit review.

The way we assessed the Operator's request for derogation and how we subsequently arrived at our conclusion is recorded in Annex 2 to this document.

We consider that, in reaching our 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 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 decision

2.1 Receipt and assessment of Application timeline

The formal request for a derogation and supporting documentation was received on 12 January 2024 in response to Improvement Condition IC17 in variation EPR/BS8656IX/V009 arising from the permit review initiated by publication of the BAT Conclusions for Production of Large Volume Organic Chemicals. The Improvement Condition had been added to variation EPR/BS8656IX/V009 because the operator had previously considered the discharge to be indirect to a treatment facility and therefore not automatically subject to BAT-AELs. They therefore required further time beyond the permit review to carry out the necessary preparatory work for a derogation application.

The first stage on the assessment (grounds for a derogation) was considered by the assessment group on 2nd July 2024 where further questions were raised. The applicant answered these on 22nd October 2024.

The first stage was reconsidered by the assessment group on 5th December 2024 where further detail about the viability of treatment of received nitric acid raw material on site was requested. This was submitted by the applicant on 23rd January 2025 and the Stage 1 assessment was approved on 14th March 2025.

The second stage of the assessment (cost benefit analysis) was considered by the assessment group on 26th June 2025 and approved.

The derogation granting was signed by an Environment Agency Deputy Director on 28th August 2025.

2.2 Consultation on the Application

As this derogation request was submitted in response to an improvement condition in a previous variation the granting of the derogation has been implemented by an Environment Agency initiated variation EPR/BS8656IZ/V010. Environment Agency initiated variations of this type do not require consultation with the public or external stakeholders at application.

We carried out consultation and publicising of our minded to decision.
[minded to draft – to be completed]

We consider that this process satisfies, the requirements of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which are directly incorporated into the IED, which applies to the Installation and the Application. We have also taken into account our obligations under the Local Democracy, Economic Development and Construction Act 2009 (particularly Section 23). This requires

us, where we consider it appropriate, to take such steps as we consider appropriate to secure the involvement of representatives of interested persons in the exercise of our functions, by providing them with information, consulting them or involving them in any other way.

We advertised the draft variation notice and decision document by a notice placed on our website. We sent copies of the draft variation and decision document to the following bodies, which includes those with whom we have “Working Together Agreements”:

United Kingdom Health Security Agency (UKHSA)
Director of Public Health for Redcar and Cleveland Council
Health and Safety Executive (HSE)
Local Environmental Health for Redcar and Cleveland Council

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

We have consulted on our minded to issue variation notice and decision document from *xx/xx/26 to xx/xx/26*. A summary of the consultation responses and how we have taken into account all relevant representations is shown in Annex 3.

[minded to draft – to be completed]

3 The legal framework

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

- an *installation* as described by the IED;
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that the Consolidated Variation Notice will ensure that the operation of the Installation continues to comply 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.

4 Key issues of the decision

The Operator requested a non time limited derogation from Best Available Techniques Associated Emission Levels (BAT-AELs) for Chromium and Nickel as direct emission of metals to a receiving water body under section 3.4 Table 3 of BAT Conclusions for common waste water and waste gas treatment/management systems in the chemical sector (CWW).

The request is for continued current operation with S1 discharge Emission limit values of:

75 µg/l for Chromium (against BAT-AEL 2.5-25 µg/l)

150 µg/l for Nickel (against BAT-AEL 5.0-50 µg/l)

i.e 3 times the top end of the limit range.

The decision is made on the basis of technical characteristics of the mononitrobenzene (MNB) and aniline production process with supporting geographical location considerations. A non time limited derogation means the derogation will last until the permit is reviewed following the next update of the BAT Conclusions or as required by the Environment Agency. In this case the period is further limited by the requirements of Improvement Condition IC24.

The Operator's application screened a wide range of potential treatment methods and took five options, including three treatments, forward for full consideration. They have proposed to continue with the current operation because no other options are feasible.

The Environment Agency has reviewed the request and concluded that:

The operator has considered a wide range of options to comply with the BAT-AEL concentrations for Chromium and Nickel at the boundary of the installation. Reasonable initial screening was used to reduce the list to seven options and the reduction to three options to be taken forward to Stage 2 assessment was adequately justified. No other derogations have been requested.

The Operator has provided a credible argument that the increased costs linked to the technical characteristics and geographical location are disproportionate for achieving the BAT AEL. An appropriate range of options were reviewed and those identified as technically viable were considered further. Viable options were taken forward for Cost Benefit Analysis (CBA), were adequately described in the CBA and the cost of the various BAT AEL options was confirmed as disproportionate compared to the environmental benefits. The Cost Benefit Analysis using central assumptions shows negative Net Present Values (NPV) for the BAT AEL of £9.6m to £129.9m and therefore the cost of compliance is disproportionate compared to the environmental benefit achieved.

The Operator has demonstrated in the assessment of derogation impacts that the continued emission of Chromium and Nickel to the Sembcorp managed Wilton

Site drainage system for subsequent discharge to the Dabholm Gut inlet of the River Tees Estuary will not cause significant pollution.

The recommended approval of the derogation is conditional on the sampling and monitoring being improved so that the reported values are representative of the discharged concentrations of Chromium and Nickel (Improvement Condition IC22) and that the submitted justification for the derogation must be revisited if the regulatory framework changes as a result of the publication of United Kingdom BAT Conclusions for Large Volume Organic Chemicals; the supplier of nitric acid (the main source of the Cr and Ni) is changed; or 4 years from the granting of the derogation have passed (Improvement Condition IC24).

The Environment Agency is therefore minded to allow this derogation request subject to the permit conditions set out in section 4 of this form:

- Improvement condition IC22 and Note 3 to table S3.2 to require flow proportional sampling and combination of samples for monitoring from the two parts of S1 in flow ratio.
- The one parameter where it is that is more difficult to combine monitoring results arithmetically is pH. Improvement Condition IC23 is included to conduct and report a survey of pH in the two parts of S1. Where this concludes that either part will be unable to meet the current permitted pH range of 6-9 the impact on the receiving environment of the out of range pH values must be assessed to support any change in permitted range as a variation application.
- Improvement Condition IC24 to require a review of the supporting documentation and conclusions for the derogation application submitted as part of the determination of variation BS8656IX/V010 when United Kingdom BAT Conclusions for Large Volume Organic Chemicals are published, when the nitric acid supplier is changed, or 31/12/2029 – whichever is the sooner
- The operating techniques for this BAT Conclusion will be incorporated into the permit.
- All existing permit emission limit values (ELVs) will remain in force and new ELVs will be introduced for emissions of chromium and nickel to water in permit table S3.2

Decision considerations

Confidential information

Commercial and Industrial Confidentiality was requested for the input financial details in the derogation Cost Benefit Analysis. This request has been granted.

