

Compliance Assessment Report CAR_NRW0039224

Permit being assessed: KP3135KV.

For: Royal Mint EPR/KP3135KV, held by The Royal Mint Ltd

At: Royal Mint Llantrisant , Pontyclun, Rhondda Cynon Taf, CF72 8YT.

Type of assessment carried out: Report/Data Review, Reason: Routine.
On 27/01/2022.

Parts of permit assessed: Monitoring data, SPMP, EKR, SW monitoring

NRW Lead Officer: Andi Kemp.

Report sent to: Martyn Grant, Environmental Manager on 27/01/2022.

1. Summary of our findings (full details in section 4)

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
A1 - Specified by permit	Assessed (A)	
B1 - Infrastructure - Engineering for prevention and control of emissions	Assessed (A)	
C2 - General Management - Management system and operating procedures	C3 Minor	1.1.1
E3 - Emissions - Surface water	C4 No impact	3.1.1
E2 - Emissions - Land and groundwater	Assessed (A)	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	Assessed (A)	

Result types are explained in more detail in the 'Important Information' section below.

Total number of non-compliances recorded	Total non-compliance score
2	4.1

How we use the non-compliance score to calculate your annual fee is explained in the 'Important Information' section below.

2. What action is required?

Criteria	Action needed	Complete by
C2	Already complete	Already completed
E3	none	Already completed

Action criteria codes are listed in the 'Important information' section below.

3. What will happen next?

Any non-compliance we have identified and recorded on this form is an offence. It can result in criminal prosecution and/or suspension or revocation of your permit.

At this time, we do not intend to take any further action.

This statement does not stop us from taking additional enforcement action if further relevant information comes to light or offences continue.

4. Details of our assessment**Compliance Assessment Report Form: The Royal Mint – KP3135KV, 27th January 2022**

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Purpose Of Compliance Assessment

This compliance assessment report (CAR1) covers the following environmental permitting activities as required by permit KP3135KV and any subsequent variations:

- Previous actions
- Routine monitoring and performance data submissions
- Schedule notifications
- Electrokinetic NP1 remediation project latest reports
- Additional surface water monitoring reports
- Annual SPMP update
- Waste trial update
- Water abstractions
- OPRA update and permit variation

There are various permit conditions associated with these aspects: monitoring, reporting, emissions, site condition, permitted activities, operating techniques and notifications.

Previous Actions

CAR1 NRW0036731, issued 29th June 2020, contained three actions. CAR1 NRW0036885, issued 27th August 2020, contained one action.

The latter CAR1 records the submissions and acknowledges those three earlier actions as complete.

The one action from the August 2020 CAR1 was due by 30th September 2020 and queried the naming and position of surface water emission points on a site drawing. The operator's response is copied below:

In response to the action in the above numbered CAR of 27th August 2020, I have attached a copy of Figure 5a as it appears in the version held by The Royal Mint.

You will see that the version held here has been hand amended and one of the points identified as W4 is indeed W2 as suggested in your report. Quite why this amendment was not notified at the time I do not know.

As to the question "Are you aware of any reason why W4 does not appear on Table S3.2?" W4 is associated with discharges from the south car park provided for The Royal Mint employees and not directly associated or connected with any of the production activities on site.

Table S3.2 came into existence following a permit variation made in 2010, where in the supporting information W4 was defined as Source "Surface water from car park (area 21) to the

River Nant Mychedd (Note – Outside of installation boundary)."

The regulator accepts this response and has recorded an amended version of the plan. W4 does not need to be in the permit. The car park is not in the permit boundary and no permitted activities or directly associated activities take place there – it is clearly low risk.

Routine Submissions

This CAR1 covers the following routine submissions:

- Quarterly releases to sewer, July 2020 – September 2021
- 6 monthly releases to water, July 2020 – June 2021
- Annual performance parameters and report for 2020 and 2021

The reporting requires the maximum result to be declared and so it is assumed that for quarterly, six monthly and any annual reporting, that the actual monitoring, for example a monthly spot sample, has taken place and this is actually indicated on the S1 and W1 forms.

