

## Compliance Assessment Report CAR\_NRW0037069

**Permit being assessed:** LP3030XA.

For: Cardiff Energy Recovery Facility, held by Viridor Waste Management Ltd

At: Trident Park, Glass Avenue, Cardiff, CF24 5EN.

**Type of assessment carried out:** Report/Data Review, Reason: Routine.

On 23/10/2020 between 09:00 and 15:00.

Parts of permit assessed: Monitoring, emissions, abatement, waste, energy, amenity

**NRW Lead Officer:** Antony Leakey.

**Report sent to:** Gwyn Jones, EHS Manager on 23/10/2020.

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

Part of permitted activity assessed (criteria)	Assessment result	Permit condition
E1 - Emissions - Air	C4 No impact	3.1.2
E5 - Emissions - Waste	Assessed (A)	
F1 - Amenity - Odour	Assessed (A)	
F2 - Amenity - Noise	Assessed (A)	
F4 - Amenity - Pests/birds and scavengers	Assessed (A)	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	Assessed (A)	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	C3 Minor	4.3.1
H2 - Resource Efficiency - Energy efficiency	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
E1	Ensure that sufficient fresh waste is available to allow blending in future.	Already completed
G4	Review and update notification procedures and associated operator training.	01/03/2021

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.

#### **You are non-compliant with your permit.**

**At this time, we are issuing you with a warning for the non-compliance recorded above. Warnings may influence future enforcement response for continued or further non-compliance.**

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

#### **Trident Park Reporting Review and Site Visit - 24 July 2020**

##### Sulphur dioxide ELV exceedance

Following an event in 2019 NRW required Viridor to undertake a review of acid gas abatement plant capability and potential for improvements in light of the occasional need for rapid introduction of the second lime feed system to counter increases in acid gas emissions associated with variable waste composition.

Viridor noted that due to the design and installation of the system a short-term improvement is unlikely. However, Viridor undertook to reappraise the equipment and available alternatives to reduce and or eliminate this time delay involved in manually activating the second lime feed system.

**ACTION: Viridor to provide an update on options to improve acid gas abatement plant capability and implementation progress at next review meeting.**

##### NOx abatement abnormal operation

A review of the urea handling system at Trident Park is being undertaken following a urea blockage in the storage silo outlet resulting in the 30-minute average NO<sub>x</sub> ELV being exceeded.

NRW understands that a Root Cause Analysis (RCA) of this process was undertaken on 4 March 2020 involving personnel from both from the Engineering Department and the Operations Departments and the session was chaired by one of Viridor's Regional Performance Improvement Managers.

A copy of the RCA report and progress with implementation of recommendations for improvement is required.

**ACTION: Viridor to provide a copy of the RCA report and an update on progress at next review meeting.**

IBA assessment

The 2020 WM3 assessment of IBA has been reviewed.

It is noted that the IBA continues to be classified as non-hazardous based on tier 3 assessment for HP4 and HP14.

Compliance with the sampling requirements of the ESA IBA Protocol will be examined during 2021.

R1 Assessment

The 2019 R1 value is 0.78 compared to the 2018 value of 0.76.

The main data changes contributing to the increase in R1 value year on year are an increase in net electricity export and a reduction in support fuel use.

**Please provide an explanation for the performance changes and the fuel oil flow meter calibration certificate or other verification means for fuel oil usage.**

Superheated steam enthalpy data of 3161 kJ/kg for average conditions of 392°C and 57 bar compare favourably with the steam tables value of 3177 kJ/kg for 400°C and 60 bar.

It is not clear exactly where superheated steam flows are measured for each line and no flow meter calibration certificates are on file.

**Please provide confirmation that superheated steam flows are measured after the superheater and before any de-superheating and provide flow meter calibration details.**

It is not clear exactly where boiler feedwater pump flows are measured for each line and no flow meter calibration certificates are on file.