However, the summary of conclusions supporting the second stage of assessment is presented in Annex 2.

The decision was taken in accordance with our guidance on confidentiality.

Identifying confidential information

We have not identified further information provided as part of the application that we consider to be confidential.

The decision was taken in accordance with our guidance on confidentiality.

Consultation

See 2.2 above.

Site condition report

There are no changes to the site condition report as a result of this variation

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

We have not consulted Natural England. The decision was taken in accordance with our guidance.

Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment or similar methodology supplied by the operator

and reviewed by ourselves, the emissions of Chromium and Nickel may be screened out as environmentally insignificant.

Operating techniques

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit. This includes operating technique details submitted as part of the derogation request.

Updating permit conditions during consolidation

We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit.

Raw materials

We have not specified limits and controls on the use of raw materials and fuels. Although the nitric acid raw material is a significant source of chromium and nickel in the process their impact on the environment is controlled through the derogated emission limit values.

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme.

See Key Issues above.

Emission limits

Emission Limit Values (ELVs) have been amended for emissions of chromium and nickel in process effluent from the aniline and mononitrobenzene plants via discharge point S1 to the Wilton Site drainage system.

For the duration of the derogation implemented in this variation the discharge limit for chromium is 75 µg/l (BAT-AEL 25 µg/l)

For the duration of the derogation implemented in this variation the discharge limit for nickel is 150 µg/l (BAT-AEL 50 µg/l)

Monitoring

We have decided that monitoring of the discharge via S1 should be amended to flow proportional sampling. Emission Point S1 has 2 parts. Where the requirement is to test a flow proportional 24-hour composite sample this should

be made up of a mixture of the flow proportional samples from each part combined in the ratio of the 24 hour total flow for each part.

We have deleted monitoring in the permit for the thermal oxidiser emission point V1 as this is no longer used and emission point A26a as this is no longer in the submitted list of emission points. A26b becomes A26 as shown on the revised site plan in Schedule 7.

Reporting

We have deleted reporting in the permit for the thermal oxidiser emission point V1 as this is no longer used.

Management system

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit variation.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards

applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

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Permitting Decisions- Variation

Annex 1 – Decision checklist regarding relevant BAT Conclusions.

Best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for common waste water and waste gas treatment/ management systems in the chemical sector

Section 3.3 *Waste water treatment*

BAT 10. Summary

In order to reduce emissions to water, BAT is to use an integrated waste water management and treatment strategy that includes an appropriate combination of the techniques in the priority order given below:

- a) Process-integrated techniques
- b) Recovery of pollutants at source
- c) Waste water pretreatment
- d) Final waste water treatment

Summary of operator's assessment of compliance with the BAT 10 Conclusions requirement

Huntsman does not have any process integrated techniques to reduce Cr and Ni as these were not identified as an issue when the plant was built.

To reduce Ni and Cr concentrations in the discharge, Huntsman has investigated treatment options such as the treatment of nitric acid or a change from nickel catalyst as part of future operations but there are no available feasible alternatives.

In order to reduce/eliminate pollutants from the source, Huntsman has looked at changing the raw material supplier but there are currently no suppliers of nitric acid with a much lower chromium content. Improvement condition 24 requires a reappraisal of this derogation if the nitric acid supplier is changed.

The Huntsman site does not currently have an effluent treatment plant. This has been assessed as part of the derogation justification.

BAT 11. Summary

In order to reduce emissions to water, BAT is to pretreat waste water that contains pollutants that cannot be dealt with adequately during final waste water treatment by using appropriate techniques.

Waste water pretreatment is carried out as part of an integrated waste water management and treatment strategy (see BAT 10) and is generally necessary to: protect the final waste water treatment plant

remove compounds that are insufficiently abated during final treatment

remove compounds that are otherwise stripped to air from the collection system

or during final treatment
remove compounds that have other negative effects

In general, pretreatment is carried out as close as possible to the source in order to avoid dilution, in particular for metals. Sometimes, waste water streams with appropriate characteristics can be segregated and collected in order to undergo a dedicated combined pretreatment.

Summary of operator's assessment of compliance with the BAT 11 Conclusions requirement

The Huntsman site does not currently have a final waste water effluent treatment plant. The chromium and nickel in the discharge arise from either

- a) the incoming nitric acid used in the first main reaction. There are currently no available techniques to remove metals from nitric acid on arrival on site at the scale required. Or
- b) from the equipment and catalyst in the main reaction vessels. There is no opportunity for pretreatment prior to final treatment of effluent.

BAT12. Summary

In order to reduce emissions to water, BAT is to use an appropriate combination of final waste water treatment techniques.

Final waste water treatment is carried out as part of an integrated waste water management and treatment strategy (see BAT 10).

Appropriate final waste water treatment techniques, depending on the pollutant, include:

Preliminary and primary treatment – Equalisation, Neutralisation, Physical Separation

Biological treatment (secondary treatment) e.g Activated sludge process, Membrane bioreactor

Nitrogen removal – Nitrification/Denitrification

Phosphorus removal – Chemical precipitation

Final Solids removal – Coagulation and flocculation, Sedimentation, Filtration, Flotation

Summary of operator's assessment of compliance with the BAT 12 Conclusions requirement

Preliminary and final treatment options have been considered in the derogation request supporting documentation. Biological treatment, Nitrogen removal, Phosphorus removal and Final solids removal are not applicable to reducing Cr and Ni concentrations.

Section 3.4 BAT-associated emission levels for emissions to water

Summary of relevant parts

The BAT-associated emission levels (BAT-AELs), for emissions to water given in Table 1, Table 2 and Table 3 apply to direct emissions to a receiving water body from - the activities specified in Section 4 of Annex I to Directive 2010/75/EU.

The BAT-AELs apply at the point where the emission leaves the installation.

Table 3:

BAT-AELs for direct emission of AOX and metals to a receiving water body

Chromium (expressed as Cr) 5,0-25 µg/l ⁽³⁾ ⁽⁴⁾ ⁽⁵⁾ ⁽⁶⁾ The BAT-AEL applies if the emission exceeds 2,5 kg/yr.