Action 1 Royal Mint January 2022: *Please confirm if 6 samples were taken for the W1 period of January – June 2021 as there appears to be only two sample dates for free chlorine, one for suspended solids and five for temperature. Due: 7th February 2022*

The sewer emissions are compliant as are the surface water releases. The reports were submitted on time.

Note: An operator monitoring assessment (OMA) will be scheduled for financial year 2022 / 23. Guidance will be provided ahead of agreed audit date.

The annual performance parameters (water, energy, CO₂ / product tonnage, waste / product tonnage) are assessed here for 2020 and 2021. The reports were submitted on time. Energy use per tonne of product has marginally increased for 2021 compared to 2020. Waste per tonne of product is again marginally higher for 2021 compared to 2020, despite (or perhaps because of) lower production in 2021. Just over 42,000 m³ less water was abstracted from the river Ely in 2021 compared to 2020. The specific water used per tonne of product is about the same, given lower production in 2021.

Recommendation Royal Mint January 2022: *It is probably timely to examine several years of this data and pick out any trends, any decreases in efficiency, increases in waste production and waste disposed of as opposed to recovered and explore the reasons and options.*

There is also the requirement to submit a brief annual report covering emissions results, trends in any data or submissions. This was missed for 2020 and the operator was reminded about permit condition 4.2.2 – specifically sub part (a). No non-compliance will be raised for this minor omission, given the limited amount of monitoring required, consistent compliance and the other performance parameters always being reported. Nonetheless we will move forward with the expectation of this brief annual report being submitted. To that end a submission has been made for the year 2021 and is assessed below.

This is a useful document containing pertinent information on business and environmental performance. The document reports a decline in coin production due to digital payments; closing the plant on occasion to reduce energy usage; but acknowledging the electricity base load consumption of the nickel plants and that annealing uses 65% of gas supply. The casting process and associated emission point A14 have been decommissioned. There is narrative covering the performance parameters assessed above. The Royal Mint declares that it is still seeking opportunities to reduce waste. There are usually synergies to be identified,

explored and implemented, that can lead to efficient use of raw materials, waste recovered rather than disposed of and economic gains too.

Schedule 5 Notifications

There have been two scheduled notifications for 2021.

The first, also reported to the HSE as a RIDDOR event, was a gas leak at one of the annealing furnaces on 15th April 2021. NRW needs the Part B root cause investigation part of the notification. When this is received NRW will assess whether this constitutes a permit non-compliance.

Action 2 Royal Mint January 2022: *Please provide the Part B to this notification. Due: 7th February 2022*

The second notification was made due to a fire while conducting hot work on the decommissioning of stack A14. NRW has Part A and other associated investigation reports. NRW attended the incident (the duty Site Controller attended) and fed back to AK. The reports are that some fugitive releases of metals occurred. The operator is already conducting surface water monitoring at other points on the Nant Muchydd to demonstrate no impact and background concentrations of certain parameters, typically metals used on site and hydrocarbons.

NRW is by and large satisfied by the emergency response and minimising emissions to surface water – notwithstanding the comments made in the report to this incident and actions assigned to the operator's staff. The emissions to air can be regarded as very low (if any) risk due to the short duration and materials involved. The emergency response was witnessed by the NRW Site Controller. NRW is satisfied that the impact would have not been significant and also very transient, however it still does constitute an unauthorised release, therefore a minor non-compliance will be issued.

Non-compliance: *A category 4 minor non-compliance is given due to the potential for environmental impact and substances being released which are not authorised for W5. This is a breach under condition 3.1.1. It is an offence under Regulation 38(2) of the Environmental Permitting Regulations (consolidated 2016) to breach a permit condition or emission limit. Non-compliance score CCS4.*

Additionally, as noted in the report, the operator has assigned themselves several actions relating to discussing work with contractors, checks and more detailed procedures. Therefore, under other conditions, this may have been a significant event, so another minor (classed as minor due to the proactive approach in dealing with the incident and follow up) non-compliance will be given for the root cause to this, i.e. management controls.

