Stage 1 Habitats Regulations Assessment

Environment Agency record of screening for likely significant effects

This is a record of the screening for likely significant effects required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended), undertaken by the Environment Agency in respect of the permission, plan or project (PPP) detailed in Section 1, for the following relevant site(s):

West Midlands Mosses SAC (UK0013595)^

Midland Meres and Mosses Phase 1 Ramsar (UK11043)^

Midland Meres and Mosses Phase 2 Ramsar (UK11080)^

Version: Final - 09/01/2024

This record was not sent to Natural England for consultation.

An additional component charge for habitats assessment was levied for this application.

1. Permission, plan or project (PPP) details

Type of PPP: Environmental Permit (PPC Installations)

Environment Agency reference: EA/EPR/WP3934AK/V004

National grid reference: SJ 68310 73942

Site/project name or reference: Lostock Sustainable Energy Plant, Lostock Works, Lostock Gralam, Northwich.

2. Description of proposal

Lostock Sustainable Energy Plant Ltd have submitted an application for a substantial variation to an incinerator on the Lostock Sustainable Energy Plant (LSEP), which is currently in pre-operation. The part of the variation relevant to this assessment is to increase the throughput of the incinerator from the currently anticipated volume of 600,000 tonnes per annum (tpa) by 85,000tpa to 685,000tpa and increase the daily HGV delivery hours; currently deliveries are received 07:00 – 19:00 weekdays, 07:00 – 13:00 Saturdays with no deliveries Sundays and bank holidays. The proposal is to increase these to 07:00 – 23:00 on weekdays (no changes to other hours).

The site is within screening distance for air emissions of the West Midlands Mosses SAC and the Midlands Mere and Mosses Ramsar Phase 1 and Phase 2. It is also within screening distance of the Witton Lime Beds and Plumley Lime Beds SSSIs, for which an Appendix 4 assessment was completed.

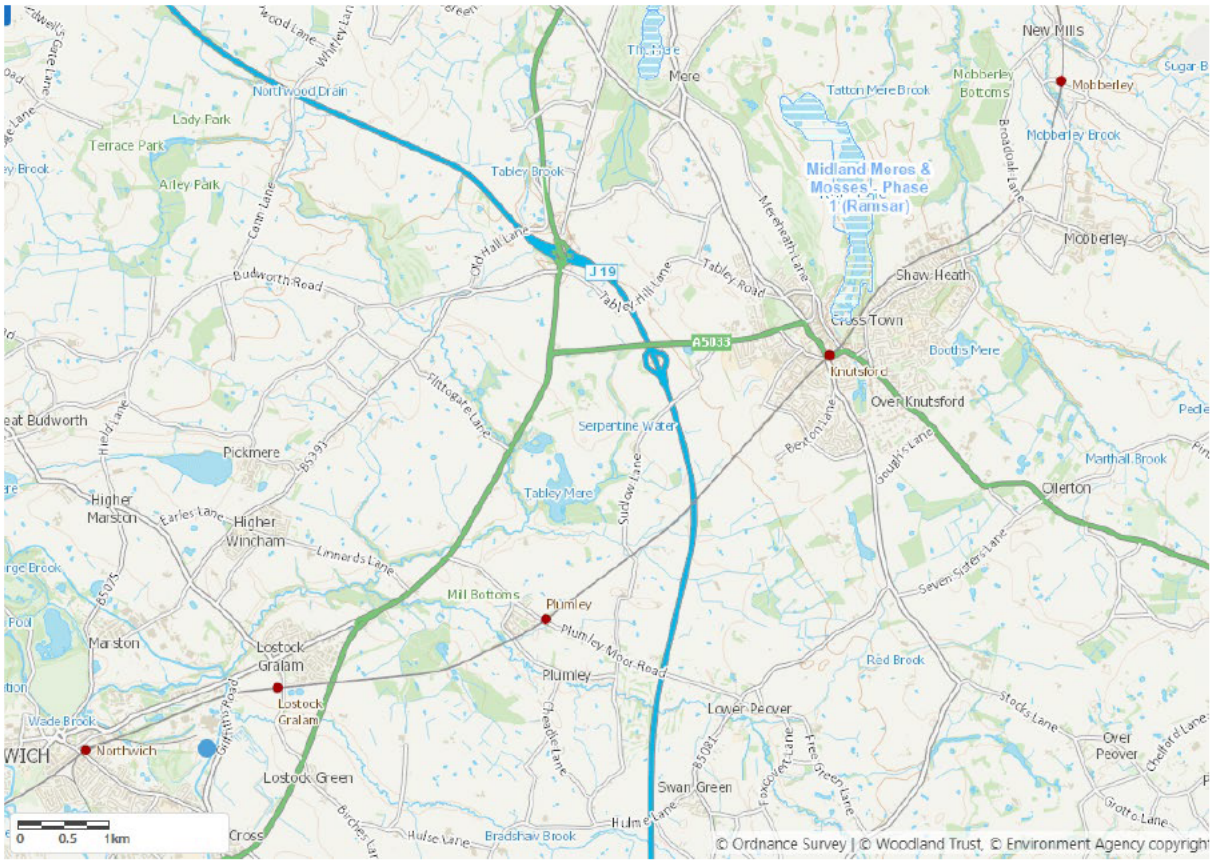
Prior to this assessment, the throughput was intended to be increased to 728,000 tonnes, however an HRA conducted found that would lead to a likely adverse impact