**Please provide confirmation that boiler feedwater flows are measured after deaeration and feedwater heating and provide flow meter calibration details.**

The EU guidance requires individual lines to be validated where this is technically possible. The Trident Park lines appear to have been combined to give a single site R1 value because of the common turbine and generator set.

**Is it possible to apportion generation by each line using the ratio of steam flows to the turbine from each line so that a separate R1 Factor can be derived per line?**

This would then enable a poorly performing line to be identified if the performance were masked by a better performing line.

The 5-year boiler efficiency retest is now required for the Viridor boilers. This should be a full process guarantee-type retest using one of the appropriate test codes (e.g. ASME PTC4, BS EN 12952-15 or FDBR-Guideline RL7: 2013) carried out by a competent test house. If there have been no significant changes to the boilers since the original guarantee efficiency tests,

then a simplified methodology based upon FDBR-Guideline RL7 can be considered with appropriate justification.

**Please confirm that boiler retest for each line has been undertaken and provide a copy of the test reports or confirm planned date for submission of boiler test reports.**

**ACTION: Viridor to provide details requested above to enable verification of the 2019 R1 value.**

#### CEMs QAL2 reset

Viridor has submitted a proposal to reset the ERF CEM calibration functions as they believe the factors are no longer representative due to a combination of emissions testing contractor variability in implementing quality assurance monitoring and inherent uncertainty in the standard reference test method.

NRW endorses the proposed trial CEM reset at Trident Park as a single site one occasion only event to provide further understanding of the wider CEM quality assurance issues that are known to occur in practice across some of the industries regulated under IED Chapter IV. It is noted that emissions data could be reported retrospectively using the raw data and original calibration functions if a problem were to subsequently arise with the “reset” data generated.

The detailed site-specific monitoring protocol for the trial testing is required for approval before it commences.

A factor to consider is the proposed 1-month stabilisation period and whether this should be extended to 3 months of QAL3 checks as recommended by monitoring guidance note M20 for a new CEM ahead of QAL2, given that the proposed approach is effectively recommissioning of the CEM as though it were a new unit.

**ACTION: Viridor to review the proposed 1-month stabilisation period and provide an update on progress at next review meeting.**

#### Steam venting noise

Reports were received from members of the public of noise and smoke from the Viridor ERF in the early hours of 30 August 2020. Plant operators opened the boiler steam roof vents at around 01:00 hours to reduce boiler pressure to prevent safety valves lifting which would have resulted in even higher levels of uncontrolled noise. The vents were shut at 01:50 hours, i.e. a duration of 50 minutes.

Changes in steam flows and pressure arise at the plant due to variability of the waste being used to generate steam in the boiler. This variability is normally managed automatically by the plant control system and, if necessary, by intervention of the plant operators to reduce boiler load to prevent excessive steam flows, which was implemented at 23:23 hours on 29 August. In this instance the action taken by the plant operators was insufficient to reduce steam flows and they decided to open the roof vents as a precaution.

Viridor do not provide specific guidance to operators on how far load should be reduced and

when to check that action has been enough to reduce steam flow.

Viridor will now amend their operating procedures and training to ensure that these events are prevented or minimised in the future.

Examination of the roof vent silencer specification and calculation of potential noise levels at the nearest sensitive receptor suggests that noise levels could be above night-time background levels by a margin to likely to cause adverse impact. However, the event and associated noise level was not witnessed by an NRW officer and therefore is not a breach of permit condition 3.4.1.

As this incident had potential to significantly affect the environment, permit condition 4.3.1 requires Viridor to notify NRW immediately. This did not occur on this occasion and prevented NRW from substantiating the incident. This is a minor category 3 non-compliance with condition 4.3.1 because the event is expected to be an isolated incident and Viridor is required to review and update notification procedures and associated operator training if necessary.