Non-compliance: *A category 3 minor non-compliance is given due to the deficiencies in management oversight of parts of the permit to work and contractor engagement. This is a breach of permit condition 1.1.1(a). It is an offence under Regulation 38(2) of the Environmental Permitting Regulations (consolidated 2016) to breach a permit condition or emission limit. Non-compliance score CCS3.*

It is recognised that the operator responded well (despite several aspects needing attention) to the incident and conducted a thorough and candid investigation, assigning actions. It is also noted that the contractor made several errors and the operator has raised actions to address these with this and any contractors. The operator, however, is the permit holder and has ultimate responsibility.

Electrokinetic Remediation NP1 Update

This CAR1 covers the reports on the nickel contamination remediation around NP1, from October 2019 – September 2021. In addition, commentary on emails from the operator and regulator is included where relevant here. This remediation project is complemented by the additional surface water monitoring that has been conducted over the last couple of years. This too has fallen out of the wider (former) site protection monitoring program (SPMP).

A meeting was recommended to discuss the approach: cessation of remediation by September 2021 and an additional 6 month period of confirmatory monitoring. This meeting was held on the 27th May 2021, the CWRA was submitted and more detailed proposals were put forward. See an email extract from Celtic (remediation contractor):

Please find a link to download the updated DQRA at the bottom of this email. As I summarised in our meeting the update has made the assessment specific to the NP1 area (the previous DQRA included the PMU area) and has refined the groundwater model, using the additional data gathered from the project since 2010.

In summary the updated model concludes that:

- *local groundwater levels in the NP1 area discharging locally to the site drainage system, with some flow from the Nant Mychydd occurring.*
- *Nickel concentrations in the NP1 'source' area have reduced with time with average concentrations within the source area less than 10 % of previous average levels, over a period of around 8 years.*
- *If the current trends of reduced concentrations continue, the nickel source area could meet compliance within about 5 years.*
- *The nickel plume meets compliance prior to discharge to the drainage system.*
- *Concentrations within the drains near the plume and at discharge to the Nant Mychydd also meet compliance.*
- *No measurable increase in nickel concentration is evident in the Nant Mychydd between upstream and downstream of the drain outfall.*

Therefore, it has been concluded that the residual nickel impact in the NP1 area is posing no significant risk to controlled waters (Nant Mychydd).

In light of the positive DQRA findings, and given that following the various trial extensions the periphery of the nickel plume has been significantly reduced, we would like to propose shutting off the electrolysis system at the end of the current contract ending 30th September 2021, followed by a monitoring period of 6 months in order to demonstrate that ending the trial will not have an adverse impact on the Nant Mychydd, and also to provide further data to back up that already gathered to show no impact to the River.

The electrolysis system will remain in place and not be decommissioned until after the 6 months monitoring period under agreement with NRW that the system is no longer required as there is no significant risk to controlled waters from the nickel contamination in the NP1 area.

We propose monthly monitoring of our current surface water monitoring locations for nickel SWA, SW0 and SW1-4 and also upstream and downstream of the outfall (given the finding of discharge locally occurring to the site drainage system). These locations are shown on the linked drawing D1813_21_5074_A4. The findings will be presented to you in a letter report at the end of the monitoring period.

The regulator agreed to this and an evaluation of the 6 months of monthly monitoring data, in an email sent to Celtic and TRM on 12th July 2021. The CWRA also recommends groundwater level monitoring in addition to the routine SMPM GW monitoring – this to establish more data on GW levels where the levels are not completely known – page 11, paragraph 3, Section 4 summary and conclusions.

The various Celtic monitoring reports cover the period October 2019 – September 2021. These contain the actual details of the monitoring and concentration trends over this time. Amongst other things discussed are the additional electrodes installed and the change from mild steel anodes and cathodes, prolonging their life. The efficacy of the electrokinetic process is also tabulated throughout the reports. The concentration plots show continued reduction of dissolved nickel concentrations.