Nickel (expressed as Ni) 5,0-50 µg/l ⁽³⁾ ⁽⁴⁾ ⁽⁵⁾ The BAT-AEL applies if the emission exceeds 5,0 kg/yr.

⁽³⁾ The lower end of the range is typically achieved when few of the corresponding metal (compounds) are used or produced by the installation.

⁽⁴⁾ This BAT-AEL may not apply to inorganic effluents when the main pollutant load originates from the production of inorganic heavy metal compounds.

⁽⁵⁾ This BAT-AEL may not apply when the main pollutant load originates from the processing of large volumes of solid inorganic raw materials that are contaminated with metals (e.g. soda ash from the Solvay process, titanium dioxide).

⁽⁶⁾ This BAT-AEL may not apply when the main pollutant load originates from the production of chromium-organic compounds

Summary of operator's assessment of compliance with the BAT Conclusions requirement

The BAT-AELs are applicable in this case because:

i) The installation activities fall under Section 4 of IED (Chapter 4 of Schedule 1 of Environmental Permitting Regulations 2016)

ii) The Wilton Site drains are collected by Sembcorp Utilities UK Ltd before discharge to the Dabholm Gut inlet of the River Tees but no treatment is performed so the Huntsman discharge form S1 is a direct discharge to a receiving water body so BAT-AELs apply where the emission leaves the installation.

iii) The Cr and Ni discharges both exceed the mass thresholds.

iv) Note 4 does not apply as Cr and Ni compounds are not produced by the installation.

v) Note 5 does not apply as none of the raw materials containing Cr or Ni is a solid.

v) Note 6 does not apply as the installation does not produce chromium-organic compounds.

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

Basic information

Basic information	
Operator, installation name, location, permit number	Operator: Huntsman Polyurethanes (UK) Limited Site: Huntsman Polyurethanes (UK) Limited Wilton, Redcar, TS10 4YA EPR/BS8656IX
BREF	<i>Best Available Techniques (BAT) Reference Document for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector</i>
BAT Conclusions and date of publication BAT Conclusion number and description	Best available techniques conclusions for common waste water and waste gas treatment/ management systems in the chemical sector Published May 2016 (CWW) Derogation from Best Available Techniques Associated Emission Levels (BAT-AELs) for Chromium and Nickel as direct emission of metals to a receiving water body under section 3.4 Table 3 CWW BAT Conclusions Chromium (expressed as Cr) 5.0-25 µg/l applies if emission exceeds 2.5 kg/yr Nickel (expressed as Ni) 5.0-50 µg/l applies if emission exceeds 5.0 kg/yr (none of the table note exclusions apply in this case).
BAT Conclusions compliance date	Compliance with CWW BAT Conclusions was triggered by permit review against LVOC BAT Conclusions whose compliance date was 07 Dec 2021.
Operator's derogation summary	Nature of request: Non time limited delay for the life of the BREF, and until a review of the permit is triggered by an event stipulated in article 21 of the IED. Derogation request: Continued current operation with S1 discharge Emission limit values of: 75 µg/l for Chromium (against BAT-AEL 2.5- <u>25</u> µg/l) 150 µg/l for Nickel (against BAT-AEL 5.0- <u>50</u> µg/l) i.e 3 times the top end of the limit range.

Basic information	
	<p>Request criterion: Technical:</p> <ul style="list-style-type: none"> • Treatment of low concentrations of Chromium and Nickel may need considerable quantities of dosing chemicals which could give rise to other adverse environmental impacts. • Alternative catalysts are either not as effective or give rise to the same Nickel contamination. • There is limited room on the site to construct an effluent treatment facility <p>Geographical:</p> <ul style="list-style-type: none"> • The supply of nitric acid is local but contains chromium and nickel contaminants. There is no other UK manufacturer. Importing nitric acid would add/increase transport costs and environmental impact, but would not resolve the issue of Cr and Ni leaching from plant stainless steel. <p>Options considered: 40 treatment options screened at laboratory scale. 7 considered for full technical appraisal. 3 taken forward as costing options with Business as Usual and offsite treatment, making a total of 5 options for cost and benefit assessment.</p> <p>CBA conducted: Yes; a valid CBA has been submitted that supports the derogation request.</p>
Previous NDP recommendations or comments on this or similar requests	None known of direct relevance.
Details of any Regulation 61 Notices	Regulation 61 notice issued 04/05/2018 for permit review after publication of BAT Conclusions for producing Large Volume Organic Chemicals. Response received 26/04/2019 Formal Derogation request received: 07/06/2022 in response to IC17 Supporting documentation submitted January 2024.
Details of additional information requested by letter or e-mail	Derogation request supporting documentation submitted in response to Improvement Condition IC17

Part 1: First stage assessment

CWW Section 3.4

The BAT-associated emission levels (BAT-AELs), for emissions to water given in Table 1, Table 2 and Table 3 apply to direct emissions to a receiving water body from:

- (i) **the activities specified in Section 4 of Annex I to Directive 2010/75/EU;**
- (ii) independently operated waste water treatment plants specified in Section 6.11 of Annex I to Directive 2010/75/EU provided that the main pollutant load originates from activities specified in Section 4 of Annex I to Directive 2010/75/EU;
- (iii) the combined treatment of waste water from different origins provided that the main pollutant load originates from activities specified in Section 4 of Annex I to Directive 2010/75/EU. The BAT-AELs apply at the point where the emission leaves the installation.

This installation is permitted to operate activities specified in Section 4 of Annex 1 to Directive 2010/75/EU (and Environmental Permitting Regulations 2016 Schedule 1 Part 1 Chapter 4).

1 Description of the derogation request

1.1 BAT Conclusion: CWW Section 3.4 Table corresponding to BAT Conclusions 10-12 which requires yearly average BAT-AEL concentration compliance for Chromium and Nickel apply to this emission. There are no valid applicability exclusions.

1.2 Operator derogation evidence: The Operator concluded that they could not meet the BAT-AEL as defined in CWW BAT Conclusion Section 3.4 by the LVOC BAT Conclusions implementation date of 07/12/2021. To support this conclusion the Operator supplied the following evidence:

- A review of chromium and nickel concentrations in the S1 discharge to Sembcorp from 2015 to 2019 with average and maximum values in excess of BAT-AELs but supporting compliance with limits 3 times the BAT-AELs being challenging but achievable.
- A review of the root source of the chromium and nickel contamination concluding there is a lack of feasible options to prevent this as they are present in a key raw material with only one suitable UK supplier.
- A review of potential options to treat the chromium and nickel concentrations to achieve the BAT-AELs resulting in the 3 treatment options chosen to take forward to cost benefit assessment.
- A review, including dispersion modelling of the current impact on the River Tees receiving water body concluding that there is no significant negative impact.

