Natural Resources Wales permitting decisions

Variation and Consolidation of a bespoke Permit – Industrial Chemicals Limited

We have decided to issue a Natural Resources Wales initiated variation and consolidated permit for Cold Mill Effluent Treatment Plant in Port Talbot Steelworks, Port Talbot, SA13 2NG operated by Industrial Chemicals Limited.

The permit number is EPR/AB3192HQ.

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.

The permit has been varied following the publication of the revised Best Available Techniques (BAT) Reference Documents (BREF) for Waste Treatment. The associated BAT conclusions to this document were published on 17 August 2018 in the Official Journal of the European Union.

This variation incorporates the changes required by the Industrial Emissions Directive following a statutory review of permits in the Waste Treatment sector. These include the amendment of the wording of several permit conditions relating to notifications, changes to emissions limits and monitoring requirements.

We are satisfied that the operator will be compliant with the published BAT conclusions which will apply from 17 August 2022.

Purpose of this document

This decision document:

- explains how we have carried out our statutory review of the Operator's Permit;
- why we have decided to vary the Permit as a result of that review; and

- why we have included the specific conditions in the revised Permit through the variation notice we are issuing.

It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position.

Structure of this document

- Assessment of Cold Mill Effluent Treatment Plant against the published BAT conclusions for Waste Treatment.
- Annex 1 – Decision Checklist regarding relevant BAT Conclusions

Assessment of Cold Mill Effluent Treatment Plant against the published BAT conclusions for Waste Treatment

1. Our decision

We have issued a variation, which will allow Industrial Chemicals Limited to operate the installation, subject to the conditions in the varied permit.

The variation does three things:

- it consolidates the original permit to reflect changes made through earlier variations;
- it brings the permit into line with our modern regulatory template; and
- it varies the permit where appropriate to reflect the outcome of our statutory review and incorporate Best Available Techniques (BAT) and Associated Emission Limit Values (BAT-AELs).

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

The original permit, issued on the 31st March 2004 (under a different permit number and different operator), ensured that the installation, employed Best Available Techniques (BAT) and ensured a high level of protection for human health and the

environment. We have altered the permit as a result of the statutory review, and we are confident that the new requirements will deliver a superior level of protection to that which was previously achieved. Where a site is not currently compliant with BAT, Improvement Conditions have been included to bring the site up to standard by 17 August 2022.

2. The legal framework

The Variation and Consolidation Notice (which includes the consolidated permit as Schedule 2) will be issued under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 (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 Industrial Emissions Directive (IED);
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the Variation and Consolidated Permit, 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.

3. How we reached our decision

Requesting information to demonstrate compliance with BAT Conclusion techniques

We issued a Notice under Regulation 61(1) of the Environmental Permitting (England and Wales) Regulations 2016 on 05/04/2019 requiring the operator to provide information to demonstrate how the operation of their installation currently meets, or will subsequently meet, the revised standards described in the relevant BAT Conclusions document.

The Regulation 61(1) Notice required the operator to:

- Describes the techniques that will be implemented before 17 August 2022, which will then ensure that operations meet the revised standard, or
- Justify why standards will not be met by 17 August 2022, 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

- Justify why an alternative technique will achieve the same level of environmental protection equivalent to the revised standard described in the BAT Conclusions.
- Where their permitted activity involves the use, production or release of a hazardous substance, as defined in Article 3(18) of the Industrial Emissions Directive, Industrial Chemicals Limited were required to carry out a risk assessment considering the possibility of soil and groundwater contamination at the permitted installation with such substances. Where risk of such contamination is established prepare a baseline report containing information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definite cessation of the activity. Industrial Chemicals Limited did not provide a response. An improvement condition (IC9) has been set in the permit to request this information to be provided.

- Where their permitted activity involves the use, production, storage or release of priority hazardous substances and any other relevant substances, as defined by the Water Framework Directive, Industrial Chemicals Limited were required to carry out a risk screening assessment considering the presence of priority hazardous substances at the permitted installation. Where a risk of these substances is established the operator is to sample the effluent and screen for the priority hazardous substances. If these substances are found to be present in the effluent stream, then assessment using the H1 tool and potential detailed modelling will be required to demonstrate that the effluent discharge will not have a significant impact to the receiving water.

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 Waste Treatment BAT Conclusions Document, the Regulation 61(1) Notice requested 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 61(1) Notice response from the operator was received on the 02/10/2019 and additional information received on the 07/05/2020.

We considered that the response contained sufficient information for us to commence determination of the permit review, but improvement conditions have been set where responses were lacking details/information. The operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 61(1) Notice response that appears to be confidential in relation to any part.

4. Key issues/Regulation 61(1) response

BAT Conclusions for the Waste Treatment were published as Commission Implementing Decision EU 2018/1447 in the Official Journal of the EU on 17 August 2018. There are 53 BAT Conclusions (see Annex 1 below). This Annex provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This should be read in conjunction with the Permit/Variation notice issued.

A detailed response was received from Industrial Chemicals Limited. Following assessment of the Regulation 61(1) response, further information was requested from the operator. Where the operator has concluded that they have achieved BAT, and we are in agreement, no further information/justification has been sought by Natural Resources Wales.

5. Changes we have made

New reporting requirements are required in line with BAT 11. BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and waste water with a frequency of at least once per year. Schedule 4 of the permit has been updated to reflect this requirement.

Improvement Conditions

Based on the information provided in the Regulation 61(1) response, we consider that we need to set improvement conditions. These conditions are set out below. We are using these conditions to require the operator to provide Natural Resources Wales with details that need to be established or confirmed during operations. The improvement conditions ensure compliance by 2022.

Improvement conditions 2-8, have been imposed to ensure compliance with certain BAT Conclusions by 17 August 2022. IC9 has been added in line with the Industrial Emissions Directive where their permitted activity involves the use, production or release of a hazardous substance.

Reference	Requirement	Date
IC2	The operator shall submit a written report to Natural Resources Wales a written procedure(s) describing how operations on site which involve Tata Steel are managed. The report should include: • Contractual agreement in place between ICL and Tata Steel. Detailing roles and responsibilities in relation to the Cold Mill Effluent Treatment Plant.	Within 1 month of the issue of the permit
IC3	The operator shall submit to Natural Resources Wales a written procedure(s) describing how they intend to meet the following BAT requirements in accordance with requirements specified within BAT Conclusion of the Waste Treatment BREF Document (EU 2018): BAT 1 Environmental Management System: • (VII) Following development of cleaner technologies • (VIII) Whole life cycle considerations when designing a new plant i.e. impacts from eventual decommissioning and throughout its operating life • (IX) Regular sectoral bench marking • (X) Waste stream management (BAT 2) • (xi) Inventory of waste water & waste gas streams (BAT 3) • (XII) Residues Management Plan – S6.5	17th February 2022 or otherwise agreed in writing with Natural Resources Wales
IC4	The operator shall submit to Natural Resources Wales a written procedure(s) describing how they intend to meet the following BAT requirements in accordance with requirements specified within BAT Conclusion of the Waste Treatment BREF Document (EU 2018): BAT 2 Improving overall environmental performance: • (a) Set up and implement waste characterisation & pre-acceptance procedures • (b) Set up and implement waste acceptance procedures • (c) Set up and implement a waste tracking system & inventory • (d) Set up and implement an output quality management system	17th February 2022 or otherwise agreed in writing with Natural Resources Wales
IC5	The operator shall submit to Natural Resources Wales a written procedure(s) describing how they intend to meet the following BAT requirements in accordance with requirements specified within BAT Conclusion of the Waste Treatment BREF Document (EU 2018): BAT 3 (i) information about the characteristics of the waste to be treated and the waste treatment process including (b) description of process-	17th February 2022 or otherwise agreed in writing with Natural Resources Wales