The last report of the actual remediation (up to September 2021) concludes:

- The stainless steel rods have performed better than the mild steel ones
- Overall 94% plume periphery reduction over eleven years
- Reiteration that the May 2021 CWRA concluded no significant risk to the Nant Muchydd
- First of the follow up surface water (SWA, SW0, SW1 – SW4) monthly monitoring visits took place in 26th October 2021 and will run until March 2022

It should also be pointed out that the analysis of the samples has been carried out at appropriately accredited MCerts laboratories. It is assumed that the competency of sampling both surface water and groundwater (e.g. pumping and purge and recovery) was covered and agreed by the previous regulatory officer. NRW is satisfied that the risk of nickel contamination has been reduced to the extent that surface water EQSs will not be exceeded and in time the site nickel environmental contribution will still further diminish. NRW looks forward to the report covering the additional (on top of below) surface water monitoring and a discussion about the results and the future of EKR project.

Additional Surface Water & Groundwater Monitoring Results Update

This additional monitoring of the Nant Muchydd and a tributary, is running alongside the SPMP groundwater monitoring. The 6 month monitoring reports assessed here are November 2020, June 2021 and November 2021. Prior to these are included in CAR1s: 29th April and 27th August 2020. A decision about the future of this monitoring needs to be made. What also needs to be considered is the change (if any) to the EQSs published. See *Surface water pollution risk assessment for your environmental permit*, on .GOV.UK. Within this HTML page (which has replaced the former H1) are spreadsheets for freshwater EQSs for priority hazardous substances and a second spreadsheet for operational EQSs. These were updated in August 2021. The long term or Annual Average concentrations, in micrograms per litre are:

Cu (dissolved) – 1; Zn – 10.9; Ni – 4; Cr(III) – 4.7; Cr(VI) – 3.4; CN – 1.

The trends are reported as is whether the EQS is reached and exceeded. The trends show decreasing copper at all sampling points; decreasing nickel; decreasing or stable zinc, except at R6 (where a tributary enters the Nant Muchydd); decreasing or no trend for TPH at R7A and R7, where a tributary enters, having flowed under the MRB part of TRM and passed an industrial unit south of TRM. These tributaries could be picking up other sources of contamination. In terms of EQSs, there is reported a general trend in exceedances to be decreasing the amount by which the EQS is exceeded. Nickel is below the EQS; zinc exceeds the EQS at R7A; copper at C1 (upstream of the site) exceeds the EQS as does R7A; chromium is below the EQS; and TPH is below the drinking water standard.

The additional groundwater monitoring also shows a general decrease, but there are some exceedances of EQSs of some parameters, e.g. Zn BH801, Cd exceedances at several boreholes. With a probable increasing trend for Cu at BH32 – in the middle of the site. It is worth noting that Cu exceeds the EQS at some upstream locations. The report conclusions suggest that there is no ongoing source of groundwater pollution and by and large, examining the data, the regulator agrees with this. However, there could be potential sources, maybe not mobilised yet, or situations where pollution is developing through various pathways. The borehole coverage is significant when including the SPMP infrastructure.

The decreasing trends are consistent across the November 2020 – November 2021 sampling rounds. A couple of EQS breaches (including upstream) for Cu and Zn.

The same comments about sampling and MCerts accredited analysis apply here as described under the EKR heading.

Recommendation 1 Royal Mint January 2022: *Include the additional boreholes detecting EQS breaches in with the annual SPMP monitoring. For parameters that show consistent EQS breaches in surface water, keep the 6 monthly monitoring for 2022, into the first half of 2023 and then reevaluate the data and trends. TRM may want to consider investigating other possible sources of pollution at R6 and R7A, if they want to attempt to demonstrate that it is not TRM as the source of the pollution.*

At this stage disentangling other potential surface water exceedances is difficult and therefore an enforcement or non-compliance position cannot be developed yet. In terms of groundwater, the pollution hasn't left the site and unless there is strong evidence of a current or future source term, this aspect would usually be addressed at the permit surrender and the no deterioration test. It is recognised due to the long history of the site and improvements over the years, that there is some legacy contamination, but the trends appear to be decreasing.