upon protected sites nearby. The assessment was sent to Natural England for consultation, and they agreed with the conclusions. The applicant has since remodelled their emissions based on the above new throughput, as well as reducing the NOx emission limit value (ELV) to 150mg/Nm^3. It is the potential impact of those emissions which form the basis of this HRA.

3. Map(s) showing PPP location and European site(s)

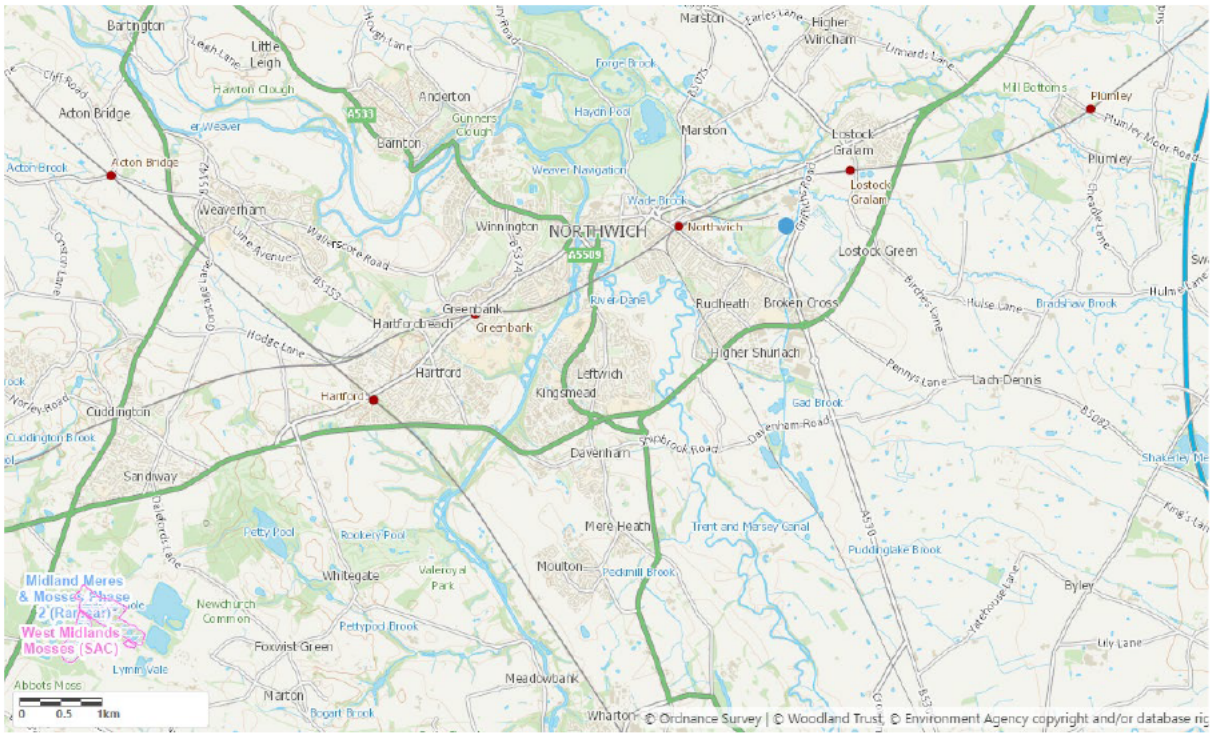
Scale bar: 0_____100 km

- PPP location



Ramsar

PPP location



≡ Ramsar

/// Special Area of Conservation (SAC)

● PPP location

4. European sites requiring assessment[1]

West Midlands Mosses SAC (UK0013595)^

Natural dystrophic lakes and ponds; Transition mires and quaking bogs

Midland Meres and Mosses Phase 1 Ramsar (UK11043)^

Active raised bogs*; Transition mires and quaking bogs; Wetland invertebrate assemblage; Wetland plant assemblage

Midland Meres and Mosses Phase 2 Ramsar (UK11080)^

Active raised bogs*; Transition mires and quaking bogs; Wetland invertebrate assemblage; Wetland plant assemblage

5. Conservation objectives

The screening for likely significant effects (and appropriate assessment, if required) will consider the implications of the proposal in view of the site's conservation objectives.