	integrated techniques and waste/waste gas treatment at source including their performances (ii) Information about the characteristics of waste water streams. (iii) Information about the characteristics about waste gas streams	
IC6	The operator shall submit to Natural Resources Wales a written procedure(s) describing how they intend to meet the following BAT requirements in accordance with requirements specified within BAT Conclusion of the Waste Treatment BREF Document (EU 2018): BAT 18 Techniques to prevent, or where not practicable reduce noise and vibration emissions.	17th February 2022 or otherwise agreed in writing with Natural Resources Wales
IC7	The operator shall submit to Natural Resources Wales a written procedure(s) describing how they intend to meet the following BAT requirements in accordance with requirements specified within BAT Conclusion of the Waste Treatment BREF Document (EU 2018): BAT 19 In order to optimise water consumption, reduce the volume of waste water generated and prevent or where not practicable reduce emissions to soil and water.	17th February 2022 or otherwise agreed in writing with Natural Resources Wales
IC8	The operator shall submit to Natural Resources Wales a written procedure(s) describing how they intend to meet the following BAT requirements in accordance with requirements specified within BAT Conclusion of the Waste Treatment BREF Document (EU 2018): BAT 23 Energy Efficiency: In order to use energy efficiently, BAT is to use both of the techniques below: • Energy Efficiency Plan. • Energy balance record.	17th February 2022 or otherwise agreed in writing with Natural Resources Wales
IC9	Where your activity involves the use, production or release of relevant hazardous substances (as defined in Article 3(18) of the Industrial Emissions Directive) carry out a risk assessment considering the possibility of soil and groundwater contamination at the installation with these substances. Where any risk of such contamination is established either: • Prepare and submit a baseline report containing information necessary to determine the current state of soil and groundwater contamination; or • Provide a summary report referring to information previously submitted where you are satisfied that such information represents the current state of soil and groundwater contamination;	17th February 2022 or otherwise agreed in writing with Natural Resources Wales

	so as to enable a quantified comparison to be made with the state of soil and groundwater contamination upon definitive cessation of activity. Where you have concluded that there are no risks of soil or groundwater contamination, provide a copy of the risk assessment. Please you also confirm that there are no discharges to surface waters and/or sewer from the site. This will help confirm that Request 7 of the Reg 61 Notice is not applicable.	

Operational Changes

No operational changes have taken place on site.

Emissions to Water

As part of our delivery of the Water Framework Directive requirements, we need to identify and assess the impact for all discharges to surface waters and/or sewer from the site for priority hazardous substances and any other relevant substances. The emissions monitoring for these substances should be carried out using the methods and standards described in the M18 guidance on "Monitoring of discharges to water and sewer".

With reference to the risk assessment guidance on the gov.uk website entitled "Surface water pollution risk assessment for your environmental permit" (accessible via: https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit) the company carried out the following assessments:

- Screening tests for priority hazardous pollutants and any other relevant priority hazardous substances.
- For any substance which is not screened out by the screening tests further modelling, as described in the risk assessment guidance "Surface water pollution risk assessment for your environmental permit".

There are no emissions to water associated with the permitted activity. Neutralised effluent from the Cold Mill Effluent Treatment Plant is pumped back to Tata Steel (from where the waste effluent originated from) for further treatment in Tata Steel's Effluent Treatment Plant. The waste will fall under Tata Steel's control/responsibility and environmental permit. No new emission limits have been set as a result of this BRef review Variation.

Emissions to Water – Article 15(4) Derogations

No derogations.

Emissions to Air

No new emission limits have been set as a result of this BRef review Variation.

The site has two point source emissions to air, from sludge holding tanks no.1 and 2. No limits have been set for these emission sources and only fugitive vapour emissions will be managed. The Permit contains condition 3.2.1 which controls the release of any emissions not controlled by emission limits. We are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise fugitive emissions and to prevent pollution from fugitive emissions.

Emissions to Air – Article 15(4) Derogations

No derogations.

Other IED BREFs relevant to the permit review

There are no specific listed activities within Table S1.1 of the permit that are within scope of other published BREFS.

6. Conclusion

The revised BREF and its BAT-AELs provide the opportunity to consider further environmental improvements.

Coupled with the consolidation and modernisation of the permit, we believe this variation provides a sound basis for ongoing regulation of the installation and we are satisfied that the operator is currently achieving or will be achieving all relevant BAT by 17 August 2022.

We believe that we have ensured compliance with all relevant legal requirements in carrying out this review and making our determination on the variation.

Annex 1: Decision checklist regarding relevant BAT Conclusions

BAT Conclusions for the Waste Treatment BRef were published as a Commission Implementing Decision ((EU 2018/1147) in the Official Journal of the EU on 17 August 2018. There are 53 BAT Conclusions. This checklist 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.

All BAT Conclusions arising are listed by number in order below;

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
OVERALL ENVIRONMENTAL PERFORMANCE			
1	**Environment Management System (EMS) – <u>ALL</u> of the following:**		
	I.	Management commitment	**Compliant** The operator has ISO 14001 accreditation, the EMS lists that management reviews are carried out.
	II.	Environmental policy development including CI of performance	**Compliant** The operator has ISO 14001 accreditation which will cover this requirement.
	III.	Planning and implementing procedures & targets in conjunction with financial planning & investment	**Compliant**

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			The operator has ISO 14001 accreditation which will cover this requirement.
	IV.	***Implementation of procedures***	
		(a) Structure & responsibility	**Compliant** Several procedure documents provided for different operations on site. All appear to be instructions for Port Talbot Operator and are ICL documents. Certain aspects of responsibility seem to lie a lot with Tata Steel but the general operations at the Cold Mill Effluent Treatment Plant are carried out by ICL. As above, ISO 14001 accreditation.
		(b) Recruitment, training, awareness & competence	**Compliant** Several training documents highlighted in additional information response e.g. instructions for the Port Talbot operators to supply fresh Hydrochloric Acid to the Pickle Line, the HCL is used to clean the steel and so on. These are accompanied by training manuals, maintenance manuals, permit to work (safety manual), method statement and risk assessments. These procedures are used as additional training guides. All staff should be suitably trained and deemed competent to carry out certain procedures. As above, ISO 14001 accreditation.
		(c) Communication	**Compliant** procedure document in place for staff to review and be competent with. As above, ISO 14001 accreditation.
		(d) Employee involvement	**Compliant** Employees follow training guidance/procedures. As above, ISO 14001 accreditation.
		(e) Documentation	**Compliant**

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Detailed documentation on procedures to carry out. As above, ISO 14001 accreditation.
		(f) Effective process control	**Compliant** As above detailed training documentation provided but directed to port Talbot operator. As above, ISO 14001 accreditation.
		(g) Maintenance programmes	**Compliant** Maintenance documents listed in response as supporting documents. Different maintenance procedures for the different operations. As above, ISO 14001 accreditation.
		(h) Emergency preparedness & response	**Compliant** Accident management plant provided for spills and leaks. GEN-OP-001 Responding to spills and leaks is a detailed document. Address plan/response to deal with spills and leaks which would be the main issue on this site. Also, Port Talbot Cold Rolled Products Local Emergency Plan submitted which ICL follow.
		(i) Safeguarding compliance with environmental legislation	**Compliant** The operator has ISO 14001 accreditation which will cover this requirement.
	V.	***Checking performance and taking corrective action***	
		(a) Monitoring & measurement	**Compliant** EMS lists documents that will involve environmental monitoring and performance monitoring. ISO 14001 accredited. Cleaning logs taken. Operator has control over processing of ferrous chloride, bund water and sump water in the effluent plant. Every three hours the operator does a line samples of ferrous chloride to enable the pickle tanks are working to the optimum level. The operator has three hourly records of HCl

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			concentration, Ferrous content, specific gravity and temperature of process material which are recorded in the acid neutralisation plant electronic log. The operators monitor this by producing hand written records.
		(b) Corrective and preventive action	**Compliant** The operator has ISO 14001 accreditation which will cover this requirement.
		(c) Maintenance of records	**Compliant** limited information provided - as above they control over processing of ferrous chloride, bund water and sump water in the effluent plant. Every three hours we do line samples of ferrous chloride to enable the pickle tanks are working to the optimum level. They have three hourly records of HCl concentration, Ferrous content, specific gravity and temperature of process material which are recorded in the acid neutralisation plant electronic log. The operators monitor this by producing hand written records. So does maintain records. Records is a listed document with the operator's EMS, ISO 14001.
		(d) Independent (where practicable) internal or external EMS auditing	**Compliant** Auditing is a listed document in the EMS. ISO 14001 accredited.
	VI.	Senior management review of EMS	**Compliant** The operator does have ISO 14001 accreditation, the EMS lists that management reviews are carried out.
	VII.	Following development of cleaner technologies	**Compliant in future** No information provided. IC3 added to permit.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	VIII.	Whole life cycle considerations when designing a new plant i.e. impacts from eventual decommissioning and throughout its operating life	**Compliant in future** No information provided. IC3 added to permit.
	IX.	Regular sectoral bench marking	**Compliant in future** No information provided. IC3 added to permit.
	X.	Waste stream management (BAT 2)	**Compliant in future** No information provided. IC3 added to permit for this BAT and BAT 2. Waste stream is referring to a particular waste to be treated and can be linked to a particular type of waste and defined by a waste code.
	XI.	Inventory of waste water & waste gas streams (BAT 3)	**Compliant in future** Operators response is that there is no waste water or waste gas streams. Only vapour from sludge tanks, no channelled emissions to air or water. However, the waste water stream (effluent) is what goes back to Tata Steel, is a waste stream and a discharge to an off-site treatment plant. IC3 set in permit for further information on this BAT and BAT 3.
	XII.	Residues Management Plan – S6.5	**Compliant in future** No information provided. IC3 added to permit.
	XIII.	Accident Management Plan – S6.5	**Compliant** Accident management plant provided for spills and leaks and Port Talbot Cold Rolled Products Local Emergency Plan which ICL follow and is listed in the operating techniques table in the permit. See document and compare against BAT
	XIV.	Odour Management Plan (BAT 12)	**N/A** No information provided but odour not expected to be an issue on site. The associated BAT 12 details that applicability is restricted to cases

