


Summary sheet

Permit Number: BT4885IT	Compliance Officer: Stuart Ross	
Operator: Shotton Mill	Auditor (if different): Stuart Ross & Kathryn Bradshaw	
Discharge point(s): W1 and E1	Others Present: Shotton Mill Representatives	
OMA Sections	SCORE	
OMA 1 – Management of monitoring	56%	
OMA 2 – Periodic monitoring and test laboratories	69%	
OMA 3 – Continuous monitoring	56%	
OMA 4 – Quality assurance	69%	
	OVERALL SCORE	63%
OVERALL SITE ASSESSMENT COMMENTS	Letter	
	Variation	
	Enforcement	
<p>The operator is performing the majority of their monitoring activities in accordance with the permit. However, there are a number of deficiencies as highlighted in this report regarding monitoring procedures and the operation and maintenance of monitoring equipment that constitute permit non-compliance.</p> <p>As per the actions in this report and the associated Compliance Assessment Report, the operator must take steps to ensure permit compliance is achieved.</p>	Date of audit: 12/07/24	
	Signed: 	
	Date: 08/11/24	

OMA 1: Management of monitoring		
OMA ELEMENTS	SCORE	COMMENTS
A. Documentation of management system procedures for monitoring	2	Procedures are in place for most aspects of monitoring, but they are numerous and fragmented. In some areas they lack clarity and focus as to how the permit monitoring requirements are to be implemented. Procedures are absent for the operation/configuration of the auto samplers.
B. Organisational structure for monitoring	3	Document RCID 58177 MCERTS management chart details the responsibilities for the MCERTS flow meter at W1. No overall organogram is available as to who is responsible for the site monitoring. Roles and responsibilities are documented in numerous procedures including senior managers within the 'Emissions Monitoring Policy'.
C. Schedules and planning of monitoring, including contingencies	3	The emissions monitoring policy includes the permit monitoring tables as a monitoring schedule. The monitoring contractor appears to take significant responsibility for scheduling sample collection and analysis. Procedures do not include contingencies for lost or missed samples.
D. Monitoring records and use of monitoring data	3	All documented records and data reviews relate to W1 discharge point, E1 does not feature. Internal Data Quality Control Procedure states that data shall be reviewed for completeness and accuracy and compared against historical results and ELVs. Procedure RCID30229 and EWI 0374 include Schedule 5 reporting.
E. Understanding the requirements of the permit and monitoring methods	3	Personnel were able to demonstrate an adequate understanding of the permit monitoring requirements but there was some uncertainty, for example as to how the E1 autosampler is configured to collect samples.
OMA 1 – SCORE	14/25	56%

SUMMARY COMMENTS FOR OMA 1

The operator holds an ISO 14001 accredited management system.

The operator uses Sphera Cloud document management system where all policies, procedures, SOPs are stored and controlled.

A significant number of hard copy procedures were presented to NRW during the audit –

Environmental Policy (RCID 5663)

Quality Policy (RCID 56515)

Management Chart (58177)

Integrated EMS Procedures (RCID 58284)

Effluent Sample Time (RCID 30229)

Boiler House Steam and Water Quality (RCID 58688)

MCERTS Quality Assurance (RCID 56806)

Control of Documents (RCID 58029)

Commissioning of New Flow Monitoring Systems (RCID 30439)

Procedure for handling modifications to process or plant.

Reviewing Analytical Methods and Standards for Discharge to water

Date Quality control Procedure.

Emissions monitoring policy.

NRW Air and Water Discharge Consent Limits and Reporting Requirements (EWI 0374)

RCID 58284 'Utilities (Effluent and Boiler) Sampling Parameters' – this is a high-level document referencing out to other procedures and includes corrective and preventative actions for 'nonconformities' – other than for flow at W1 it is not clear if these relate to in house process monitoring issues or permit compliance issues.

Document 'SML Guide to the Procedure to be used for Handling Modifications to Process and Plant 20/02/24' does not reference the Environmental Permit or the Environmental Permitting Regulations, nor any specific references to monitoring or equipment.

A number of the monitoring procedures listed above are assessed in more detail in the following sections of this report and associated compliance assessment and actions are included.

The primary finding of this element of the audit is that whilst procedures are in place for most aspects of emissions monitoring, they are fragmented and in some areas lack clarity and focus as to how the permit monitoring requirements are to be implemented.

Some procedures are absent, for example as to how the autosamplers are to be configured and operated.

Recommendation - review monitoring procedures with the objective of consolidating, refining and improving content to ensure they can be read and followed with ease.