West Midlands Mosses SAC (UK0013595)^:
http://publications.naturalengland.org.uk/publication/6449667604742144?category=4582026845880320

Midland Meres and Mosses Phase 1 Ramsar (UK11043)^: There are currently no conservation objectives for Ramsar sites. The SAC/SPA conservation objectives will be used when the qualifying features are the same, and advice sought from Natural England in other cases if necessary.

Midland Meres and Mosses Phase 2 Ramsar (UK11080)^: There are currently no conservation objectives for Ramsar sites. The SAC/SPA conservation objectives will be used when the qualifying features are the same, and advice sought from Natural England in other cases if necessary.

[1] This is based on screening criteria the Environment Agency consider appropriate to identify possible significant risk.
^ Protected area under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
* Priority natural habitat/priority species
~ Marine Protected Area
Feature information sourced from Natural England

6. Risks (pressures) relevant to the type of PPP being assessed

These are the reasonably foreseeable risks for this type of PPP. Some of these risks may not be relevant to the particular activity being assessed and this is explained here. The risks which are not relevant do not require further assessment.

Acidification – this is relevant and discussed below.

Change in nutrients – this is relevant and discussed below.

Change in salinity regime – this is not relevant as the emissions are gaseous in nature and so there is no mechanism for impact.

Change in thermal regime – this is not relevant. Whilst incinerator emissions will be of a high temperature, the height of the stack ensures that they will have cooled to ambient before reaching the designated sites.

Habitat loss – this is relevant and discussed below.

Physical damage – this is not considered to be relevant as the operation will not require physical access or works within the designated sites.

Siltation - this is not considered to be relevant. There is no aqueous discharge associated with this permission.

Smothering - this is not considered to be relevant. The incinerator is fired on natural gas and so contains little or no particulate matter or other materials which may smother features of the site.

Toxic contamination – this is relevant and discussed below.

Turbidity - this is not considered to be relevant. There is no aqueous discharge associated with this permission.

7. HRA Stage 1 screening[2]

This section is a record of the screening for each risk (pressure) and the qualifying features that could be sensitive to that risk. The features may be grouped if they will be affected in the same way and the screening is the same for each feature. If

[2] Only features the Environment Agency consider likely to be sensitive to the type of PPP being assessed are included, see *Habitats Regulations Assessment: Risk definitions and matrices*

^ Protected area under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

* Priority natural habitat/priority species

~ Marine Protected Area

appropriate, the assessment may be considered at a site level, rather than feature by feature.

Midland Meres and Mosses Phase 1 Ramsar (UK11043)^

Acidification

Summary of likely significant effect alone:

Acidification may result from the deposition of acid gases from the atmosphere, or when other compounds have acidifying effects through transformations in the soil or on leaf surfaces. Acid deposition and leaching can cause toxicity to the plants found in the habitats.

An emissions modelling report was submitted with the application. No critical loads are available for Ramsar sites and so modelling had been performed for emissions using critical loads taken from the Air Pollution Information System (APIS) under the Tatton Meres and The Mere, Mere SSSIs, which overlay the Ramsar. The results showed that process contributions came in under the screening thresholds for acid deposition and so are considered insignificant (see section 8 for further information). It is also noted that the habitats found in the Ramsar are not sensitive to acidity and so it is concluded there would be no effect.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

Active raised bogs* - no effect. Transition mires and quaking bogs - no effect. Wetland invertebrate assemblage - no effect. Wetland plant assemblage - no effect.

Change in nutrients

Summary of likely significant effect alone:

An increase in nutrients can lead to changes in the plant assemblage - increasing tall grasses, decreasing prostrate plants, increasing the dominance of graminoids - as well as affecting soil pH and increasing overall biomass. Changes in nutrient sensitive vegetation may either directly affect protected habitats and species of flora, or indirectly affect

protected species dependent upon existing habitats. Inputs of atmospheric N can contribute to nutrient enrichment.