1.3 Emission Limit Values (ELV's): The derogation request includes a proposed ELV. The Operator has proposed ELVs compared to the BAT AEL values as set out below. The

derogation will not extend beyond the next BREF cycle.

The Operator has proposed ELVs compared to the current ELVs and BAT-AEL values as set out below.

Emission Limit Value (ELV) comparison table			
Averaging period	Current	BAT AELs	Operator Proposed
Annual average	None set before permit review. Now BAT-AELs	Cr 2.5 - 25 µg/l Ni 5.0 – 50 µg/l	75 µg/l 150 µg/l
Monitoring frequency	N/A	24 hour period flow-proportional sample collection	24 hour period sample collection (see below)

Current ELVs

No permit ELVs or monitoring were set before the LVOC permit review but from 07/12/2022 the permit has included the BAT-AELs.

BAT-AELs

The BAT-AELs are set out in Table 3 of section 3.4 of the CWW BAT Conclusions. None of the table footnotes apply.

CWW BAT 4 minimum monitoring frequency for metals is monthly but the operator already collects 24 hour period samples for daily analysis. Their sampling is not currently flow proportional but that has been required in the current permit and would be included as a requirement for the proposed ELVs as good practice (see Improvement Condition IC22)

Proposed ELVs

The proposed ELVs are three times the BAT-AELs. The proposed ELVs are supported by the results of several years of monitoring and impact assessment modelling of the River Tees receiving water body.

S1 Discharge Monitoring 2015-2019		
Parameter	Measure values (µg/l)	
	Average	Maximum
Chromium as Cr	52	176
Nickel as Ni	88	229

Mandatory limits: The mandatory minimum emission limit values in Annex V, VI, VII or VIII of the IED, for combustion, waste incineration, use of solvents or production of titanium dioxide, do not apply to this release

Criteria: The derogation request is based on technical characteristics supported by geographical location considerations:

Derogation criteria assessment		
Criteria detail	Operator proposal – linked to DEFRA IED EPR guidance	Environment Agency view
Technical	Treatment of low concentrations of Chromium and Nickel may need considerable quantities of dosing chemicals which could give rise to other adverse environmental impacts.	Accepted The precipitation and filtration option taken forward would require large volumes of dosing chemicals as the metal concentration is already low and the volumes to be treated at 3700m ³ /day are relatively high. The other two technical options taken forward of Ion exchange and Reverse Osmosis would also both produce waste streams requiring disposal.
Technical	Alternative catalysts are either not as effective or give rise to the same Nickel contamination.	Accepted. Nickel is the recognised catalyst for hydrogenation of nitrobenzene. The operator reports exploring other catalysts in the past but none were as effective.
Technical	There is limited room on the site to construct an effluent treatment facility	Maybe. The site boundary is a constraint but a Thermal Oxidiser is being decommissioned and there is some free room but vessels needed to treat 3700m ³ /day would be substantial. However, there is some unbuilt land around the installation. The operator has considered the option of an off-site treatment plant.
Geographical	The supply of nitric acid is local but contains chromium and nickel contaminants. There is no other UK manufacturer. Importing nitric acid would add increase transport cost and environmental impact, but would not resolve the issue of Cr and Ni leaching from plant stainless steel.	Accepted The nitric acid is supplied from just the other side of the river Tees – very local. Several hundred tonnes/day in road tankers. The chromium and nickel contamination is a consequence of the suppliers production process/materials of construction

1.4 Options review: The Operator has addressed all the options for achieving the BAT AEL. The Operator has referred to the BAT Conclusions and addressed all reasonable techniques for achieving the BAT AEL. Where an option is considered appropriate for cost benefit analysis (CBA) it has been identified as such and considered further.

The operator commissioned a preliminary assessment potential treatment options by Arcadis to meet CWW BATc 10/12 (which are the relevant BAT Conclusions for this proposal) that covered the advantages and disadvantages of a wide range of detailed method choices within broader treatment types. This was used to identify a list of 7 treatment options for further consideration.

Review of all possible techniques to achieve BAT AEL		
Technique description	Applicability/Availability	Assessment
CWW BATc 10a) Process-integrated techniques - Techniques to prevent or reduce the generation of water pollutants.		
Treatment of received nitric acid raw material on site	Technology not available to remove Cr and Ni from concentrated Nitric Acid at the required treatment rate of 1000 te/day	Huntsman does not have any process integrated techniques to reduce Cr and Ni as these were not identified as an issue until recently due to a change in specification of a raw material, ie long after the plant was built.
Change from Nickel Catalyst	Nickel is the recognised catalyst for hydrogenation of nitrobenzene although other methods are available.	Other metal catalysts have been trialled in the past but have not been successful.
Alter management of Nickel catalyst use	Use the catalyst for shorter periods between changes.	No guarantee the corrosion is at constant rate. Safety implications from handling of nickel catalyst if exposed to air. Increased raw material use to treat catalyst. The nickel catalyst is only the minor source of the Cr and Ni contamination compared to the nitric acid.

CWW BATc10 b) Recovery of pollutants at source - Techniques to recover pollutants prior to their discharge to the wastewater collection system.