OMA 2: Periodic monitoring and test laboratories		
OMA ELEMENTS	SCORE	COMMENTS
A. Sampling provisions	2	The autosampler line for E1 is located in the bottom of the break tank which may lead to unrepresentative sampling due to solids accumulation. The W1 sample line retrieves sample from the pumped discharge line. Sample points were not labelled. The E1 auto sampler is not collecting 24hr flow proportional samples as required by the permit.
B. Certification of equipment	5	The autosamplers installed at E1 and W1 are MCERTS certified.
C. Measurement methods and standards	4	Methods used as listed in the permit. Procedure – <i>‘Reviewing analytical methods and standards for discharge to water’</i> . Describe how the various methods are to be reviewed and who is responsible.
D. Calibration methods	4	Calibration certificates provided for laboratory balances. Calibration certificate provided for DR/3900 Spectrophotometer next due July 2024. Calibration spreadsheet provided for pipettes.
E. Frequency of maintenance and calibration	3	Service records provided for autosamplers. The E1 autosampler refrigeration system was not functional during audit, operator unaware.
F. Reliability of equipment (data availability)	3	No gaps in monitoring data observed based on routine reporting. N.B. monitoring data bases not inspected during audit.
G. Breakdown response	NA	Not assessed during the audit.
H. Traceability	3	The majority of the determinands are analysed at an ISO17025 UKAS accredited laboratory. In house balances calibrated under UKAS.
OMA 2 – SCORE	24/35	69%

SUMMARY COMMENTS FOR OMA 2

This section of the OMA covers sampling and analysis of discharges from emission points W1 and E1, including the use of autosamplers. Continuous measurement of pH and flow are covered in the next section of the report.

Auto Samplers

Samples are collected using MCERTS certified HACH LANGE BUHLER Automatic Wastewater Samplers at each discharge point.

Both autosamplers are refrigerated units, however during the audit it was identified that the refrigeration system on the unit at E1 had failed, the operator was unaware of this fault. Samples within the unit were warm to the touch.

At emission point W1 (Lagoon 3) the permit requires a spot sample and at emission point E1 it specifies a 24hr flow proportional sample.

A non MCERTS flow meter is installed at E1, however this is not used in conjunction with the autosampler to collect a 24hr flow proportional sample and therefore sampling arrangements at E1 are not in accordance with the permit.

Based on the Socotect quotation it appears that the E1 auto sampler is taking a 24hr (time based) composite sample, all of which are collected by Socotec for analysis once per week.

During the audit it was reported that the autosampler at W1 collects a single 250ml sample per discharge that is reportedly decanted into a container and returned to the lab for analysis or collection by Socotec. Socotec collect a sample on Wednesday every week.

No work instructions/procedures for the operation and configuration of the autosamplers were provided or appear to be in use.

At E1, the autosampler metering vessel inside the top of the cabinet was visibly fouled with algal growth. It is not clear what maintenance this component receives to ensure it remains clean.

Recommendation – assess the positioning of the E1 sampling line to ensure it does not collect unrepresentative levels of solids from the base of the break tank.

Action – Repair the E1 autosampler refrigeration system and clean the metering vessel (if not already).

Action – Review autosampler maintenance regime and ensure reliable operation.

Action – Amend the configuration of the E1 autosampler to collect a 24hr flow proportional sample as per permit requirements.

Action – Implement procedures to describe and set out the requirement for operating and collecting samples from the autosamplers.

Recommendation – Label sample points as W1 and E1

Action – Ensure the monitoring requirements are fully proceduralised for emission point E1, some examples where E1 has not been captured in your EMS are given in this report.

Sample Collection

Socotec are contracted to carry out sample analysis and co-ordinate sample collection with the Utilities department at the frequency set out in the quotation, typically on a Wednesday afternoon.

Shotton Mill operatives collect samples from the W1 autosampler and return these to the onsite laboratory.

RCID 69104 ‘Daily Effluent Sampling Procedure’ requires a daily sample to be taken from Lagoon 3 (W1) but does not specifically reference the collection of samples from the autosampler - it appears that some of the text is missing from the printed document. The procedure does not cover the collection of samples from emission point E1. In terms of sample collection, detail is limited to the washing of sample containers and use of gloves.

RCID 30229 ‘Effluent Plant Sample Times’ includes the sampling of lagoon 3 discharge, a table in the document states that samples are collected at 19:00. The procedure covers TSS, COD, NH₄, Total P, NH₄ and Total N – no reference is included for the requirements to collect samples quarterly for quarterly or annual parameters, it is unclear whether daily sample volumes are sufficient to cover these additional parameters.

Action – review procedure RCID 30229 to ensure sampling requirements for quarterly and annual parameters are captured

The procedure states the samples from the MCERTs carousel at W1 are flow proportional – the permit does not require flow proportional sampling, simply a spot sample. The procedure does not cover the collection of samples from emission point E1.

Action – Clarify how the W1 autosampler is configured (i.e. to collect samples as spot or flow proportional).

Action - The final page of procedure RCID 30229 states that for the lagoon 3 discharge, average pH should be recorded from the DCS. The permit requires pH ‘max’ and ‘min’ to be compared against upper and lower ELVs as an instantaneous value (not averaged) – please clarify how pH data is used to compare against ELVs per discharge.

Document ‘Internal Data Quality Control Procedure for Discharges to Water’ sets out some high-level procedures for sampling, including use of ‘appropriate containers’, storage at ‘appropriate temperatures’, transport of samples within ‘recommended holding times’ although these are not specified in any procedures..