Nitrogen deposition as a result of NOx and NH_3 emissions were modelled by the applicant and compared to the critical load for the habitat most similar (valley mires, poor fens and transition mires) to that present at closest points of the Ramsar (receptor points E1 & E2 detailed in section 8 below). This was due to none of the habitats listed for the Ramsar being present within the relevant screening distance. Process contributions were calculated to be 0.4% and 0.7% of the lower critical load and so screen out as insignificant. See section 8 for further information.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

Active raised bogs* - no effect. Transition mires and quaking bogs - no effect. Wetland invertebrate assemblage - no effect. Wetland plant assemblage - no effect.

Habitat loss

Summary of likely significant effect alone:

Habitat loss can be caused by destruction or removal of a habitat, the deterioration of one habitat such that it changes to another less valued habitat, or the destruction of supporting functional habitat so that it can no longer provide the support to the species that depend upon it and are naturally associated with it.

Neither bog habitat listed as a feature for the Ramsar are present within screening distance. For the other features, habitat loss could occur as a result of emissions to air; all pollutants have screened out as insignificant and therefore there is no likely significant effect.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

Active raised bogs* - no effect. Transition mires and quaking bogs - no effect. Wetland invertebrate assemblage - no effect. Wetland plant assemblage - no effect.

Toxic contamination

Summary of likely significant effect alone:

Toxic contamination from this PPP is most likely to occur in the form of emissions of nitrogen oxides (NOx), ammonia (NH_3), sulphur dioxide (SO_2) and hydrogen fluoride (HF).

Process contributions from these pollutants were calculated and then compared to the relevant critical levels. All pollutants screened out as insignificant. See section 8 for further information.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

Active raised bogs* - no effect. Transition mires and quaking bogs - no effect. Wetland invertebrate assemblage - no effect. Wetland plant assemblage - no effect.

Midland Meres and Mosses Phase 2 Ramsar (UK11080)^

Acidification

Summary of likely significant effect alone:

Acidification may result from the deposition of acid gases from the atmosphere, or when other compounds have acidifying effects through transformations in the soil or on leaf surfaces. Acid deposition and leaching can cause toxicity to the plants found in the habitats.

An emissions modelling report was submitted with the application. No critical loads are available for Ramsar sites and so modelling had been performed for emissions using critical loads taken from the Air Pollution Information System (APIS) under the West Midlands Mosses SAC,

which overlays the Ramsar. The results showed that process contributions came in under the screening thresholds for acid deposition and so are considered insignificant (see section 8 for further information). It is also noted that the habitats found in the Ramsar are not sensitive to acidity and so it is concluded there would be no effect.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

Active raised bogs* - no effect. Transition mires and quaking bogs - no effect. Wetland invertebrate assemblage - no effect. Wetland plant assemblage - no effect.

Change in nutrients

Summary of likely significant effect alone:

An increase in nutrients can lead to changes in the plant assemblage - increasing tall grasses, decreasing prostrate plants, increasing the dominance of graminoids - as well as affecting soil pH and increasing overall biomass. Changes in nutrient sensitive vegetation may either directly affect protected habitats and species of flora, or indirectly affect protected species dependent upon existing habitats. Inputs of atmospheric N can contribute to nutrient enrichment.

Nitrogen deposition as a result of NOx and NH_3 emissions were modelled by the applicant and compared against the critical load for the most representative habitat at the closest point of the Ramsar (permanent oligotrophic waters: softwater lakes), we consider this to be conservative as none of the habitats listed for the Ramsar are within the relevant screening distance. Process contributions were calculated to be 0.3% of the lower critical load and so screen out as insignificant.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

> Active raised bogs* - no effect. Transition mires and quaking bogs - no effect. Wetland invertebrate assemblage - no effect. Wetland plant assemblage - no effect.

Habitat loss

Summary of likely significant effect alone:

> Habitat loss can be caused by destruction or removal of a habitat, the deterioration of one habitat such that it changes to another less valued habitat, or the destruction of supporting functional habitat so that it can no longer provide the support to the species that depend upon it and are naturally associated with it.
>
> Habitat loss is intrinsically linked to other pressures; effects from pollutants may impact habitats directly or indirectly. Significant effects from other risks can be ruled out and therefore so can the potential for habitat loss and no likely significant effect is concluded.

Summary of likely significant effect in combination:

> N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

> Active raised bogs* - no effect. Transition mires and quaking bogs - no effect. Wetland invertebrate assemblage - no effect. Wetland plant assemblage - no effect.