<p>Change of raw material supplier (UK)</p>	<p>No other supplier of Nitric Acid in the UK at the scale required.</p>	<p>At present Huntsman have only one supplier of Nitric Acid in the UK. This supplier is close to the site. This long-term contract enables the 30 road tanker movements to supply the required 660,000 litres/day.</p>
<p>Change of raw material supplier (International)</p>	<p>There are no feasible alternative international suppliers of Nitric Acid.</p>	<p>Potential alternative suppliers in Europe are believed to operate the same production process as the current UK supplier with the same Cr/Ni concentrations. There would also be increased environmental impact and safety risk from transport and storage considerations.</p>
<p>Review reducing Cr/Ni contamination in source nitric acid</p>	<p>Not possible in UK source as the Cr/Ni comes from leaching of the supplier plant</p>	<p>Cr/Ni from leaching of the operator's own stainless steel reaction vessels is possible but there is no history of leaks or failures and measured chromium concentrations are consistent across the Huntsman process implying no significant leaching from the reaction vessels. Changing the vessels to resistant material such as Tantalum or Hastelloy contact surfaces is not believed to be technically feasible due to size and concentration of nitric acid.</p>

CWW BATc10 c) Wastewater pre-treatment - Techniques to abate pollutants before the final wastewater treatment. Pre-treatment can be carried out at the source or in combined streams.		
None applicable	Also the subject of BATc 11	The two discharged waste water streams arise directly from product treatment that allows recycling of other substances back into the process. The Huntsman site does not currently have an effluent treatment plant.
CWW BATc10 d) - Final waste water treatment by, for example, preliminary and primary treatment, biological treatment, nitrogen removal, phosphorus removal and/or final solids removal techniques before discharge to a receiving water body.		
	Covered under BATc 12	See below
CWW BATc12 Appropriate final waste water treatment techniques, depending on the pollutant, include: a) Equalisation		
Mixing relevant streams	The two effluent streams combine almost immediately in the covered drain outside the installation boundary.	The Huntsman site does not currently have an effluent treatment plant. The two main effluent streams are currently arithmetically combined for assessment against S1 discharge consent and permit ELVs.
CWW BATc12 b) Neutralisation		
pH adjustment	Applicable to e.g. acids/alkalis	Not relevant in this case.
CWW BATc12 c) Physical separation		
e.g. screens, sieves, grit separators, grease separators or primary settlement tanks	Suspended solids/oils/greases	Not relevant alone in this case (only as part of precipitation and filtration treatment option)
CWW BATc12 d) Activated sludge process CWW BATc12 e) Membrane bioreactor		
	For treating biodegradable organic compounds	Not relevant in this case

CWW BATc12 f) Nitrogen removal by nitrification/denitrification		
CWW BATc12 g) Phosphorus removal by chemical precipitation		
		Not applicable to compliance with BAT-AELs for chromium and nickel
Final Solids Removal		
CWW BATc12 h) coagulation and flocculation		
CWW BATc12 i) sedimentation		
CWW BATc12 j) filtration		
CWW BATc12 k) flotation		
		Not applicable to compliance with BAT-AELs for chromium and nickel except as part of a chemical treatment precipitation/filtration process (see below)
Alternative techniques considered		
<p>The operator has considered the reduction in volume of the effluent stream by techniques such as reverse osmosis or distillation to increase the efficiency and reduce the scale of subsequent treatment options for the contaminated stream after 'clean' water removal.</p> <p>Reverse osmosis was one of the options taken forward to Cost Benefit Analysis as a final treatment option itself. The conclusion was that the scale of the plant required and the high operating costs made this option impractical. The same conclusion applies to other methods such as distillation.</p>		
Altered flow to Bran Sands treatment work (S1/S2)	Strong organics containing effluent is currently discharged to Bran Sands via S2.	Existing infrastructure cannot accept increased flows.
Build new discharge route to Bran Sands uWWTP	Technically possible but involves crossing third party land.	The receiving Bran Sands uWWTP would only dilute rather than treat the Cr/Ni and then discharge it to the same Dabholm Gut tributary of the River Tees.
Tanker effluent to existing offsite facility	Option could be designed to have continuous tankering of the effluent discharge.	Not feasible for number of tankers to move hundreds of tonnes of effluent on public roads per day. No suitable local facility identified to treat low concentration Cr and Ni

<p>Off-site treatment on wider Sembcorp/Wilton site</p>	<p>Option could be designed to have continuous tankering of the effluent discharge. Shorter distance on the Wilton site, not public roads.</p>	<p>Would require building an Effluent Treatment Plant (ETP) for low concentration Cr/Ni but space is available on the wider Wilton site. Taken forward for consideration</p>
<p>Sulphide precipitation followed by addition of polymer coagulant</p>	<p>Traditional precipitation method for heavy metals is done using hydroxides. Sulphide precipitation is widely used and more efficient than hydroxide precipitation. To aid with the filtration step a coagulant is added such as aluminium sulphate, ferric sulphate, or a polymer.</p>	<p>Additional filtration setup would be required to reduce Cr VI to oxidation state (Cr III) requiring reduced pH. Multi-stage plant would be required with large footprint for equipment. Sodium sulphide is highly toxic if human exposure during handling. Taken forward for consideration</p>
<p>Coagulation by SUEZ- Metclear trademark coagulants and filtration</p>	<p>SUEZ technology combining precipitation agent, flocculating agents and membrane filtration. Depending on the Cr oxidation state, there may be a requirement for an additional treatment step requiring additional infrastructure.</p>	<p>Moderate quantity of hazardous sludge generated. Would treat waste water so Ni and Cr concentrations are within permissible concentrations. Taken forward for consideration</p>
<p>Ion exchange and/or chelating resin Ion</p>	<p>Vast number of different resins that are commercially available but Cr/Ni removal feasible in principle. Possible pre-treatment required if resin is to be used again.</p>	<p>Would treat waste water so Ni and Cr concentrations are within permissible concentrations. Some hazardous waste from regeneration solutions. Taken forward for consideration</p>
<p>Absorption onto polymer media (Metal Zorb)</p>	<p>Technology is available but polymer media has been used for limited volumes. Easy operation and simple design Employed as a stationary bed in a tank or column.</p>	<p>May be unsuitable to achieve the permitted Cr/Ni concentrations at high daily flows. Tentatively taken forward for further consideration</p>

Reverse Osmosis	Reverse osmosis is a widely used and efficient method to treat water to high levels of purity. Possibility that the stream concerned may contain too many impurities for this method but only detailed analysis and possibly laboratory trials will ascertain this.	Would treat waste water so Ni and Cr concentrations are within permissible concentrations. Small amount of contaminated brine for disposal, energy consuming. Taken forward for consideration
Electrodeposition (electrolysis)	Technology has not been widely applied and none of the waste water treatment third parties contacted would consider this method.	Uncertainty of success and projected low efficiency. Tentatively taken forward for further consideration
Adsorption on non-functionalized multi-walled carbon nanotube	While technology is available and has been used in remediation of low concentrations, there is a lack of scale up knowledge and this has not been tried previously at commercial scale.	Technology still experimental. Potentially large footprint for infrastructure would be required in order to be able to treat a flowrate of 4000 m ³ /day of effluent using this technology. Tentatively taken forward for further consideration

1.5 No CBA: Where the Operator proposed not to conduct a cost effectiveness / cost benefit assessment of an option for achieving the BAT AEL, and adequately justified this decision, it is described in the table below.