WI-69104 – Daily effluent sampling procedures. Explains how to take samples from the mill effluent, primary clarifier, lagoon 2A, secondary clarifier, return activated sludge and lagoon 3 (emission point W1). This WI emphasises the importance of sampling to comply with environmental regulations. It does not describe how to take a sample from E1.

RCID 58688 “Boiler house Steam and Water Sample Times” possibly includes the schedule of sampling at E1 for TSS on a daily basis. This sample point is possibly described as ‘Scrubber Tank Outlet’, and later in the document ‘HMR Outlet’. It is not clear if this is for compliance

sampling or process monitoring only. Monthly and biannual sampling at E1 is not included in this document.

RCID 56854 – Boiler Steam and Water Quality Rev 5. – details high alarm limit for ‘HMR Outlet’ that is understood to be E1, this is set at 30mg/l for TSS. No action limits set for pH or flow at any emission point.

Measurement Methods

Socotec are contracted to perform sample analysis, some in house methods are used for daily analysis of TSS, COD and NH4.

A Socotec Quotation dated 04/04/24 was provided along with UKAS Schedules of accreditation for Socotec UK Ltd and also ALS Laboratories where analytical work is contracted out.

Socotec analytical methods align with the permit requirements.

Daily Spot Samples (W1)

COD (completed in house using in house method) WI0177. Socotec also analyse COD biannually.

TSS (completed in house) in accordance with WI-0181 using a gravimetric method. Socotec also analyse TSS biannually.

NH4 (completed in house, in accordance with RCID69077. Socotec also analyse NH4 weekly.

Weekly (E1 & W2)

BOD ISO5815:1989, Total N, Total P – completed by Socotec.

Monthly (E1)

Metals – completed by Socotec.

Quarterly (W1)

Metals – completed by Socotec.

Biannual (E1)

Dioxins – completed by Socotec.

Annually (W1)

DS screen (GCMS UKAS accredited lab) – completed by Socotec.

The permit requires that where in house analysis is used for compliance assessment purposes, a duplicate sample shall be sent for external analysis (UKAS / ISO17025) at a six-monthly frequency – based on the Socotec sampling schedule this is being achieved.

OMA 3: Continuous monitoring		
OMA ELEMENTS	SCORE	COMMENTS
A. Provisions for monitoring and location of continuous monitors	3	The location of pH and flow monitoring equipment enables representative monitoring
B. Certification continuous monitors	2	Continuous pH analysers at both emission points, and flow at E1 are not MCERTs certified even though such equipment is available. Flow monitoring at W1 is MCERTs certified.
C. Measurement methods and standards	N/A	
D. Calibration methods	3	MCERTS Inspection report provided for flowmeter for W1 dated Oct 2022. Calibrations provided for W1 temperature; pH sensor calibrations completed in house.
E. Frequency of maintenance and calibration	3	A sample of work orders were provided for planned maintenance on W1 temp sensor and flow meter. Other instruments not assessed by NRW.
F. Reliability of methods (data availability)	3	No known gaps in monitoring data.
G. Breakdown response	NA	Not assessed during audit.
H. Traceability	3	pH calibration standards.
OMA 3 – SCORE	17/30	56%
SUMMARY COMMENTS FOR OMA 3		
<p>Flow – Procedure RCID 56806 – ‘MCERTS Quality Assurance Procedure for the Self-Monitoring of Flow’ covers CSA requirements.</p> <p>Flow measurement at W1 is MCERTS certified whereas E1 is not.</p> <p>pH probe calibration, solutions held in site laboratory, within expiry dates.</p>		

pH probes (YOKOGAWA EXA PH202) installed at emission points E1 and W1 are not MCERTS certified instruments.

Action – When any continuous emissions monitoring equipment is replaced it shall be replaced with MCERTS certified equipment where available. This requirement shall also be built into monitoring procedures.

OMA 4: Quality assurance		
OMA ELEMENTS	SCORE	COMMENTS
A. External quality control schemes	3	The majority of the determinands are analysed at an ISO17025 UKAS accredited laboratory. In house methods – no evidence of participation in external QC schemes.
B. Internal data QC	3	The operator reviews data for validity. Basic provisions detailed in procedure.
C. Competence of monitoring personnel	3	Training records provided for in house laboratory staff that undertake the daily sample analysis. MCERTS awareness certificates provided for three employees, attended 09/07/24 expires 09/07/27. Details of the course objectives provided.
D. Auditing of monitoring	3	Internal audit schedule provided for auditing of monitoring. Copy of completed audit dated 04/03/24 provided. Copy of audit provided by CSA Group who audited the management system for the MCERTS flow meter – only 1 observation raised.
E. Audit compliance	NA	Corrective action system not inspected during the audit.
F. Reporting	3	Procedure – NRW Air & Water Discharge Consent Limits and Reporting Requirements (EWI 0374) provides an overview on the permit limits and reporting requirements. However, there is no mention of E1 limits in this document. Monitoring returns are typically received on time and completed correctly.
OMA 4 – SCORE	15/25	69%
SUMMARY COMMENTS FOR OMA 4		
Basic training records for two laboratory personnel in RCID 30227, 30228, 30229 and 30230 in 2023 provided.		