Toxic contamination

Summary of likely significant effect alone:

> Toxic contamination from this PPP is most likely to occur in the form of emissions of nitrogen oxides (NOx), ammonia (NH_3), sulphur dioxide (SO_2) and hydrogen fluoride (HF).
>
> Process contributions from these pollutants were calculated and then compared to the relevant critical levels. All pollutants screened out as insignificant. See section 8 for further information.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

Active raised bogs* - no effect. Transition mires and quaking bogs - no effect. Wetland invertebrate assemblage - no effect. Wetland plant assemblage - no effect.

West Midlands Mosses SAC (UK0013595)^

Acidification

Summary of likely significant effect alone:

Acidification may result from the deposition of acid gases from the atmosphere, or when other compounds have acidifying effects through transformations in the soil or on leaf surfaces. Acid deposition and leaching can cause toxicity to the plants found in the habitats.

An emissions modelling report was submitted with the application. Modelling was performed for emissions using critical loads taken from the Air Pollution Information System (APIS). The results showed that process contributions were under the screening thresholds for acid deposition and so no further assessment is required. See section 8 for further information.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

Transition mires and quaking bogs - no effect.

Change in nutrients

Summary of likely significant effect alone:

> An increase in nutrients can lead to changes in the plant assemblage - increasing tall grasses, decreasing prostrate plants, increasing the dominance of graminoids - as well as affecting soil pH and increasing overall biomass. Changes in nutrient sensitive vegetation may either directly affect protected habitats and species of flora, or indirectly affect protected species dependent upon existing habitats. Inputs of atmospheric N can contribute to nutrient enrichment.
>
> Nitrogen deposition as a result of NOx and NH_3 emissions were modelled by the applicant and compared against the critical load for the most representative habitat at the closest point of the SAC (permanent oligotrophic waters: softwater lakes), we consider this to be conservative as none of the habitats listed for the SAC are within the relevant screening distance. Process contributions were calculated to be 0.3% of the lower critical load and so screen out as insignificant.

Summary of likely significant effect in combination:

> N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

> Natural dystrophic lakes and ponds - no effect. Transition mires and quaking bogs - no effect.

Habitat loss

Summary of likely significant effect alone:

> Habitat loss can be caused by destruction or removal of a habitat, the deterioration of one habitat such that it changes to another less valued habitat, or the destruction of supporting functional habitat so that it can no longer provide the support to the species that depend upon it and are naturally associated with it.
>
> Habitat loss is intrinsically linked to other pressures; effects from pollutants may impact habitats directly or indirectly. Significant effects from other risks can be ruled out and therefore so can the potential for habitat loss and no likely significant effect is concluded.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

Natural dystrophic lakes and ponds - no effect. Transition mires and quaking bogs - no effect.

Toxic contamination

Summary of likely significant effect alone:

Toxic contamination from this PPP is most likely to occur in the form of emissions of nitrogen oxides (NOx), ammonia (NH_3), sulphur dioxide (SO_2) and hydrogen fluoride (HF).

Process contributions from these pollutants were calculated and then compared to the relevant critical levels. All pollutants screened out as insignificant. See section 8 for further information.

Summary of likely significant effect in combination:

N/A: in line with our guidance on the conservative screening criteria for air emissions, we do not carry out in combination assessments where the emissions have screened out as insignificant.

The assessment of likely significant effect from this risk for the following features is:

Natural dystrophic lakes and ponds - no effect. Transition mires and quaking bogs - no effect.

8. Alone assessment (further details)

For Midland Meres and Mosses Phase 1 Ramsar, the primary habitat is open water, for which there is no critical load. However, as reedswamp and fen habitat are present in the footprint of the Ramsar (Priority Habitats Inventory (England) | Natural England Open Data Geoportal (arcgis.com)), a critical load for nitrogen deposition of valley mire, poor fen and transition mires (listed by APIS to be 10kg N/ha/yr) was used for assessment purposes.

The section of the Midland Meres and Mosses Phase 2 Ramsar assessed here is overlain by a part of the West Midlands Mosses SAC and as such, critical loads and levels for the habitats listed in the SAC were used for the Ramsar.

The tables below show the modelling results for the emissions at the protected sites.

NB: both Ramsar sites and the SAC are comprised of multiple sites across a large region. Only sections of the sites that were within 10km screening distance were considered in the assessment.