**ACTION: Viridor to provide an update on review and update of steam venting and NRW notification procedures and implementation progress at next review meeting.**

#### Flies, vermin and odour control

The waste tipping hall and main plant area was inspected on 24 July 2020 with an officer from the Cardiff and Vale Shared Regulatory Services Team to check for flies following complaints in the communities nearby. No flies were apparent although some pigeons were seen. A pest control contractor undertakes pigeon shoots periodically to control these pests.

Examination of recent monthly reports from Viridor's pest control contractor provide assurance that measures are in place, although there were references to doors being left open. The roller shutter doors in the tipping hall are fast acting, but a door that may sometimes be open is the IBA roller shutter door that is used for the one-way system of IBA lorries out of the IBA Hall. This may explain periodic odours observed by NRW officers downwind of the ERF.

**ACTION: Viridor to investigate installation of a fast acting IBA roller shutter door provide an update on progress at next review meeting.**

#### Waste Incineration Bref Review

The permit review scheduling has been adjusted to avoid resourcing clashes with other sector permit reviews and NRW currently expects to serve a Regulation 61 information notice to start the Trident Park ERF permit review in April 2021. A response time of 6 months is proposed with the aim to have granted reviewed permits by November 2022.

#### Emissions review

The plant has been mostly operational during the Q1, Q2 and Q3 2020 emissions and reporting review period.

The 30-minute average NO<sub>x</sub> ELV was exceeded on 8 February 2020 due to a blockage in the urea feed to the injection nozzles. This period of operation is covered by the abnormal operation provision in the Industrial Emissions Directive and therefore is not a breach of permit condition 3.1.2.

The cause of the blockages is unclear from the information provided but appears to be related to a failure to check and clean line filters.

**ACTION: Viridor to review urea injection system and potential for improvements to proactive filter cleaning regime and provide an update on progress at next review meeting.**

The Line 2 30-minute average VOC ELV was exceeded on 14 July 2020 potentially due to the waste feed damper being left open to help detect a suspected tube leak. Waste feed was suspended to allow the leak to be repaired.

This period of operation is covered by the abnormal operation provision in the Industrial Emissions Directive and therefore is not a breach of permit condition 3.1.2.

It is unclear from inspection of the emissions data during the event what caused the increase in emissions. Examination of the VOC (and other emissions) data after the support burner came on and the incineration OFF signal stopped the CEM reporting during shutdown might provide more insight. There may be a situation arising where the increased air flow associated with the open and unsealed waste feed damper causes primary air flow to reduce automatically resulting in poor burnout conditions during the early stages of shut down.

**ACTION: Viridor to review potential problems with using the waste feed damper to diagnose tube leaks and provide an update on progress at next review meeting.**

On 30 August 2020 the daily average CO ELV was exceeded on Line 2 while reducing bunker level for the outage. Old wet waste is alleged to have caused poor combustion conditions. In future such activity will ensure that sufficient fresh waste is available to allow blending.

Due to the very low potential for air quality impact associated with carbon monoxide emissions at this low concentration this event is a no impact non-category 4 compliance with permit condition 3.1.2 and no further action is proposed.

It is noted that the 95<sup>th</sup> percentile of 10-minute average CO concentrations in any 24-hour period is not reported quarterly as required by the permit.

A delayed outage was undertaken during September/October.

An update on the new Data Acquisition and Handling Systems (DAHS) standard BS EN 17255-1:2019 implementation is still required.

**ACTION: Viridor to review DAHS Standard requirements and provide an update on progress at next review meeting.**

All emissions and reports other than the specific cases discussed in this report are compliant

with the permit limits.

It is noted, however, that routinely ELV compliance for some pollutants, in particular NO<sub>x</sub>, is based upon validated data, i.e. the confidence interval is being relied upon to report compliant data. This suggests that abatement performance is on the limit of capacity. This aspect should be reviewed by Viridor and consideration given to the need for improvements.

**ACTION: Viridor to review abatement performance and provide an update on progress at next review meeting.**

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](mailto: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](mailto: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.