BATc number			Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
				where odour nuisance at a sensitive receptor is expected or has been substantiated. No odour issues identified.
	XV.		Noise & Vibration Management Plan (BAT 17)	**N/A** No information provided. N/A Noise not an issue with this site. The associated BAT 17 details that applicability is restricted to cases where noise nuisance at a sensitive receptor is expected or has been substantiated. No noise issues identified at sensitive receptor.
2	**Improving overall environmental performance – <u>ALL</u> of the following:**			
	a.		Set up and implement waste characterisation & pre-acceptance procedures	**Compliant in future** A - Strength of Ferrous chloride determined by operation of pickling line. Pickling line controlled by TATA Steel operations, not Industrial Chemicals thus Industrial Chemicals is not able to control the grade of product entering the neutralisation tank. BAT is to collect information about waste input and may include waste sampling and characterisation to achieve sufficient knowledge of waste characterisation. Not clear how operator determines if strength of ferrous chloride is appropriate/expected, how much waste is coming in etc. Contractual agreements should be in place between ICL and Tata Steel and operator should be able to be clear on strength of ferrous chloride being received and so on. IC4 set in permit.
	b.		Set up and implement waste acceptance procedures	**Compliant in future** B - Ferrous chloride is pumped to neutralising vessel when levels in the TATA Steel storage tanks goes above a certain level, no sampling points present in pipework. Operator states permit does not have control over these tanks and that this BAT is not applicable. BAT is to confirm waste characteristic. Includes waste sampling, inspection etc. IC4 set in permit.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Set up and implement a waste tracking system & inventory	**Compliant in future** C – Ferrous chloride is pumped to neutralising vessel when levels in the TATA Steel storage tanks goes above a certain level. Operator states permit does not have control over these tanks and so BAT is not applicable. The operator has control over processing of ferrous chloride, bund water and sump water in the effluent plant. Every three hours we do line samples of ferrous chloride to enable the pickle tanks are working to the optimum level. We have three hourly records of HCl concentration, Ferrous content, specific gravity and temperature of process material which are recorded in the acid neutralisation plant electronic log. The operators monitor this by producing hand written records. All other monitoring is carried out by TATA steel. The BAT is to have a waste tracking system and inventory to aim to track location and quantity of waste in plant etc and holds all information generated during pre-acceptance procedure. Response isn't sufficient in satisfying this BAT requirement, IC4 set in permit.
	d.	Set up and implement an output quality management system	**Compliant in future** D – Operators response is that the strength of Ferrous chloride determined by operation of pickling line. Pickling line controlled by TATA Steel operations and so is not applicable. The BAT requirement is to implement an output quality management system so it's clear the output of waste is in line with expectations. From the response in point c above; The operator has control over processing of ferrous chloride, bund water and sump water in the effluent plant. Every three hours we do line samples of ferrous chloride to enable the pickle tanks are working to the optimum level. We have three hourly records of HCl concentration,

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Ferrous content, specific gravity and temperature of process material which are recorded in the acid neutralisation plant electronic log. The operators monitor this by producing hand written records. All other monitoring is carried out by TATA steel. Sampling is done to ensure plants are working efficiently but not clear this covers output quality management. IC4 set in permit.
	e.	Ensure waste segregation	**N/A** E - There is only one source of Ferrous chloride. No mixing of waste streams taking place – not applicable
	f.	Ensure waste compatibility prior to mixing or blending	**N/A** F – There is only one source of Ferrous chloride. No mixing of waste streams taking place – not applicable Only neutralisation takes place as part of the waste treatment. The sole role of this plant within the whole steel works is to neutralise the ferrous chloride produced by the pickle line on the Cold mill plant. Once the Ferrous chloride is pumped from the Ferrous chloride storage tanks, to the Ferrous chloride solution neutralisation tank, the product becomes the responsibility of Industrial Chemicals Ltd. The Ferrous chloride solution is neutralised with a calcium hydroxide slurry to produce Calcium chloride solution and Ferrous hydroxide. The Ferrous hydroxide is filtered via a filter-press and the press cake is then transferred to the on-site landfill owned & operated by TATA. The Calcium chloride solution is then transferred via pipeline to the main TATA Steel effluent treatment plant.
	g.	Sort solid incoming waste – S6.4	**N/A** G – There is no incoming solid waste – not applicable.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
3	**Establish and maintain a waste water and waste gas inventory as part of the EMS - <u>ALL</u> of the following:**		
	Information on characteristics of waste and waste treatment processes		
	(i)(a)	simplified process flow sheets showing emission sources	**Compliant** Operator states there are no waste water or waste gases are produced from the neutralisation of Ferrous chloride solution, but in fact there is a waste emission of calcium chloride solution. The waste liquid of Calcium chloride solution that is produced as a result of the neutralisation process, is then further treated by TATA under their permit. These are emission points S1-S4 within the environmental permit. The main purpose of this BAT is to identify the composition and quantity of waste water and waste gas streams and their possible impacts. The response should link the waste water / gas with the associated waste treatment process on site. No waste gases are produced except vapour from sludge holding tanks and are not channelled emissions to air. The environmental emissions are essential quite low as not a direct discharge to the environment, the site plan essentially identifies emissions sources and are labelled as S1-S4. Vapours from tanks are only fugitive emissions. Sufficient information available to identify emission sources.
	(i)(b)	Process-integrated and waste water/waste gas treatment descriptions including performance	**Compliant in future** No information provided. IC5 set in permit.
	Information on characteristics of waste water streams		
	(ii)(a)	*Mean and variability of:*	**Compliant in future** As above. No direct emissions to water, waste stream is the waste from the effluent treatment plant (the Calcium chloride solution) which is transferred via pipelines to the main TATA Steel effluent treatment plant.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Information on waste water stream is required. BAT is to identify characteristics of waste stream. The operator has control over processing of ferrous chloride, bund water and sump water in the effluent plant. Every three hours the operator does line samples of ferrous chloride to enable the pickle tanks are working to the optimum level. We have three hourly records of HCl concentration, Ferrous content, specific gravity and temperature of process material which are recorded in the acid neutralisation plant electronic log. The operators monitor this by producing hand written records. Unclear if all characteristics listed in BAT 3 (ii) a,b and c are applicable and information is available. Further information required. IC5 set in permit.
		Flow	**Compliant in future** As above.
		pH	**Compliant in future** As above.
		Temperature	**Compliant in future** As above.
		Conductivity	**Compliant in future** As above.
	(ii)(b)	*Mean concentration, load and variability of:*	**Compliant in future** As above.
		Total suspended solids	**Compliant in future** As above.
		COD/TOC	**Compliant in future**

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			As above.
		Nitrogen species	**Compliant in future** As above.
		Phosphorous	**Compliant in future** As above.
		Metals	**Compliant in future** As above.
		Priority substances/micropollutants	**Compliant in future** As above.
		Any other relevant compounds	**Compliant in future** As above.
	(ii)(c)	*Bioeliminability data (see BAT 52):*	**N/A** Response from operator to BAT 52: As the plant can only receive Ferrous chloride from the Cold mill pickle line and nowhere else, waste input is not monitored. The quality of the ferrous chloride discharged to the effluent plant, is determined via the strength of the acid used in the pickle lines. Industrial Chemicals can only accept this waste. The TATA monitoring system determines the final strength.
		BOD	**N/A** As above.
		BOD to COD ratio	**N/A** As above.
		Zahn-Wellens test	**N/A** As above.
		Biological inhibition potential	**N/A**

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			As above.
	Information on characteristics of waste gas streams		
	(iii)(a)	*Mean and variability of:*	**N/A** Operators response is that there are no waste gases produced from the neutralisation of Ferrous chloride solution. There is vapour from sludge holding tanks but this is passive venting and considered diffuse emissions and not a channelled emission.
		Flow	**N/A** As above.
		temperature	**N/A** As above.
	(iii)(b)	*Mean concentration, load and variability of relevant substances:*	**N/A** As above.
		Organic compounds	**N/A** As above.
		POPs e.g. PCBs	**N/A** As above.
		Any other relevant compounds	**N/A** As above.
	(iii)(c)	Flammability	**N/A** As above.
		Lower and Higher Explosive Limits	**N/A** As above.
		Reactivity	**N/A**