Table 1: Screening results for all pollutants (NB: Oak Mere SAC is outside the screening distance for air emissions and is not included in this assessment)

Site ID	Site name	Site designation	Lichen Sensitive	Pollutant impacts as a % of CL					
				Annual mean NOx	Daily mean NOx	Annual mean SO_2	Weekly mean HF	Daily mean HF	Annual mean NH_3
Critical level (µg/m³)				30	75*	10 / 20	0.5	5	1 / 3
E1	Midland Meres and Mosses – Phase 1 (also the Mere SSSI and Tatton Meres SSSI)	Ramsar	Yes	0.29%	1.08%	0.23%	0.35%	0.11%	0.57%
E2	Midland Meres and Mosses – Phase 1 (also the Mere SSSI and Tatton Meres SSSI) 2	Ramsar	Yes	0.44%	1.45%	0.36%	0.54%	0.14%	0.89%
E3	Midland Meres and Mosses – Phase 2 (also Oak Mere SAC and West Midlands Mosses SAC)	Ramsar	Yes	0.20%	1.12%	0.16%	0.60%	0.11%	0.39%

Table 2: Acid deposition screening results

Site ID	Site name	Acidity Class	Site designation	Background		PC impacts as a % of Min CL Function
				N	S	
E1	Midland Meres and Mosses – Phase 1 (also the Mere SSSI and Tatton Meres SSSI)	Not sensitive to acidity	Ramsar	1.69	0.21	-
E2	Midland Meres and Mosses – Phase 1 (also the Mere SSSI and Tatton Meres SSSI) 2	Not sensitive to acidity	Ramsar	1.70	0.22	-
E3	Midland Meres and Mosses – Phase 2 (also Oak Mere SAC and West Midlands Mosses SAC)	Bogs	Ramsar	1.80	0.20	0.94%

Table 3: Nutrient nitrogen deposition screening results

ID	Site name	NCL Class	Site designation	Lower CL	Upper CL	Background	PC impacts as a % of CL	
							% of Lower CL	% of Upper CL
European designated sites								
E1	Midland Meres and Mosses – Phase 1 (also the Mere SSSI and Tatton Meres SSSI)	Valley mires, poor fens and transition mires	Ramsar	10	15	23.66	0.4%	0.3%
E2	Midland Meres and Mosses – Phase 1 (also the Mere SSSI and Tatton Meres SSSI) 2	Valley mires, poor fens and transition mires	Ramsar	10	15	23.80	0.6%	0.4%
E3	Midland Meres and Mosses – Phase 2 (also Oak Mere SAC and West Midlands Mosses SAC)	Permanent oligotrophic waters: Softwater lakes	Ramsar	5	10	15.60	0.5%	0.3%

As shown above, all emissions screen out as insignificant based on the thresholds detailed in EA guidance.

Modelling results show that the reduction in throughput from the original intended 728,000 tonnes down to 685,000 tonnes, as well as the reduction of the NOx emission limit value (ELV) to 150mg/Nm^3, will reduce associated emissions to a level where they can be screened out as insignificant.

9. In combination assessment (further details)

N/A – In line with our guidance on the conservative screening criteria for air emissions, we do not carry out in-combination assessments where the emissions have screened out as insignificant.

10. Information / Advice

This section summarises the information and or advice requested / received during the screening.

Environment Agency internal advice and consultation (if applicable)

The Air Quality Monitoring Assessment Unit (AQMAU) were consulted on the emissions modelling report and agreed with the applicant's numerical predictions and conclusions.

Natural England information / advice (if applicable)

N/A.

Third party advice (if applicable)

N/A.

11. References

AQTAG 17: Guidance on in combination assessments for aerial emissions from EPR permits

AQTAG 21 'Likely significant effect' – use of 1% and 4% long-term thresholds and 10% short-term threshold

Air emissions risk assessment for your environmental permit - GOV.UK (www.gov.uk)

Priority Habitats Inventory (England) | Natural England Open Data Geoportal (arcgis.com)

12. Decision

The Environment Agency has decided to carry out an appropriate assessment because significant effects alone could not be screened out.

Name of Environment Agency officer: [redacted]

Job title: Senior Permitting Officer

Date: 09 January 2024

13. Consultation (if applicable)

Date sent to Natural England for consultation: N/A

Date response received from Natural England: N/A

Natural England advice on the screening for likely significant effects (if applicable)

Do Natural England have concerns about the assessment? || Yes / No ||

Do Natural England have concerns about the decision? || Yes / No ||

Name of Natural England officer: N/A

Job title: N/A

Date: N/A