

**Authorisation Number:** PPC/A/1096556**Variation Number:** VAR02

## Variation of Permit

This permit has been varied by the Scottish Environment Protection Agency (SEPA) in exercise of its powers under Regulation 46 of the Pollution Prevention and Control (Scotland) Regulations 2012 ("the Regulations"). The terms used in this notice, unless otherwise defined, have the same meaning as in the Regulations.

|                                     |                                                                                                                             |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Permit Number:</b>               | PPC/A/1096556                                                                                                               |
| <b>Site address:</b>                | RWE Markinch Limited<br>Markinch Power Station<br>Glenrothes<br>Fife<br>KY7 6PB                                             |
| <b>Operator:</b>                    | RWE Markinch Limited<br><br>06574689<br><br>Windmill Hill Business Park<br>Whitehill Way<br>Swindon<br>Wiltshire<br>SN5 6PB |
| <b>Variation Number:</b>            | VAR02                                                                                                                       |
| <b>Date of Notice:</b>              |                                                                                                                             |
| <b>Effective Date of Variation:</b> | <<Enter effective date – DD/MM/YYYY>>                                                                                       |
| <b>Details of Variation:</b>        | The authorisation is varied as specified in the Schedule attached.                                                          |

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## Schedule

The permit has been varied as follows:

**1.** In Interpretation of Terms the following has been added:

“Noise and Vibration Management Plan” means a plan that details all of the potential noise and vibration sources on the Permitted Installation and any actions required to reduce or prevent potential noise emissions, in line with SEPA guidance.

**2.** In Schedule 1, Condition 1.1.4 a new sub paragraph (n) is inserted:

(n) Standby Support System (SSS) providing emergency back-up power to the site comprising:

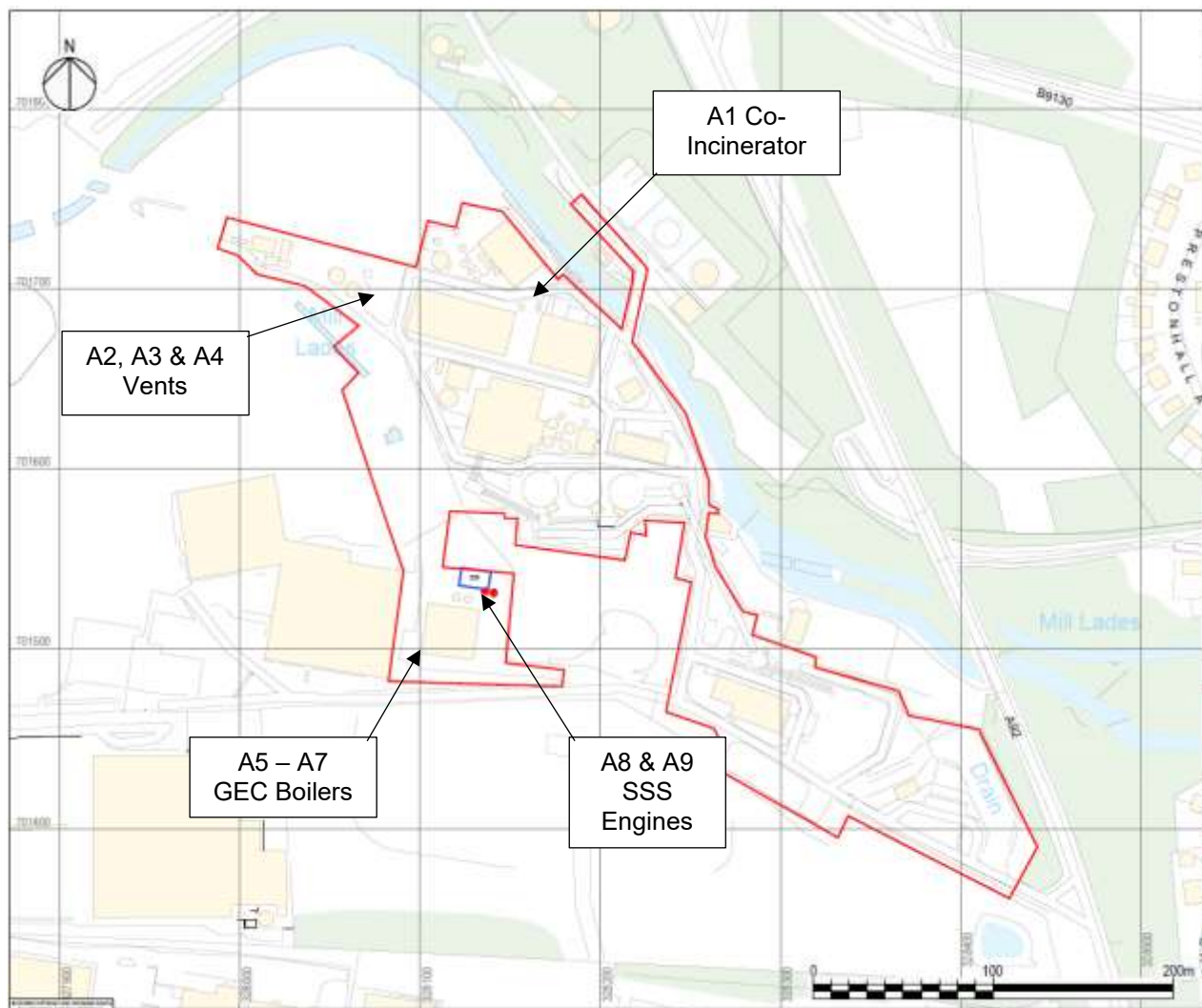
- (i) Two containerised Jenbacher natural gas-fired engines each rated at 6.83 MWth venting through independent 7.59 metre stacks located on the top of the 4.55 metre enclosure (stack height from ground to tip is 12.27m)
- (ii) A dedicated / modular control system, which controls all engines and associated equipment and allows remote engine control from the central control room. Normal operation will be via the central control room.