Techniques not progressing to CBA	
Technique description	Reasoning / justification not progressed to CBA
Sulphide precipitation followed by addition of a polymer coagulant	The target concentrations will be difficult to achieve using traditional hydroxide or sulphide precipitation due to the very small amount of solid generated in a large volume of water. The SUEZ technology option is a similar but better choice.
Absorption onto polymer media	Absorption onto polymer sponge: a potential supplier was contacted but declined to provide cost information. In house calculations were carried out to estimate the consumables requirements. Estimated consumables cost alone >£500k pa. This technology is unlikely to be suitable for this application due to the high flow to be treated.

Techniques not progressing to CBA	
Technique description	Reasoning / justification not progressed to CBA
Electrodeposition (electrolysis)	Electrodeposition (electrolysis) is unlikely to provide sufficient capture of metal ions to reach the consented concentration. In general, electrochemical wastewater technologies involve relatively large capital investment and expensive electricity supply. They have not been widely applied.
Adsorption on non-functional multi-walled carbon nanotube	A promising but still experimental technology. No scale up application of this method has been tried. No reliable cost data currently available.

1.6 CBA Options: Options for achieving the BAT AEL using available techniques that are considered as viable were taken forward for disproportionality assessment. The Operator proposed to conduct a cost effectiveness / cost benefit assessment of a number of options for achieving the BAT AEL and adequately justified this decision.

Options considered as viable and taken forward for disproportionality assessment		
Option	Description	Timescale for completion
Business as usual (BAU)	No change in operation	No change
Proposed derogation – Option 1	Business as usual option.	No change. Cr and Ni concentrations remain at current levels in effluent discharge via S1.
BAT- AEL – Option 2 Precipitation and filtration using SUEZ technology	Use of SUEZ technology combining precipitation agent, flocculating agents, and membrane filtration to reduce Cr and Ni concentrations within BAT AELs in the final discharge.	2027
BAT- AEL – Option 3 Ion exchange	Ion exchange and/or chelating resin would allow ion metal removal from the wastewater stream using the right media to reduce Cr and Ni concentrations within BAT AELs in the final discharge.	2027

Options considered as viable and taken forward for disproportionality assessment		
Option	Description	Timescale for completion
BAT- AEL – Option 4 Reverse Osmosis (e.g. polyamide thin-film composite)	Separation process that uses pressure to force a solution through a membrane, allowing pure solvent to pass to the other side, reducing Cr and Ni concentrations within BAT AELs in the final discharge.	2027
BAT- AEL – Option 5 Transfer for offsite treatment	Transfer of the discharge to the wider Sembcorp site for further viable final wastewater treatment to meet Cr and Ni BAT AEL	2027

1.7 Significance: Has the Operator claimed that releases are insignificant?

Yes, this is the conclusion from dispersion modelling of the eventual release to the receiving water body after mixing with other streams in the Sembcorp wider site drainage (refer to Section 3 below). If the proposed derogation is accepted then the mass of emission released compared to the mass released if compliant with the BAT-AEL would be:

Chromium 101.7 kg/yr at proposed ELV vs 33.9 kg/yr at BAT-AEL – an additional 67.8kg
 Nickel 203.4 kg/yr vs at proposed ELV vs 67.8 kg/yr at BAT-AEL – an additional 135.6kg

1.8 Summary of the first stage assessment

The Operator has supplied a valid derogation request against BATc10 and 12 and section 3.4 BAT-AELs the CWW BAT conclusions. The derogation request is based on technical characteristics with supporting geographical considerations. The Operator has described 7 relevant treatment options for achieving the BAT AEL and justified the screening out 4 options. 3 treatment options were taken forward to conduct a cost benefit analysis (CBA) as well as Business as Usual – the operator’s preferred option and transfer for treatment or disposal offsite. The treatment options for achieving BAT-AELs have a provisional implementation timescale of 2027 but the preferred option is no change with revised ELVs of 75µg/l for chromium and 150µg/l for nickel.

Outcome of Part 1: first stage assessment	
Permitting Officer assessment (applicability of the BAT AEL, interaction between multiple derogations etc.)	The operator has considered a wide range of options to comply with the BAT-AEL concentrations for Chromium and Nickel at the boundary of the installation. Reasonable initial screening was used to reduce the list to seven options and the reduction to three options to be taken forward to Stage 2 assessment was adequately justified. No other derogations have been requested.
Permitting Officer recommendation to approve (or reject)	Approve Stage 1.
Derogations and Permit Review (DAPR) Group recommendation	Approve Stage 1.

Part 2: Second Stage Assessment

Demonstrating disproportionality of costs and benefits

- 2.1 The Operator has satisfactorily demonstrated that the stated criterion would result in disproportionate costs for achieving the BAT AEL compared to the environmental impacts.
- 2.2 **Cost Benefit Analysis (CBA):** The CBA has been reviewed and considered to support the derogation request. Key points from the CBA v6.23 are summarised below

Data input - general

The weighted average cost of capital (WACC) is consistent with what we would expect for the sector.

The lifetime of the additional technology required are based on the operator's standard 15 year refurbishment/replacement periods and the appraisal periods are adjusted to give all the options the same 2045 end date. This should be a long enough period for the noon-time limited derogation to be reviewed at the next review of BAT Conclusions.

Option appraisal periods						
3.6	Year that work on derogation application began (Year)	(?)	2023			
3.7	First installation year (or if technology already installed leave 3.8, 3.9 and 3.10 blank and just fill in)	(?)	2023	2023	2027	2027
3.8	Length of time to complete installation (Years)		1	1	4	4
3.9	Lifetime of technology once fully installed (Years)		22	22	15	15
3.10	Lifetime of technology remaining as of first appraisal year (only fill this in if your BAU technology is already installed) (Years)	(?)	15			
	Last year of initial operation (Auto calculated value)		2045	2045	2045	2045
	Does asset need to be 'renewed' over the appraisal period? (Auto calculated value)	(?)	No	No	No	No
	Last year of appraisal period (Auto calculated value)	(?)	2045			

Data input - options

Summary of emissions and key costs of the proposed options:

Summary of key data input for all options (values change during period of assessment – 2031 when all options fully operational shown for comparison)						
Option	Cr µg/l kg/yr	Ni µg/l kg/yr	Capital Costs £m (Total)	Annual operating costs (non energy) £m (2030)	Annual waste costs £m (2030)	Annual energy costs £m (2030)
1 BAU	75 101.7	150 203.4	0	20.0	0.035	24.574
2. Proposed derogation (= BAU)	75 101.7	150 203.4	0	20.0	0.035	24.574
3. BAT AEL - Suez technology (pptn and filtration)	25 33.9	50 67.8	3.0	20.09	0.047	25.016

4. BAT AEL – Ion Exchange	25 33.9	50 67.8	2.5	20.09	2.035	24.623
5. BAT AEL – Reverse Osmosis	25 33.9	50 67.8	3.03	20.11	14.035	24.696
6. BAT AEL – Transfer for Offsite treatment	25 33.9	50 67.8	2.283	22.10	0.036	24.621

Key data input for individual options

We are satisfied with the operator's approach and justification for the data input for each of the options.