Site Protection Monitoring Programme

The XVth (September 2020) and XVIth (October 2021) annual SPMP reports are assessed here. Note the recommendation above to include EQS exceeding additional boreholes in the SPMP. The SPMP covers several up gradient and down gradient boreholes, typically nine in number. In 2020 it was concluded that Cu in BH201 was increasing – this borehole is to the south east of the MRB building proximate to the coolant sumps. This may suggest leakage from the effluent and coolant sump system associated with the MRB. The rest of the parameters and Cu in the other boreholes is described as either no trend, stable, possibly decreasing and decreasing. VOCs are either not detected, stable, no trend or decreasing. The majority of metals at perimeter boreholes are below LOD and therefore EQS. The Cu increase in BH201 is still below the EQS. Cu, Ni and Zn still exceed screening values in Zone 09 BH901R and it is suggested that rather than an ongoing source of pollution, that these elevated levels are due to historic drain leaks. The 2018 / 19 bund survey of building 9A proved they were in good condition and TRM continues to make below ground to above ground improvements to the drainage system. Hopefully, this will be borne out by future results.

Looking at the graphs of data for the boreholes and additional ones added in the 2021 SPMP report, overall trends are decreasing and often below reference data. Cu in CBH6 and BHNP2 show increasing copper concentrations.

Action 3 Royal Mint January 2022: *A check of the applicable EQS from the regulator spreadsheets on the How To Assessment Environmental Impact pages of .GOV.UK needs to be made and ensure the correct EQS is on the graphs within the SPMP reports. See Cu graphs for CBH6 and BHNP2, page 11. Due: For future*

reporting and assessment.

BH26 is showing elevated Ni, Cu and Zn. The tables showing the trends differ in 2021 by including another box of increasing concentration for Cu at BHNP2, while the VOC picture is similar to 2020. BH32 in the middle of the site is still elevated. The 2021 report concludes that an ongoing source is unlikely and that known exceedances are due to historical leaks – comments were made above about ongoing works and surveys. The majority of determinands and locations are showing decreasing trends in concentration. The former EKR Ni remediation could have led to an increase of other metal cations, but this should not be significant or prolonged – refer to the CWRA May 2021.

NRW agrees with the recommendations: keep additional boreholes mentioned and revert to annual surveillance under the SPMP.

Recommendation 2 Royal Mint January 2022: *A meeting should be arranged where NRW, TRM and Ramboll discuss the additional surface water monitoring, SPMP reports and data, including discussion about decommissioning boreholes and preventing these as acting as pathways. Ideally this should occur before the end of June 2022.*

Waste Trail Update

The waste trial has not fully commenced yet and TRM have supplied updates on the following occasions: May 2021, September 2021, October and November 2021, with a revised timeline submitted at the end of November 2021. It could be a year until equipment is installed (from November 2021), but some waste may be received in early 2022 for assessing its form and designing the overall recovery process around that. Therefore the original trial permission letter is still valid.

Water Abstractions

There are two water abstraction permits in place: the main process water and one for the Celtic EKR project, where it was at one point intended to pump water to the ETP – this abstraction permit has never been used, but will remain in place until a final decision is made (after the 6 month monitoring period) about decommissioning the installation.

OPRA and Permit Variation

The operator is currently having two variations processed – these can be done independently as they are not related and will not overlap or influence the outcome of the individual variations. The OPRA profile has been reviewed.

The variations will include a new CHP engine for electricity generation, associated revised SCR and the new plating process, resulting in a different way to destroy cyanide.

END

If you have any queries about this report, or to discuss completion of any actions, please contact the NRW Officer named above.

Important information

Legal status of this report

Your permit is issued to you under the Environmental Permitting Regulations. You have a responsibility to comply with the conditions of your permit and prevent pollution/harm of the environment. You must also ensure that you comply with any other relevant legislation that may apply to your site's operations.

This report explains the findings of our assessment and any action you are required to take. We categorise non-compliance using our guidance for assessing non-compliance at regulated sites.

When we find potential non-compliance/s we will normally give you advice on how to maintain compliance.

To correct non-compliance, we may:

- require you to take specific actions
- issue a notice
- review the conditions of your permit.

Any advice and guidance we give will be without prejudice to any other enforcement response that we consider may be required.