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			As above.
	(iii)(d)	*Presence of other substances that may affect the gas treatment system or plant safety:*	**N/A** As above.
		O2	**N/A** As above.
		N2	**N/A** As above.
		Water vapour	**N/A** As above.
		Dust	**N/A** As above.
4	**Reducing environmental risk associated with waste storage – <u>ALL</u> of the following:**		
	a.	Optimised storage location	**N/A** BAT 4 – In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques as given. The plant does not have any storage vessels just a neutralisation tank. All storage tanks come under the TATA permit for the whole site. The calcium hydroxide is used to neutralise the ferrous chloride solution (FCS) and is stored in the acid neutralisation plant, which is the property of TATA steel. It is a raw material that is consumed in processing and is not a waste. The neutralisation of the Ferric Chloride does reduce the environmental risk of the filter cake that goes to TATA. TATA do random spot checks on filter cake at landfill sites. Filter cake is not stored on site.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			The calcium hydroxide is stored in a lime silo, which is bunded, in the lime plant in a separate area from the effluent plant. This storage was replaced a year ago with a brand-new silo, batch tank and a holding tank. This is a raw material not a waste. BAT 4 is not applicable.
	b.	Adequate storage capacity	**N/A**
	c.	Safe storage operation	**N/A**
	d.	Separate area for storage & handling of packaged hazardous waste	**N/A**
5	**Set up and implement procedures to reduce the environmental risk associated with handling and transfer of waste - include following elements:**		
	Carried out by competent staff		**Compliant** The process is only supplied with the contents of the TATA Steel ferrous chloride storage tanks, when the tanks are at a high level and the pickle line needs to pump to storage the used Ferrous chloride from the pickling lines. TATA Steel control the levels in the tanks and they dictate when the product is pumped over. The movement of Ferrous chloride is by secure tank & pipeline. The operator has trained and competent staff with up to 25 years' experience. They have a training matrix that is updated every month. Competency files are reviewed every August for operators to review five tasks with every single operator. ICL have weekly records of ferric chloride solution (FCS) parameters that records: water usage; FCS production; FCS removed from site; processing; waste water; basement and rinse water; lime slurry; FCS/T Coil produced; HCl delivery, HCl usage; HCl/T Coil produced. Spills are detected by operators doing visual

BATc number	Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		effluent plant inspections every hour which is recorded in the daily log. A digital log is also completed which is shared with TATA energy department. There is SAP system which records all maintenance requests to TATA, who carry out maintenance. The effluent plant is situated in a closed drain system which pumps off the floor and back into the effluent plant. This makes it extremely improbable for the effluent plant to have an impact on the environment. There is a high-level alarm on the final water plant which feeds off site. There is a control panel in the effluent plant which is linked to a warning siren if the pH goes out of range, the level goes out, pumps fail or there is a loss of air to the dosing system.
	Duly documented, validated and verified	**Compliant** As above - procedure documents in place and reviewed regularly.
	Spill prevention, detection and mitigation measures	**Compliant** As above
	Take precautions when mixing or blending wastes	**Compliant** No blending of waste. Treatment only
	Procedures are risk-based and consider likelihood of accidents, incidents and their environmental impact	**Compliant** Spills and leaks management plan provided.
MONITORING		
	Relevant emissions to water: monitor key process parameters at key locations	
6	***Key process parameters***	
	Waste water flow	**N/A**

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Operator explained that neutralisation of Ferrous chloride with Calcium hydroxide, does not produce waste water, Calcium chloride solution is produced. There are no emissions to water, neutralised effluent is sent back to Tata Steel. BAT 6 is not applicable. Calcium chloride (or press return water as we know it) enters the basement neutralisation tanks during the filter cake production process. These tanks are monitored for pH control. There is a visual check on the basement tanks. The basement tanks have an automated dosing system of lime for pH control. This can be altered manually. This treated material then enters a clarifier tank for further treatment. There is a visual check on the clarifier tank. The clarifier tank allows settlement of solids and the clean water then cascades into a final water tank where we monitor the final water pH before it pumps out to No2 sump.
		pH	As above, tanks monitored for pH control.
		Temperature	As above N/A
		Conductivity	As above N/A
		BOD	As above N/A
		Other process parameters	As above N/A
		Key monitoring locations	
		Pre-treatment inlet and/or outlet	As above N/A
		Final treatment inlet	As above N/A
		Discharge point (to the environment)	As above N/A
		Other location	As above N/A
7		Monitoring emissions to water (refer to table)	**N/A**

BATc number			Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Monitoring parameters depend on waste treatment process(es) involved			No emissions to water environment or sewer. Emissions back to Tata Steel and will be dealt with further under their operations/control.
8	Monitoring emissions to air (refer to table) Monitoring parameters depend on waste treatment process(es) involved			**N/A** The neutralisation of Ferrous chloride does not result in channelled emissions to air for any substances as listed in BAT 8. BAT 8 is not applicable. Only vapour from sludge holding tanks which is not a channelled emission.
9	**Monitoring diffuse emissions of organic compounds to air from processes involving solvents. Use one or a combination of the following:**			
	a	Measurement – S6.2 descriptions		**N/A** Ferrous chloride is not an organic compound and is also not a solvent. BAT 9 is not applicable.
	b	Emissions factor calculation		As above N/A
	c	Mass balance calculation		As above N/A
10	**Periodically monitor odour emissions where nuisance is expected and/or has been substantiated (monitoring frequency is outlined in BAT 12)**			
	Use EN standards e.g. 13725 or 16841			**N/A** Odour not expected to be an issue and/or has not been substantiated. Odour condition added to permit and will ensure if there ever is an odour issue NRW will request the operator to provide an odour management plan. Further info provided on air quality testing. See BAT 12.
	Use equivalent methods e.g. ISO / national / international monitoring standards			As above N/A
11	**Annual monitoring for:**			

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	- **Water, energy and raw materials**	**Compliant** The permitted area for the neutralisation of Ferrous chloride, means that water is not used in this process. Energy monitoring is carried out on meters outside of the permitted area & under the ownership of TATA Steel. The facility is allowed to manually read the levels of the Ferrous chloride tanks, but these are located outside of the permitted area. The other raw material – Calcium hydroxide slurry is pumped to the facility as the storage vessel for this is outside of the permitted area & the permit. The only thing that it is possible to record is the weight of ferrous hydroxide that is discharged into the TATA Steel on-site landfill. Permit already requires operator to monitor annual consumption of water, energy and raw materials and report on them so will ensure they meet this BAT.
	- **Generation of residues and waste water**	**Compliant** Generation of residues and waste water added to reporting form to capture this BAT requirement and will take affect from 17th August 2022. Residues management plan under BAT 1.
EMISSIONS TO AIR		
12	**Set up, implement and review an Odour Management Plan (as part of the site EMS) where nuisance is expected and/or has been substantiated. Include <u>ALL</u> of the following:**	
	Protocol containing actions and timelines	**N/A** As there is no odour from the Ferrous chloride neutralisation, an odour management plan is not required. Odour condition added to permit and

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		will ensure if there ever is an odour issue NRW will request the operator to provide an odour management plan. Air quality testing completed during filter cake production was carried out by air tech Environmental Consultancy Services on 5th October 2018. Their report concluded: "Personal exposures, by inhalation, to hydrogen chloride, inhalable dust and ferrous chloride were below the relevant workplace exposure limits, and results would be considered low. The result from a static air sample taken from the filter press area of the effluent plant indicates that there is some fugitive emission of hydrogen chloride from the filter press plant, and this may account for the signs of corrosion evident on the plant and building structure. The site visit took place when activity in the effluent plant was below normal (only one press in operation and a limited number of pressings took place) and therefore the results from the air samples may under-estimate an operator's actual exposure during normal operating conditions. Therefore, further air monitoring should be carried out for hydrogen chloride, to account for likely variations in plant activity and the operator's subsequent potential exposure; as well as to further assess any potential fugitive emission of acid gas and vapours from the plant." Workplace exposures limits detailed in EH40/2005 Workplace exposure limit, HSE document have a HCL limit of 2mg/m^3 Long-term exposure limit (8-hr TWA reference period). This is tighter than the upper BAT AEL of 5mg/m^3 that would be set for any channelled emission to air for HCL.