**3.** Annex 1 to Schedule 1 - Site Plan is deleted and is replaced by the following new Annex 1 to Schedule 1 - Site Plan:

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**Annex 1 to Schedule 1 - Site Plan**



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4. In Schedule 2, a new row is added to Table 2.1 as follows:

| Summary of information to be recorded/ reported | Condition | Review Frequency                                                                                 | Date first record due to be completed | Date reports due                                                                                         |
|-------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------|
| MCP Periodic Monitoring (Emissions to Air)      | 9.4.2     | At least every 3 years<br><br>Within one month of the completion of periodic monitoring exercise | As right                              | Within four months of the commissioning of the SSS being completed then within 1 month every three years |

5. In Schedule 3, Condition 3.1.7 has been deleted and replaced with as follows:

3.1.7. The Operator shall ensure that the Acoustic Enclosure required by Condition 3.11.7 and the Acoustic Enclosure for the SSS is maintained in good working order.

6. In Schedule 3, Conditions 3.1.8 and 3.1.9 have been added as follows:

3.1.8. Noise and vibration emissions associated with the Permitted Activities shall not contain any audible tonal noise (assessed using narrow band analysis defined in Annex D of BS4142) beyond the Permitted Installation boundary.

3.1.9. Noise and vibration from the Permitted Activities, which has a significant impact on the environment, people or property, must not be emitted beyond the boundary of the Permitted installation.

7. In Schedule 3, Table 3.1 a new row 7 is added as follows:

|      |                      |                                    |
|------|----------------------|------------------------------------|
| NS20 | SSS Engines Exhausts | Silencer fitted as part of design. |
|------|----------------------|------------------------------------|

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8. In Schedule 9, the title is deleted and replaced with the new title:

**9. CONDITIONS APPLYING TO THE OPERATION OF GLENROTHES ENERGY CENTRE (GEC) AND STANDBY SUPPORT SYSTEM (SSS)**

9. In schedule 9, Condition 9.1.4 has been deleted and replaced with as follows:

9.1.4 For any parameter specified in Table 9.2, other than smoke, all results of monitoring from:

- a) Emission points A5, A6 and A7 carried out under Condition 9.1.2 shall be corrected to the reference conditions 273K, 101.3kPa and 3% oxygen v/v, dry gas.
- b) Emission points A8 & A9 carried out under Condition 9.1.2 shall be corrected to the reference conditions 273K, 101.3kPa and 15% oxygen v/v, dry gas.

The results of all tests and data used to correct the monitoring results to the reference conditions specified in this Condition shall be recorded and reported.

10. In Schedule 9, Condition 9.1.10 has been added, as follows:

9.1.10 The Operator shall keep the following records relating to the operation of any Medium Combustion Plant, as described in Paragraph 1.1.4 (n):

- a) The type and quantity of fuel used;
- b) The operating hours for limited operating hours plant;

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c) Any information relating to any incident involving a Medium Combustion Plant;

d) All monitoring results as required in Tables 9.2.