Assessment results and non-compliance categories (used in section 1):

Assessment result	Description
Assessed (A)	Assessed or assessed in part, no evidence of non-compliance found
Action only (X)	Action only relating to the activity assessment
Ongoing (O)	Ongoing non-compliance, not scored

Non-compliance category	Description	Score
C1 Major	Potential to have a major, serious, persistent and/or extensive impact or effect on the environment, people and/or property	60
C2 Significant	Potential to have a significant impact or effect on the environment, people and/or property	31
C3 Minor	Potential to have a minor or minimal impact or effect on the environment, people and/or property	4
C4 No environmental impact	Non-compliance at a regulated site that cannot foreseeably have any impact on the environment, people and/or property	0.1

How we use assessment scores

The number and severity of non-compliances recorded in a year will affect your annual subsistence fee the following year. A non-compliance factor is added to your site's Operator

Performance Risk Appraisal (OPRA) score when we calculate your fee to reflect the additional resource we use to assess permit compliance.

What are suspended scores?

In line with our guidance, we may suspend scores for up to six months to allow time for remedial action to be taken. Suspended scores will be re-instated if the action is not completed.

Full list of Industry and Waste action criteria (used in section 1 and 2):**A: Permitted activities**

- A1 Specified by permit

B: Infrastructure

- B1 Infrastructure – Engineering for prevention and control of emissions
- B2 Infrastructure – Closure and decommissioning
- B3 Infrastructure – Site drainage engineering (clean and foul)
- B4 Infrastructure – Containment of stored materials
- B5 Infrastructure – Plant and equipment

C: General management

- C1 General management – Staff competency/training
- C2 General management – Management system and operating procedures
- C3 General management – Materials acceptance
- C4 General management – Storage, handling, labelling and segregation

D: Incident management

- D1 Incident management – Site security
- D2 Incident management – Accidents, emergency and incident planning

E: Emissions

- E1 Emissions – Air
- E2 Emissions – Land and groundwater
- E3 Emissions – Surface water
- E4 Emissions – Sewer
- E5 Emissions – Waste

F: Amenity

- F1 Amenity – Odour
- F2 Amenity – Noise
- F3 Amenity – Dust/fibres/particulates and litter
- F4 Amenity – Pests/birds and scavengers
- F5 Amenity – Deposits on road

G: Monitoring and records, maintenance and reporting

- G1 Monitoring and records, maintenance and reporting – Monitoring of emissions and environment
- G2 Monitoring and records, maintenance and reporting – Records of activity, site diary/journal/events
- G3 Monitoring and records, maintenance and reporting – Maintenance records
- G4 Monitoring and records, maintenance and reporting – Reporting and notification to Natural Resources Wales

H: Resources efficiency

- H1 Resource efficiency – Efficient use of raw materials
- H2 Resource efficiency – Energy efficiency

Enforcement response

Any permit condition non-compliance is an offence and we may take legal action against you. Action we take can include prosecution, serving a notice on you and/or suspension or revocation of your permit. See our Enforcement and Sanctions Guidance for further information.

Data protection notice

You should make sure that anyone named in this report knows that the information it contains will be processed by Natural Resources Wales to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s).

We may also use and/or disclose the report in connection with:

- offering or providing you with our literature or services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law
- assessing customer service satisfaction and improving our service
- Freedom of Information Act or Environmental Information Regulations requests.

We may also pass it on to our agents or representatives to do these things on our behalf.

Disclosure of information – this report will be available to view on-line

If you think this report contains commercially confidential information that should not be placed on our public register, you must contact your local Natural Resources Wales office within **fifteen working days** of receiving this report, using the contact details in the accompanying email or letter. You must give a full explanation of why it should not be added to our public register, including specifying which information is commercially confidential. We will assess your request and respond to you within 20 working days to let you know if we agree to your request.

What do I do if I disagree with the report or have a complaint?

If you disagree with this compliance assessment report, you should contact the lead officer without delay to discuss your concerns.

If you are unable to resolve the issue with the lead officer or their line manager you should contact our Customer Contact team on 0300 065 3000 (Monday to Friday 08:00 – 18:00), or email enquiries@naturalresourceswales.gov.uk for details of how to raise your dispute further through our Complaints and Commendations procedure.

If you are dissatisfied with our response, you can contact the Public Services Ombudsman for Wales by phone on 0300 7900203 or by email at ask@ombudsman.wales

Welsh Language Standards

We are committed to establishing Natural Resources Wales as a naturally bilingual organisation. We will provide compliance reports in your preferred language.