BATc number			Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
				An odour condition has been added to the permit to ensure emissions are odour free and if there are any odour issues a management plant will need to be implemented. The air quality testing mentioned is in relation to work exposure limits (which is the operator's responsibility) and not odour emissions to sensitive receptors. As no odour issues identified at sensitive receptor NRW is satisfied that BAT 12 is N/A.
	Protocol for conducting odour monitoring (BAT 10)			As above
	Protocol for response to odour incidents/complaints			As above
	Odour prevention and reduction programme			As above
13	**Techniques to prevent, or where not practicable reduce odour emissions. Use one or a combination of the following:**			
	a.		Minimising residence times (open systems only)	**N/A** As there is no expected odour from the Ferrous chloride neutralisation. BAT 13 is not applicable. Odour condition added to permit and will ensure if there ever is an odour issue NRW will request the operator to provide an odour management plan.
	b.		Use chemical treatment (N/A if desired output is hampered)	**N/A** As above
	c.		Optimising aerobic treatment – see examples. Refer to BAT 36 for wastes other than water-based liquid waste.	**N/A** As above
14	**Techniques to prevent, or where not practicable reduce diffuse emissions to air, in particular of dust, organic compounds and odour. Use one or a combination of the following:**			
	a.		Minimising potential diffuse emission sources – see examples	**N/A** The neutralisation of Ferrous chloride does not produce dust, is an inorganic compound and does not produce an odour. As described in BAT 12 air quality testing during filter cake production was looked at in terms

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			of work exposure limits but not expected any odour impacts at sensitive receptors. BAT 14 is not applicable.
	b.	Select and use high-integrity equipment – see examples	**N/A** As above
	c.	Corrosion prevention – see examples	**N/A** As above. The result from a static air sample taken from the filter press area of the effluent plant indicates that there is some fugitive emission of hydrogen chloride from the filter press plant, and this may account for the signs of corrosion evident on the plant and building structure. HCL is inorganic, this BAT is relevant for organic compounds so n/a.
	d.	Containment, collection and treatment of diffuse emissions – see examples	**N/A** As above
	e.	Dampening (with water or fog)	**N/A** As above
	f.	Maintenance – see examples	**N/A** As above
	g.	Cleaning of waste treatment and storage areas – see examples	**N/A** As above
	h.	Leak Detection and Repair (LDAR) programme for organics – S6.2	**N/A** As above
15	**Use flaring only for safety reasons or non-routine operating conditions (OTNOC). Use <u>both</u> of the following:**		
	a.	Correct plant design – see examples	**N/A** Ferrous chloride does not produce a gas that can be flared. BAT 15 is not applicable.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Plant management including gas system balancing and advanced process control	**N/A** As above
16	**Reduce emissions to air when flaring is unavoidable. Use <u>both</u> of the following:**		
	a.	Correct design of flaring devices – see examples	**N/A** Ferrous chloride does not produce a gas that can be flared. BAT 16 is not applicable.
	b.	Monitoring and recording as part of flare management – see examples	As above
NOISE AND VIBRATIONS			
17	**Set up, implement, and regularly review a Noise and Vibration Management Plan (as part of the EMS) where nuisance is expected and/or has been substantiated. Include <u>ALL</u> of the following:**		
	I.	Protocol with actions and timelines	**N/A** Industrial Chemicals does not own or maintain any of the equipment for the neutralisation process of Ferrous chloride. All equipment is still owned & maintained by TATA Steel. The operator claims the onus is on TATA Steel as the owner & maintainer of the equipment to carry out this monitoring & management plan for noise & vibration. The operator ICL control day to day activities and this is demonstrated by operating procedures, operator competency checks and ICGL emergency procedures. They also keep daily logs as record of work/control of area. ICL keep records of all maintenance requests made by them to Tata through Tata's SAP system.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			This BAT is applicable where noise and vibrations are a nuisance at sensitive receptors and/or has been substantiated which it has not therefor BAT is not applicable. Also, there is a noise condition in permit that emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, if any issues come to light the operator will be required to submit a noise and vibrations management plan to NRW.
	II.	Noise and vibration monitoring plan/protocol	**N/A** As above
	III.	Noise & vibration complaint response plan/protocol	**N/A** As above
	IV.	Noise and vibration reduction programme	**N/A** As above
18	**Techniques to prevent, or where not practicable reduce noise and vibration emissions. Use one or a combination of the following:**		
	a.	Appropriate location of equipment and buildings	**N/A** Industrial Chemicals Limited does not own or maintain any of the equipment for the neutralisation process of Ferrous chloride. All equipment is still owned & maintained by TATA Steel. However, area noise testing is carried out by in-house ICGL's health and safety team and submitted a copy of the report. Warning signs demarcating noise zones are in place, where necessary. Noise survey carried out in 2019 and provided. Indicates some high noise levels at times. BAT is to use one or combination of techniques. This is an existing plant and would likely prove difficult to relocate equipment. Operator has detailed other techniques below in place to accommodate this BAT requirement.

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Operational measures – see examples	**Compliant** Access doors are kept closed for noisy areas when the area isn't in use e.g. mono pump house when the pumps are running. Closing the doors provides the sound attenuation and noise insulation required by BAT 18. IC6 included in permit as response is not sufficient. From detail provided in BAT conclusions above, operations are run by trained and well experienced members of staff.
	c.	Low-noise equipment – see examples	**Compliant in future** All equipment is supplied by TATA and ICL have no control over the specification so have not been able to specify low noise equipment. ICL say all noise generated by equipment is the responsibility of TATA. This BAT is generally applicable and would expect BAT to be meet. Further information is required and so IC6 has been included in the permit.
	d.	Noise & vibration control equipment – see examples	**Compliant in future** As above. IC6 included in permit as response is not sufficient.
	e.	Noise attenuation – see examples	**Compliant in future** As above. IC6 included in permit as response is not sufficient.
EMISSIONS TO WATER			
19	**Optimise water consumption, reduce waste water generation and prevent or where not practicable reduce emissions to soil and water. Use one or a combination of the following:**		
	a.	Water management – see examples	**N/A** The Ferrous chloride neutralisation process does not use water in its process. BAT 19 is not applicable.

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Water recirculation	**N/A** As above
	c.	Impermeable surface	**Compliant in Future** Waste treatment area surface should be impermeable, and information provided on how the site complies with CIRIA 736 or an equivalent engineering standard to which the surface complies together with sign off from construction by a Certified Quality Auditor. Information not provide in operators response so IC7 set in permit.
	d.	Reduce likelihood and impact of tank/vessel overflows and failures – see examples	**Compliant in future** No information provided, BAT generally applicable and relevant to ensure site reduces emissions to soil and water from any potential tank/vessel overflows and failures. IC7 set in permit
	e.	Roofing of waste storage and treatment areas	**Compliant in future** No information provided, IC7 set in permit.
	f.	Segregation of water streams (being mindful of existing plant constraints)	**Compliant in future** No information provided, IC7 set in permit.
	g.	Adequate drainage infrastructure	**Compliant in future** No information provided, IC7 set in permit.
	h.	Design and maintenance provisions to allow risk-based leak detection and repair. Minimise use of underground components.	**Compliant in future** No information provided, IC7 set in permit.
	i.	Appropriate buffer storage capacity (being mindful of existing plant constraints)	**Compliant in future** No information provided, IC7 set in permit.
20	**Treat waste water using a combination of:**		
	Preliminary, primary and general treatment		
	a.	Equalisation	**N/A**

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Neutralisation	**Compliant** The Industrial Chemicals compound neutralises the Ferrous chloride using calcium hydroxide slurry & then discharges via pipeline into the TATA Steel main effluent system the Calcium chloride solution for further treatment. Once the solution leaves the filter-press, the solution reverts back to being the property of TATA Steel. The press returns water flows to the neutralisation tanks where further pH control can take place if necessary. Polymer is added to the basement Neutralisation tanks as a coagulant to aid in the binding of solids. From the basement tanks the treated waters then flow into a clarifier tank. The clarifier tank allows settlement of solids and the clean water then cascades into a final water tank where we monitor the final water pH before it pumps out to No2 sump, which is outside the ICGL site and is the responsibility of TATA. All treated waters that enter No2 sump are tested for quality by Tata. (ICGL don't have access to these records). This treated water then enters a deep drain on the TATA site. TATA monitor No2 sump and contact us if there are any contaminants in the water, suspended solids or if the pH is out of range. Neutralisation treatment takes place which is the requirement of BAT. The waste is appropriately treated and sent back to Tata Steel for further treatment and then regulated under that site/permit.
	c.	Physical separation	**N/A** As above - coagulants used and settlement of solids in clarifier tank and clean water leaves. However this is part of the Tata Steel site permit activity so n/a. ICL only carry out the neutralisation process.
	Physico-chemical treatment		