**11.** In Schedule 9, Condition 9.2.2 has been deleted and is replaced with the following new Condition:

9.2.2 Emissions of contaminated surface water or process effluent to the Water Environment from Glenrothes Energy Centre and the Standby Support System are not permitted.

**12.** In Schedule 9, Conditions 9.3.1 to 9.3.4 have been deleted and replaced with as follows:

9.3.1 All precautions shall be taken to minimise emissions during start-up and shut-down of the combustion plant specified by paragraph 1.1.4 (l) (ii) and 1.1.4 (n) of Schedule 1. The periods of start-up and shut-down shall be kept as short as possible.

9.3.2 No fuels other than natural gas may be combusted in the plant specified by paragraph 1.1.4 (l) (ii) and 1.1.4 (n) of Schedule 1.

9.3.3 The operator shall maintain a written record of the type and quantity of fuel used together with the total annual hours of operation for each combustion plant specified by paragraph 1.1.4 (l) (ii) and 1.1.4 (n) of Schedule 1.

9.3.4 All written records required by Condition's 2.5.4 to 2.5.6 in relation to Condition 9.1.1, Condition's 9.1.4, 9.1.5, 9.1.6, 9.1.8, 9.1.9, 9.1.10, 9.2.5, 9.2.6 and 9.3.3 shall be retained for at least 6 years from the date when the record was made.

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**13.** In Schedule 9, a new Condition 9.4 has been added as follows:

#### **9.4 Conditions for commissioning of the SSS**

9.4.1. The next written reports required by Conditions 3.1.1 and 3.1.2, following the issue of this variation, shall include the results of the measurement of noise emissions from the operation of SSS including specific measurements for tonal noise and low frequency noise. Said reports shall also include:

- a) A comparison of the results of this noise monitoring to the noise assessment and associated predictions made in all noise reports submitted in support of the Application for Variation. These include, but are not limited to, supplementary noise information received by SEPA in support of the application for variation for SSS 29 January 2025 (Noise Impact Assessment “Markinch CHP Power Station, Standby Support System, Noise Impact Assessment to Support Screening Opinion Request, Report ref. PJ4227/23288, Spectrum Acoustic Consultants, dated 22 February 2024; and,
- b) An interpretation of the results, to include a comparison between actual and predicted noise emissions including tonal and low frequency noise; together with proposals for improvement with associated timescales for implementation where a discrepancy exists between the actual and predicted noise emission data.

9.4.2. No later than four months after the start of operation of the SSS the Operator shall carry out monitoring of emissions to air from Emission Points A8 and A9 for the parameters and requirements specified in Table 9.2 together with the provisions in Conditions 9.1.2, 9.1.3 and 9.1.5;



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- a) The results of monitoring for oxides of nitrogen (expressed as nitrogen dioxide) (NO<sub>x</sub> as (NO<sub>2</sub>) shall be compared to the limits for Emission Points A8 and A9 specified in Table 9.2. The written report of said monitoring results shall include:
- (i) The details of what stable conditions and representative load of said engines means for the monitoring of emissions to air from Emission Points A8 and A9 together with the associated justification; and,
  - (ii) The proposed duration of start-up and shutdown periods of said engines and how these will be kept as short as possible together with the associated justification.
- b) Said monitoring report shall be in line with the requirements of Condition 9.1.4 and 9.1.6 and be submitted to SEPA no later than 6 weeks after the completion date of said monitoring.
- 14.** In Schedule 9 a new condition 9.5 has been added as follows:
- 9.5** The SSS Engines shall only be operated when necessary to provide standby support to restart the CHP in the event of a grid power failure, or for testing.