- 2.3** The evidence as described in the submission and the CBA tool was reviewed and considered to be applicable and correct and should be considered as part of the derogation request. The basis of some cost assumptions were challenged and considered reasonable.
- 2.4** The costs have been compared using the Environment Agency CBA tool V 6.23, which is based on HM Treasury's Green Book guidance. The results are summarised in terms of Net Present Value (NPV). The costs of meeting the BAT AEL outweigh the monetised benefits in comparison to the proposed derogation (i.e. $NPV < 0$).

Summary of NPV analysis					
Option	Proposed derogation	Suez pptn/ filtration	Ion Exchange	Reverse Osmosis	Offsite treatment
Central (£millions)	0.00	-9.60	-22.87	-129.87	-28.80
Lowest NPV – Low damage costs (£millions)	0.00	-11.28	-24.26	-130.28	-36.59
Highest NPV – High Damage costs (£millions)	0.00	-8.47	-21.92	-129.46	-21.01
Lowest NPV – High costs, Low benefits (£millions)	0.00	-12.81	-25.91	-130.60	-38.60
Highest NPV – Low costs, high benefits (£millions)	0.00	-8.58	-21.20	-129.52	-20.05

Detailed results-PV costs & PV benefits				
Option	Suez Pptn/ filtration	Ion Exchange	Reverse Osmosis	Offsite treatment
PV costs (£millions)	9.0	22.8	129.7	28.7
PV benefits (£millions)	-0.6	-0.1	-0.2	-0.1
Central (£millions)	-9.6	-22.9	-129.9	-28.8

2.5 BAT AEL option: The CBA using central assumptions shows a best negative NPV for the achieving BAT AEL of >£9m from table and therefore the cost of compliance is disproportionate compared to the environmental benefit achieved.

2.6 Other options: The costs of other options were even more disproportionate compared to the environmental benefit achieved, with a negative NPV of £23m to £130m

2.7 PV costs/benefits: Best achievement of BAT improves the environment by £0.6m over the time period but costs £9m upfront. This is a significant difference which is unlikely to be changed by sensitivity analysis

2.8 Sensitivity analysis:

The lowest negative NPV for the BAT AEL of £11.28m is caused by high weighted average cost of capital ; and

The highest negative NPV for the BAT AEL of £8.47m is caused by low upfront investment costs.

2.9 Summary of the CBA. The Operator has provided a credible argument that the increased costs linked to the technical characteristics and geographical location are disproportionate for achieving the BAT AEL. An appropriate range of options were reviewed and those identified as technically viable were considered further. Viable options were taken forward for Cost Benefit Analysis (CBA), were adequately described in the CBA and the cost of the various BAT AEL options was confirmed as disproportionate compared to the environmental benefits. The Cost Benefit Analysis using central assumptions shows negative NPVs for the BAT AEL of £9.6m to £129.9m and therefore the cost of compliance is disproportionate compared to the environmental benefit achieved.

3. Risks of allowing the derogation.

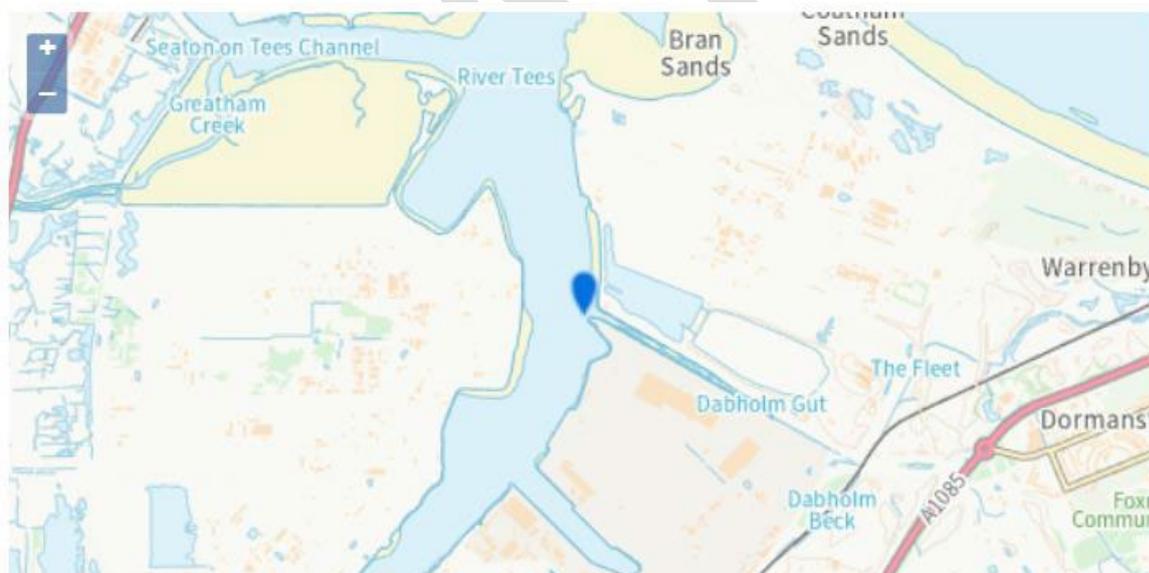
3.1 Allowing the proposed derogation would not cause any significant pollution or prevent a high level of protection of the environment, as a whole, being achieved.

3.2 Allowing the proposed derogation would not cause any significant pollution or prevent a high level of protection of the environment as a whole to be achieved.