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	d.	Adsorption	**As above**
	e.	Distillation/rectification	**As above**
	f.	Precipitation	**As above.**
	g.	Chemical oxidation	**As above**
	h.	Chemical reduction	**As above**
	i.	Evaporation	**As above**
	j.	Ion exchange	**As above**
	k.	Stripping	**As above**
	Biological treatment		
	l.	Activated sludge process	**N/A** Not biological treatment
	m.	Membrane bioreactor	**N/A** Not biological treatment
	Nitrogen removal		
	n.	Nitrification/denitrification (where biological treatment used)	**N/A** Not biological treatment
	Solids removal		
	o.	Coagulation and flocculation	**N/A** ICL carries out the neutralisation of ferrous chloride. Coagulants used and settlement of solids in clarifier tank and clean water leaves comes under the Tata Steel permit/operation. The Industrial Chemicals compound neutralises the Ferrous chloride & then discharges via pipeline into the TATA Steel main effluent system the Calcium chloride solution for further treatment. Once the solution leaves the filter-press, the solution

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			reverts back to being the property of TATA Steel. The press return water flows to the neutralisation tanks where further pH control can take place if necessary. Polymer is added to the basement Neutralisation tanks as a coagulant to aid in the binding of solids. From the basement tanks the treated waters then flow into a clarifier tank. The clarifier tank allows settlement of solids and the clean water then cascades into a final water tank where we monitor the final water pH before it pumps out to No2 sump, which is outside the ICGL site and is the responsibility of TATA. All treated waters that enter No2 sump are tested for quality by Tata. (ICGL don't have access to these records). This treated water then enters a deep drain on the TATA site. TATA monitor No2 sump and contact us if there are any contaminants in the water, suspended solids or if the pH is out of range. Neutralisation treatment takes place which is the requirement of BAT
	p.	Sedimentation	**N/A** As above
	q.	Filtration (sand, micro, ultra)	**N/A** As above
	r.	Flotation	**N/A**
	BAT-AELs for DIRECT discharges to a receiving waterbody (mg/l) *Table 6.1 and its supporting notes. Monitoring requirements are outlined in BAT 7*		
	TOC	10.0-60 10-100 for water-based liquid waste	**N/A** No discharge to receiving waterbody.
	COD (TOC is preferred)	30-180 30-300 for water-based liquid waste	**N/A** No discharge to receiving waterbody.

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Suspended solids	5.0-60	**N/A** No discharge to receiving waterbody.
	HOI	0.5-10 applying to specific waste treatments	**N/A** No discharge to receiving waterbody.
	Total N	1-25 for biological treatment and waste oil re-refining 10-60 for water-based liquid waste	**N/A** No discharge to receiving waterbody.
	Total P	0.3-2 for biological treatment 1-3 for water-based liquid waste	**N/A** No discharge to receiving waterbody.
	Phenol	0.05-0.2 for waste oil re-refining and physio-chemical treatment of waste with CV 0.05-0.3 for water-based liquid waste	**N/A** No discharge to receiving waterbody.
	Free CN-	0.02-0.1 for water-based liquid waste	**N/A** No discharge to receiving waterbody.
	AOX	0.2-1 for water-based liquid waste	**N/A** No discharge to receiving waterbody.
	Metals & Metalloids – specific waste treatments as listed in Table 6.1		
	As	0.01-0.05	**N/A** No discharge to receiving waterbody.
	Cd	0.01-0.05	**N/A** No discharge to receiving waterbody.

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Cr	0.01-0.15	**N/A** No discharge to receiving waterbody.
	Cu	0.05-0.5	**N/A** No discharge to receiving waterbody.
	Pb	0.05-0.1	**N/A** No discharge to receiving waterbody.
	Ni	0.05-0.5	**N/A** No discharge to receiving waterbody.
	Hg	0.5-5	**N/A** No discharge to receiving waterbody.
	Zn	0.1-1	**N/A** No discharge to receiving waterbody.
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	**N/A** No discharge to receiving waterbody.
	Cd	0.01-0.1	**N/A** No discharge to receiving waterbody.
	Cr	0.01-0.3	**N/A** No discharge to receiving waterbody.
	Hexavalent Cr [Cr(VI]	0.01-0.1	**N/A** No discharge to receiving waterbody.

BATc number	Summary of BAT Conclusion requirement		Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Cu	0.05-0.5	**N/A** No discharge to receiving waterbody.
	Pb	0.05-0.3	**N/A** No discharge to receiving waterbody.
	Ni	0.05-1	**N/A** No discharge to receiving waterbody.
	Hg	1.0-10	**N/A** No discharge to receiving waterbody.
	Zn	0.1-2	**N/A** No discharge to receiving waterbody.
	BAT-AELs for INDIRECT discharges to a receiving waterbody (mg/l) *Table 6.2 and its supporting notes. Monitoring requirements are outlined in BAT 7*		
	HOI	0.5-10 applying to specific waste treatments	**N/A** No discharge to receiving waterbody or sewer. Discharge is returned to Tata steel for further treatment and dealt with under their environmental permit.
	Free CN-	0.02-0.1 for water-based liquid waste	**N/A** No discharge to receiving waterbody. Only liquid calcium chloride solution produced and returned to TATA steel site for further treatment. Free cyanide not expected to be present in the discharge.
	AOX	0.2-1 for water-based liquid waste	**N/A** No discharge to receiving waterbody.
	Metals & Metalloids – specific waste treatments as listed in Table 6.2		

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	As	0.01-0.05	**N/A** No Discharge to receiving waterbody.
	Cd	0.01-0.05	**N/A** No discharge to receiving waterbody.
	Cr	0.01-0.15	**N/A** No discharge to receiving waterbody.
	Cu	0.05-0.5	**N/A** No discharge to receiving waterbody.
	Pb	0.05-0.1	**N/A** No discharge to receiving waterbody.
	Ni	0.05-0.5	**N/A** No discharge to receiving waterbody.
	Hg	0.5-5	**N/A** No discharge to receiving waterbody.
	Zn	0.1-1	**N/A** No discharge to receiving waterbody.
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	**N/A** No discharge to receiving waterbody. Only liquid calcium chloride solution produced and returned to TATA steel site for further treatment under a different permit. Metals and Metalloids not identified in waste stream.
	Cd	0.01-0.1	**N/A** No discharge to receiving waterbody.

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Cr	0.01-0.3	**N/A** No discharge to receiving waterbody.
	Hexavalent Cr [Cr(VI]	0.01-0.1	**N/A** No discharge to receiving waterbody.
	Cu	0.05-0.5	**N/A** No discharge to receiving waterbody.
	Pb	0.05-0.3	**N/A** No discharge to receiving waterbody.
	Ni	0.05-1	**N/A** No discharge to receiving waterbody.
	Hg	1.0-10	**N/A** No discharge to receiving waterbody.
	Zn	0.1-2	**N/A** No discharge to receiving waterbody.
EMISSIONS FROM ACCIDENTS AND INCIDENTS			
21	**Techniques to prevent or limit the environmental consequences of accidents and incidents, as part of the Accident Management Plan. Use <u>ALL</u> of the following:**		
	a.	Protection measures – see examples	**Compliant**

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			As the Industrial Chemicals compound is located within TATA Steel (& this is a top tier COMAH site), all site accident & emergency plans are controlled by TATA Steel. Industrial Chemicals has been provided with a copy. ICL provided a copy of the TATA emergency plan - Port Talbot Cold Rolled Products. Local Emergency Plan'. Site Officer confirmed that this is Tata Steel's plan, but all parties have signed up to it. It is listed as an operating technique document in the permit already. Accident plan for spills/leaks which covers part b - management of incidental and accidental emissions BAT 21.
	b.	Management of incidental or accidental emissions	**Compliant** As above
	c.	Incident/accident registration and assessment system – see examples	**Compliant** As above
MATERIAL EFFICIENCY			
22	**Use materials efficiently by substituting materials with waste e.g. waste acids/alkalis for pH adjustment, fly ashes for binders**		**Compliant** The use of Calcium chloride slurry is the best product & the most efficient chemical to use to neutralise the Ferrous chloride. Alternative alkaline solutions are less effective in removing the Ferrous hydroxide.
ENERGY EFFICIENCY			
23	**Use energy efficiently by using <u>both</u> of the following techniques:**		
	a.	Energy efficiency plan	**Compliant in future**

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Operator has detailed that ferrous chloride does require energy to be processed. Only energy requirement is for the use of pumps, agitator & filter-press. All electricity power is provided by TATA free of charge, and ICL do not information on energy usage. There is no gas consumption on site. BAT is to have an energy efficiency plan detailing energy consumption of the activity. More details needed. IC8 set in permit.
	b.	Energy balance record	**Compliant in future** As above, more details need, IC8 set in permit.
REUSE OF PACKAGING			
24	**Maximise the reuse of packaging as part of a Residues Management Plan (see BAT 1 XII.)**		**N/A** Ferrous chloride is removed via pipeline to treatment tank, no packaging required. BAT 24 is not applicable
MECHANICAL TREATMENT OF WASTE (GENERAL BAT)			
25	**Reduce emissions to air of dust, particulate-bound metals, PCDD/F and dioxin-like PCBs by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Cyclone – see S6.1	**N/A** Ferrous chloride is a liquid & not processed via mechanical treatment. BAT 25 is not applicable
	b.	Fabric filter – see S6.1	**N/A** As above