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**15.** In Schedule 9, Table 9.1 has been deleted and replaced by a new Table 9.1 as follows:

**Table 9.1: GEC Boilers and SSS Emission Point Details**

Required by Condition 9.1.1

| Emission point ref. & location on site plan | A5              | A6              | A7              | A8               | A9               |
|---------------------------------------------|-----------------|-----------------|-----------------|------------------|------------------|
| Emission Source                             | GEC Boiler No.1 | GEC Boiler No.2 | GEC Boiler No.3 | SSS Engine No. 1 | SSS Engine No. 2 |
| Stack Height (m)                            | 12              | 12              | 12              | 12.3             | 12.3             |
| Diameter (m)                                | 0.5             | 0.5             | 0.5             | 0.6              | 0.6              |
| NGR                                         | NO 28134 01506  | NO 28135 01506  | NO 28135 01510  | NO 28140 01531   | NO 28136 01531   |

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**16.** In Schedule 9, Table 9.2 has been deleted and replaced by a new Table 9.2 as follows:

**Table 9.2: Emissions to Air ELVs and Monitoring Requirements**

| Emission Point | Parameter                                                                 | Unit               | Limit | Reference Period                                                            | Monitoring Frequency                    | Monitoring standard or method | Operational Mode                                                       |
|----------------|---------------------------------------------------------------------------|--------------------|-------|-----------------------------------------------------------------------------|-----------------------------------------|-------------------------------|------------------------------------------------------------------------|
| A5, A6 & A7    | Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> ) | mg/Nm <sup>3</sup> | 80    | Average value of three consecutive measurements of at least 30 minutes each | Periodic Measurement once every 3 years | BS EN 14792                   | Boiler operating under stable conditions at a representative even load |
| A8 & A9        | Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> ) | mg/Nm <sup>3</sup> | 95    | Average value of three consecutive measurements of at least 30 minutes each | Periodic Measurement once every 3 years | BS EN 14792                   | Engine operating under stable conditions at a representative even load |

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Table 9.2: Emissions to Air ELVs and Monitoring Requirements (Cont/d)

| Emission Point      | Parameter       | Unit               | Limit                    | Reference Period                                                                                                                                  | Monitoring Frequency                                                                        | Monitoring standard or method | Operational Mode                                                                 |
|---------------------|-----------------|--------------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------|
| A5, A6, A7, A8 & A9 | Carbon Monoxide | mg/Nm <sup>3</sup> | None set                 | Average value of three consecutive measurements of at least 30 minutes each                                                                       | Periodic Measurement once every 3 years                                                     | BS EN 15058                   | Boiler or Engine operating under stable conditions at a representative even load |
| A5, A6, A7, A8 & A9 | Smoke           | Ringelmann Shade   | No. 1 (normal operation) | Every minute over a half-hour period or until the smoke is no longer visible, i.e. scale 0 on the smoke chart for 5 readings, whichever is sooner | As required following complaint of visible or smoky plume or as agreed in writing with SEPA | BS 2742                       | Boiler or Engine operating under stable conditions at a representative even load |
|                     |                 |                    | No. 2 (start-up)         |                                                                                                                                                   |                                                                                             |                               | Start-up                                                                         |

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17. In Schedule 9, Table 9.3 is deleted and replaced by a new Table 9.3 as follows:

**Table 9.3: Process Monitoring Requirements**

Required by Condition 9.1.2

| Parameter (Units)                                                      | Emission Point      | Monitoring frequency                    | Monitoring standard or method | Other specifications                                                            |
|------------------------------------------------------------------------|---------------------|-----------------------------------------|-------------------------------|---------------------------------------------------------------------------------|
| Exhaust gas temperature °C                                             | A5, A6, A7, A8 & A9 | Periodic Measurement once every 3 years | BS EN 16911-1                 | Boiler / Engine operating under stable conditions at a representative even load |
| Exhaust gas pressure Pa                                                | A5, A6, A7, A8 & A9 | Periodic Measurement once every 3 years | BS EN 16911-1                 | Boiler / Engine operating under stable conditions at a representative even load |
| Exhaust gas oxygen content %                                           | A5, A6, A7, A8 & A9 | Periodic Measurement once every 3 years | BS EN 14789                   | Boiler / Engine operating under stable conditions at a representative even load |
| Exhaust gas moisture content %                                         | A5, A6, A7, A8 & A9 | Periodic Measurement once every 3 years | BS EN 14790                   | Boiler / Engine operating under stable conditions at a representative even load |
| Exhaust gas velocity (m/s) and volumetric flow (Nm <sup>3</sup> /Hour) | A5, A6, A7, A8 & A9 | Periodic Measurement once every 3 years | BS EN 16911-1                 | Boiler / Engine operating under stable conditions at a representative even load |

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18. In Schedule 9, Table 9.4, column 2 is deleted and replaced by new column 2 as follows:

| Combined<br>Emissions<br>(number) |
|-----------------------------------|
| A5, A6, A7, A8 & A9               |