Annual emissions: The estimated annual emissions of Chromium and Nickel from the activity are currently 101.7kg and 203.4kg respectively and these would reduce to at least 33.9 kg and 67.8kg respectively if the BAT AEL had been met in accordance with the timeline set by the IED. The Operator's proposal will mean that the emissions would continue at current rates.

3.3 **Predicted impact:** The predicted impact of derogating from the BAT AEL on any long term or short Environmental Quality Standards (EQS) / Environmental Assessment Levels (EAL) is not significant.

The installation discharges effluent to the Wilton site combined drainage system operated by Sembcorp Utilities UK Ltd. The combined drains are discharged to the Dabholm Gut inlet of the River Tees estuary near to the discharge from Bran Sands WwTW.



The Water Framework Directive assessment of the River Tees water body classifies Chromium as high and Nickel as good quality.

Current water quality has been monitored (up to 2021) at the confluence of the Dabholm Gut and Tees Estuary and the operator commissioned HR Wallington to model the impact of both the actual combined flows from Huntsman discharge, Sembcorp drain other contributions and Bran Sands WwTW (scenario 1); and of the Huntsman discharge alone as a worst case (scenario 2).

The modelling assumed the worst case that all the Chromium discharged is in oxidation

state Cr VI but laboratory sampling results imply that in fact <20µg/l of the detected 91µg/l (limit of detection of the method) is Cr VI with the remainder being less hazardous Cr III/Cr II reduced forms.

3.4 Scale of impact: The predicted impact of derogating from the BAT AEL on any long or short term EQS / EAL.

The modelling assessed the likely area of the Tees estuary that would be in excess of the marine Environmental Quality Standards (EQS).

Chromium (dissolved)

		Annual Average	Maximum Allowable Concentration	
	EQS (µg/l)	0.6	32	
Scenario	Description	Maximum Area of River in excess of EQS (km ²)		Comment
1	Direct discharge at existing concentrations with combined flows	0.058	0.0	MAC not predicted to be exceeded as sufficiently diluted in the drain. AA value only predicted to be exceeded in upper 100m of Dabholm Gut
2	Direct discharge at existing concentrations with no dilution from combined flows	0.091	0.051	MAC predicted to be exceeded in upper 1000 m of the Gut. AA predicted to be exceeded along the whole Gut, but not in the estuary itself.

Nickel (dissolved)

		Annual Average	Maximum Allowable Concentration	
	EQS (µg/l)	8.6	34	
Scenario	Description	Maximum Area of River in excess of EQS (km ²)		Comment
1	Direct discharge at existing concentrations with combined flows	0.0	0.0	Neither MAC or AA value are predicted to be exceeded as sufficiently diluted in the drain
2	Direct discharge at existing concentrations with no dilution from combined flows	0.039	0.055	MAC predicted to be exceeded in upper 1300m of Gut. AA predicted to be exceeded in upper 100 m of Gut.

The Scenario 2 results were taken forward into the Second Stage Cost Benefit Analysis as a worst case.

3.5 Other potential environmental impacts:

For some of the treatment options considered, in addition to commercial considerations the treatment of relatively low concentrations of metals in a relatively high volume of effluent is likely to need the transport and storage of large quantities of dosing chemicals as well as giving rise to additional waste streams for recovery or disposal.

3.6 Summary of risks of allowing the derogation

The Operator has demonstrated in the assessment of derogation impacts that the continued emission of Chromium and Nickel to the Sembcorp managed Wilton Site drainage system for subsequent discharge to the Dabholm Gut inlet of the River Tees Estuary will not cause significant pollution.

4. Final considerations

4.1 Permit conditions to enable the derogation to be granted:

Table S1.2 is updated to include operating techniques proposed in the BAT Derogation application submitted in response to Improvement Condition IC17 in variation EPR/BS8656IX/V009 arising from the permit review initiated by publication of the BAT Conclusions for Production of Large Volume Organic Chemicals. IC17 is also marked as complete.

Improvement Condition IC22 is added to require fitting of flow proportional sampling to both parts of emission point S1. Note 3 is also added to Table S3.2 emissions to water that where the requirement is to test a flow proportional 24-hour composite sample this should be made up of a mixture of the flow proportional samples from each part combined in the ratio of the 24 hour total flow for each part.

Improvement Condition IC24 is added to require a review of the supporting documentation and conclusions for the derogation application submitted as part of the determination of variation BS8656IX/V010 when United Kingdom BAT Conclusions for Large Volume Organic Chemicals are published, when the nitric acid supplier is changed, or 31/12/2029 – whichever is the sooner

4.2 Previous NDP recommendations or comments on this or similar requests

None

4.3 Summary of final considerations

The recommended approval of the derogation is conditional on the sampling and monitoring being improved so that the reported values are representative of the discharged concentrations of Chromium and Nickel (Improvement Condition IC22) and that the submitted justification for the derogation must be revisited if the regulatory framework changes as a result of the publication of United Kingdom BAT Conclusions for Large Volume Organic Chemicals; the supplier of nitric acid (the main source of the Cr and Ni) is changed; or 4 years from the granting of the derogation have passed (Improvement Condition IC24).

Outcome of first and second stage assessments	
Permitting Officer assessment (applicability of the BAT AEL, interaction between multiple derogations etc.)	No further points. No other derogations for interaction
Permitting Officer recommendation to approve (or reject)	Approve
Derogations and Permit Review (DAPR) Group recommendation	Approve
NDP recommendation	Approve

Permitting Decisions- Variation

Annex 3: Consultation

Consultation Responses

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

[Minded to draft – to be completed]

Responses from organisations listed in the consultation section

Response received from [\[insert name of organisation\]](#).

Brief summary of issues raised: [\[summarise issues raised\]](#).

Summary of actions taken: [\[add actions or show how this has been covered\]](#) ||

Representations from local MPs, councillors and parish/town community councils

Response received from [\[name MPs and elected councillors/assembly members who have responded directly, otherwise use the name of the council\]](#)

Brief summary of issues raised: [\[summarise the issues raised\]](#).

Summary of actions taken: [\[add actions or show how this has been covered\]](#) ||

Representations from community and other organisations

Response received from: [\[insert name of group/organisation\]](#)

Brief summary of issues raised: [\[summarise the issues raised\]](#).

Summary of actions taken: [\[add actions or show how this has been covered\]](#)

Representations from individual members of the public

Brief summary of issues raised: [summarise the issues raised – may be grouped]

Summary of actions taken: [add actions or show how this has been covered]

DRAFT