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Wet scrubbing – see S6.1	**N/A** As above
	d.	Water injection into the shredder	**N/A** As above
	BAT-AEL for channelled dust emissions to air from the mechanical treatment of waste (mg/Nm3) *Table 6.3 and its supporting note. Monitoring requirements are outlined in BAT 8*		
	Dust	2.0-5.0	**N/A** As above
MECHANICAL TREATMENT OF METAL WASTE BY SHREDDING			
26	**Improve overall environmental performance and prevent emissions due to accidents and incidents. Use BAT 14g <u>AND ALL</u> of the following techniques:**		
	(a)	Detailed inspection procedure for baled waste before shredding	**N/A** Ferrous chloride is a liquid & not processed via mechanical shredder. BAT 26 is not applicable
	(b)	Remove dangerous items from waste inputs and dispose of them in a safe manner	**N/A** As above
	(c)	Treatment of containers accompanied by a declaration of cleanliness	**N/A** As above
27	**Prevent deflagrations and reduce emissions from deflagrations. Use technique a. <u>AND ONE OR BOTH</u> of techniques b. and c.**		
	a.	Deflagration management plan with reduction programme, incident review and response protocol	**N/A**
	b.	Pressure relief dampers	**N/A**

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Pre-shredding (device)	**N/A**
28	**Use energy efficiently by keeping the shredder feed stable**		**N/A**
MECHANICAL TREATMENT OF WEEE CONTAINING VFCS AND/OR VHCS			
29	**Techniques to prevent, or where not practicable reduce emissions of organic compounds to air. Apply BAT 14d <u>AND</u> BAT14h <u>AND</u> technique a. <u>AND ONE OR BOTH</u> of techniques b. and c.**		
	a.	Optimised removal and capture of refrigerants and oils	**N/A** Ferrous chloride is not WEEE waste. BAT 29 is not applicable
	b.	Cryogenic condensation	**N/A** As above
	c.	Adsorption	**N/A** As above
	BAT-AELs for channelled TVOC and CFC emissions to air from treatment of WEEE containing VFCs and/or VHCs (mg/Nm3) *Table 6.4. Monitoring requirements are outlined in BAT 8*		
	TVOC	3.0-15	**N/A**
	CFCs	0.5-10	**N/A**
30	**Prevent emissions due to explosions when treating WEEE containing VFCs and/or VHCs. Use <u>EITHER</u> of the following techniques:**		
	a.	Inert atmosphere e.g. N2	**N/A** Ferrous chloride is not WEEE waste. BAT 30 is not applicable

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Forced ventilation	**N/A** As above
MECHANICAL TREATMENT OF WASTE WITH CALORIFIC VALUE			
31	**Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**N/A** Ferrous chloride does not have a calorific value. BAT 31 is not applicable.
	b.	Biofilter – see S6.1	**N/A** As above
	c.	Thermal oxidation – see S6.1	**N/A** As above
	d.	Wet scrubbing – see S6.1	**N/A** As above
	BAT-AEL for channelled TVOC emissions to air from the mechanical treatment of waste with calorific value (mg/Nm3) *Table 6.5 and its supporting note. Monitoring requirements are outlined in BAT 8*		
	TVOC	10.0-30.0	**N/A**
MECHANICAL TREATMENT OF WEEE CONTAINING MERCURY			
32	**Reduce mercury emissions to air by collecting them at source, sending them to abatement and carrying out adequate monitoring. This includes <u>ALL</u> of the following:**		

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Equipment is enclosed, under negative pressure and connected to a LEV system		**N/A** Ferrous chloride is not WEEE waste. BAT 32 is not applicable
	Waste gas treated using dedusting techniques – see examples – followed by adsorption on activated carbon		**N/A** As above
	Monitoring of waste gas treatment efficiency		**N/A** As above
	Mercury levels measured at least weekly within treatment and storage areas		**N/A** As above
	BAT-AEL for channelled mercury (Hg) emissions to air from the mechanical treatment of WEEE containing mercury (µg/Nm3) *Table 6.6. Monitoring requirements are outlined in BAT 8*		
	Hg	2.0-7.0	**N/A**
BIOLOGICAL TREATMENT OF WASTE (GENERAL BAT)			
33	**Reduce odour emissions and improve overall environmental performance by selecting the waste input (to ensure its suitability for biological treatment). See also BAT 2**		**N/A** This is not a biological treatment process. BAT 33 is not applicable.
34	**Reduce emissions to air of dust, organic compounds and odorous compounds (including H2S & NH3) by using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**N/A** As above not biological treatment process
	b.	Biofilter – see S6.1	**N/A** As above

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Fabric filter – see S6.1.	**N/A** As above
	d.	Thermal oxidation – see S6.1	**N/A** As above
	e.	Wet scrubbing – see S6.1	**N/A**
	BAT-AEL for channelled NH3, odour, dust and TVOC emissions to air from the biological treatment of waste (mg/Nm3) (ou_E/m3) *Table 6.7 and its supporting notes. Monitoring requirements are outlined in BAT 8*		
	NH3	0.3-20	**N/A**
	Odour	200-1000	**N/A**
	Dust	2.0-5.0	**N/A**
	TVOC	5.0-40	**N/A**
35	**Reduce the generation of waste water and reduce water usage by using <u>ALL</u> of the following:**		
	a.	Segregation of water streams (see also BAT 19f)	**N/A**
	b.	Water recirculation	**N/A**
	c.	Minimisation of the generation of leachate	**N/A**
BIOLOGICAL TREATMENT OF WASTE: AEROBIC METHODS			

BATc number			Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
36	**Reduce emissions to air and improve overall environmental performance by monitoring and/or controlling key waste and process parameters. Include following elements:**			
	Waste input characteristics e.g. C to N ratio, particle size			**N/A** As above
	Temperature and moisture content within windrows (Moisture monitoring not needed for enclosed processes where H&S issues have been identified)			**N/A** As above
	Aeration of the windrow			**N/A** As above
	Windrow porosity, height and width			**N/A**
37	**Reduce diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps. Use <u>ONE OR BOTH</u> of the following techniques:**			
	a.	Use of semi-permeable membrane covers		**N/A**
	b.	Adaptation of operations to the meteorological conditions		**N/A**
BIOLOGICAL TREATMENT OF WASTE: ANAEROBIC METHODS				
38	**Reduce emissions to air and improve overall environmental performance by monitoring and/or controlling key waste and process parameters. Include following elements:**			
	Implement a manual and/or automatic monitoring system to:			
	Ensure a stable digester operation			

BATc number	Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		N/A This is not an anaerobic treatment process. BAT 38 is not applicable.
	Minimise operational difficulties and associated odour emissions	**N/A**
	Provide sufficient early warning of system failures	**N/A**
	Windrow porosity, height and width	**N/A**
	Monitoring and/or control of key waste and process parameters – examples below:	
	pH and alkalinity of the digester feed	**N/A**
	Digester operating temperature	**N/A**
	Hydraulic and organic loading rates of the digester feed	**N/A**
	Volatile fatty acids and NH3 concentrations within digester & digestate	**N/A**
	Biogas quantity, composition (e.g. H2S) and pressure	**N/A**
	Liquid and foam levels in the digester	**N/A**
MECHANICAL BIOLOGICAL TREATMENT (MBT) OF WASTE		
39	**Reduce emissions to air. Generally applicable to new plants, existing plants may have layout constraints. Use <u>BOTH</u> of the following techniques:**	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Segregation of the waste gas streams (refer to inventory described in BAT 3)	**N/A**
	b.	Recirculation of waste gas. Waste gas treatment is described in BAT 34 and recirculation in BAT 35.	**N/A**
PHYSICO-CHEMICAL TREATMENT OF SOLID AND/OR PASTY WASTE			
40	**Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.**		
	Monitoring the waste input		
	Content of organics, oxidising agents, metals, salts, odorous compounds		**N/A** There are no organic compounds in Ferrous chloride – this is an inorganic chemical. Not solid or pasty waste. BAT 40 is not applicable.
	H2 formation potential upon mixing of flue-gas treatment residues/ashes with water		**N/A** As above
41	**Reduce emissions to air of dust, organic compounds and NH3 by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**N/A** There are no organic compounds in Ferrous chloride & Ferrous chloride is a solution – this is an inorganic chemical. BAT 42 is not applicable. No dust or ammonia in emissions.
	b.	Biofilter – see S6.1	**N/A** As above
	c.	Fabric filter – see S6.1.	**N/A**

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			As above
	d.	Wet scrubbing – see S6.1	**N/A** As above
	BAT-AEL for channelled NH3, odour, dust and TVOC emissions to air from the physico-chemical treatment of solid and/or pasty waste (mg/Nm3) *Table 6.8. Monitoring requirements are outlined in BAT 8*		
	Dust	2.0-5.0	N/A
RE-REFINING OF WASTE OIL			
42	**Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.**		
	Monitoring the waste input		
	Chlorinated compounds e.g. solvents or PCBs		**N/A**
43	**Reduce quantity of waste sent for disposal by using <u>ONE OR BOTH</u> of the following techniques:**		
	a.	Material recovery e.g. organic residues in asphalt products	**N/A**
	b.	Energy recovery	
44	**Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**N/A**
	b.	Thermal oxidation – see S6.1	**N/A**
	c.	Wet scrubbing – see S6.1	**N/A**
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies.		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Monitoring requirements are outlined in BAT 8 **N/A**		
PHYSICO-CHEMICAL TREATMENT OF WASTE WITH CALORIFIC VALUE			
45	**Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**N/A** Waste not of calorific value
	b.	Cryogenic condensation – see S6.1	**N/A**
	c.	Thermal oxidation – see S6.1	**N/A**
	d.	Wet scrubbing – see S6.1	**N/A**
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. *Monitoring requirements are outlined in BAT 8*		
REGENERATION OF SPENT SOLVENTS			
46	**Improve overall environmental performance by using <u>ONE OR BOTH</u> of the following techniques:**		
	a.	Material recovery (by evaporation from distillation residues)	**N/A** There are no solvents used in this process. BAT 46 is not applicable
	b.	Energy recovery e.g. using distillation residues	**N/A** As above
47	**Reduce emissions to air of organic compounds by applying BAT 14d <u>AND</u> using <u>a combination of</u> the following techniques:**		
	a.	Recirculation of process off-gases in a steam boiler. Avoid generating PCBs and/or PCDD/Fs	**N/A**

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			There are no organic compounds in Ferrous chloride – this is an inorganic chemical. BAT 47 is not applicable.
	b.	Adsorption – see S6.1	**N/A** as above
	c.	Thermal oxidation – see S6.1. Avoid generating PCBs and/or PCDD/Fs	**N/A** As above
	d.	Condensation or cryogenic condensation	**N/A** As above
	e.	Wet scrubbing – see S6.1	**N/A** As above
	The BAT-AEL for TVOC emissions to air set in Section 4.5 (below) applies. *Monitoring requirements are outlined in BAT 8*		
BAT-AEL FOR EMISSIONS OF ORGANIC COMPOUNDS TO AIR – SECTION 4.5 (RE-REFINING OF WASTE OIL) (PHYSICO-CHEMICAL TREATMENT OF WASTE WITH CV) (REGENERATION OF SPENT SOLVENTS)			
	BAT-AEL for channelled TVOC emissions to air from the re-refining of waste oil, physico-chemical treatment of waste with calorific value and regeneration of spent solvents (mg/Nm3) *Table 6.9 and its supporting note. Monitoring requirements are outlined in BAT 8*		
	TVOC	5.0-30	**N/A**
THERMAL TREATMENT OF SPENT ACTIVATED CARBON, WASTE CATALYSTS AND EXCAVATED CONTAMINATED SOIL			

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
48	**Improve overall environmental performance by using <u>ALL</u> of the following techniques:**		
	a.	Heat recovery from the furnace off-gas e.g. for preheating combustion air or steam generation	
	b.	Indirectly fired furnace i.e. avoids contact between the furnace contents and the burner flue-gases. Note applicability constraints.	
	c.	Process-integrated techniques to reduce emissions to air – see examples	
49	**Reduce emissions to air of HCl, HF, dust and organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Cyclone – see S6.1	**N/A** Ferrous chloride is a liquid solution and not excavated soil. BAT 48 is not applicable
	b.	Electrostatic precipitator (ESP) – see S6.1	**N/A** as above
	c.	Fabric filter – see S6.1	**N/A** as above
	d.	Wet scrubbing – see S6.1	**N/A** as above
	e.	Adsorption – see S6.1	**N/A** as above
	f.	Condensation – see S6.1	**N/A** as above

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	g.	Thermal oxidation – see S6.1	**N/A** as above
	Note supporting text for BAT 49g (thermal oxidation) *Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.*		
WATER WASHING OF EXCAVATED CONTAMINATED SOIL			
50	**Reduce emissions to air of dust and organic compounds from the storage, handling and washing steps by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**N/A** as above
	b.	Fabric filter – see S6.1	**N/A** as above
	c.	Wet scrubbing – see S6.1	**N/A** as above
	Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.		
Decontamination of equipment containing PCBs			
51	**Reduce emissions to air of PCBs and organic compounds and improve overall environmental performance by using <u>ALL</u> of the following techniques:**		
	a.	Coating of the storage and treatment areas – see examples	**N/A** There are no organic compounds & PCBs in ferrous chloride – this is an inorganic chemical. BAT 51 is not applicable.

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Implementation of staff access rules to prevent dispersion of contamination – see examples	**N/A** As above
	c.	Optimised equipment cleaning and drainage – see examples	**N/A** As above
	d.	Control and monitoring of emission to air – see examples	**N/A** As above
	e.	Disposal of waste treatment residues – see examples	**N/A** As above
	f.	Recovery of solvent when solvent washing is used	**N/A** As above
	Monitoring requirements are outlined in BAT 8. No BAT-AELs have been set for this BATc.		
TREATMENT OF WATER-BASED LIQUID WASTE			
52	**Improve overall environmental performance by monitoring the waste input as part of the waste pre-acceptance and acceptance procedures. See also BAT 2.**		
	Monitoring the waste input		
	Bioeliminability e.g. BOD, BOD-COD ratio, Zahn-Wellens test, biological inhibition potential		**N/A** Operator has stated that as the plant can only receive Ferrous chloride from the Cold mill pickle line and nowhere else, waste input is not monitored. The quality of the ferrous chloride discharged to the effluent plant, is determined via the strength of the acid used in the pickle lines. Industrial Chemicals can only accept this waste. The TATA monitoring system determines the final strength. 3 hourly pickle tank quality checks are completed. This allows ICL to test/monitor the tank chemistries and

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			FCS quality to ensure accurate steel pickling is taking place. The pickle tank strengths are adjusted when necessary and all information is recorded. This testing and record producing is completed by an ICGL employee in an ICGL supervised area but unrelated to the Effluent plant or licence provided by NRW. Weak concentration out of specification material would always be processed through neutralisation. Strong concentration out of specification material would be diluted with water hence it would not require any additional neutralisation. BAT is to monitor waste input such as pre-acceptance procedures listed in BAT 2. BAT 52 details bioeliminability and n/a to this waste type. Effluent is inorganic.
	Feasibility of emulsion breaking e.g. lab testing		**N/A** As above.
53	**Reduce emissions to air of HCl, NH3 and organic compounds by applying BAT 14d <u>AND</u> using one or a combination of the following techniques:**		
	a.	Adsorption – see S6.1	**N/A** ICL confirmed that BAT 53 (adsorption, bio filtration, thermal oxidation, wet scrubbing of HCl, NH3 or organic compounds) is not needed for the neutralisation tanks on site. This has shown there no airborne emissions of HCl, NH3 or organic compounds from these tanks. Such techniques are not required. Not a channelled emission. Personal exposures, by inhalation, to hydrogen chloride, inhalable dust and ferrous chloride were below the relevant workplace exposure limits, and results would be considered low.
	b.	Biofilter – see S6.1	**N/A** As above

BATc number		Summary of BAT Conclusion requirement	Status/comment **One of the following:** Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Thermal oxidation – see S6.1.	**N/A** as above
	d.	Wet scrubbing – see S6.1	**N/A** as above
	BAT-AELs for channelled HCl and TVOC emissions to air from the treatment of water-based liquid waste (mg/Nm3) *Table 6.10 and its supporting notes. Monitoring requirements are outlined in BAT 8*		
	HCl	1.0-5.0	**N/A** Hydrogen chloride identified as fugitive/diffuse emission not a channelled emission to air. BAT-AELs are for channelled emissions to air therefore not applicable.
	TVOC	3.0-20	**N/A** As above

Annex 2: Consultation on the draft decision where an Article 15(4) derogation has been applied

No derogation has been applied for.