

**Determination of an Application for a PPC Permit under the
Pollution Prevention and Control (England and Wales) Regulations
2000 (SI 2000 No.1973)**

**Decision Document recording the decision-making
process**

Note: all references to the "PPC Regulations" are to the Pollution Prevention and Control (England and Wales) Regulations 2000 (SI 2000 No.1973), as amended.

Administrative details

Application date and Agency reference ("the Permit Application")

05/07/05

Whitchurch Salt Slags

Permit number (the "Permit")

VP3030BX

Applicant (the "Applicant")

Befesa Salt Slags Ltd

Address/location of installation (the "Installation")

Fenns Bank

Wrexham

SY13 3PA

Name of Authorising Officer

MJ Peacock

**(Team Leader, Strategic Permitting Group,
Warrington)**

Signature of Authorising Officer:

 28/07/06

All relevant documents have been sent to the IPPC Public Registers

Purpose of this document

The Decision Document ("DD") explains how the Applicant's Permit Application has been determined and why the specific conditions in the Permit have been imposed. It is a record of the decision-making process to show how all relevant factors and legislative requirements have been taken into account.

Summary of the decision

A Permit for the Operator to operate the Installation has been granted by the Agency, subject to the conditions set out in the Permit. The Agency considers that in its decision to issue the Permit and in the conditions imposed, it has taken into account all relevant considerations and legal requirements and that the permit will ensure that all appropriate measures will be taken against pollution and that no significant pollution will be caused.

Description of the Permitted Installation

A non-technical description of the Permitted Installation is included in the Introductory Note to the Permit. Befesa Salt Slags Ltd are applying to operate an installation at Fenns Bank, for the production of aluminium oxide, as described under Section 4.2 Part A1 (a)(v) of schedule 1 of the PPC regulations. The site has been operational since 1998 producing aluminium solids, ammonium sulphate, sodium and potassium chlorides and aluminium oxides recovered from aluminium salt slag from the aluminium smelting industry. The plant is capable of processing 270 tonnes of salt slag per day on a 24 hour 48 week basis. There are 6 point source emissions to air, and no emissions to surface water, groundwater, sewer or land. All parts of the milling process with the potential to generate dust are enclosed and connected to the LEV system and dust filtration units. The chemical plant is served by a dedicated LEV and acid scrubber system to minimise the emissions of ammonia. The Installation operates one steam-raising boiler, with a thermal input of 6.5MW. The installation is not connected to natural gas and uses kerosene as its selected fuel. The site has the potential to emit odour, and techniques are used to minimise this such as covered skips and sheeted wagons, and loading inside buildings. The site operates a comprehensive Environmental Management System certified to ISO14001. The site has potential to generate noise, supporting information from a noise survey demonstrates compliance with planning conditions. Further controls are employed to minimise nuisance noise from vehicles and offloading activities. JCB Brook runs adjacent to the site, and Befesa test this for salt levels on a weekly basis. Permit conditions will ensure that emissions from the installation have no significant effect on any European or SSSI site.

PART A – THE OPERATOR AND THE DECISION MAKING PROCESS

The Agency's determination procedure

A1 "Duly made" check on Application received

The Application was determined to be duly made as submitted on 05/07/05

A2 Consultation on the Application

The Application was advertised by the Applicant according to the requirements of Part 1 of Schedule 4 to the PPC Regulations on 23/08/05 and 26/08/05 in the Wrexham Evening Leader and the London Gazette.

The Agency sent copies of the Application to the following statutory consultees in accordance with Part 2 of Schedule 4 to the PPC Regulations:

- Wrexham local health board
- Wrexham County Borough Council
- Food Standards Agency
- Countryside Council for Wales
- National Assembly for Wales

The Agency informed the following non-statutory consultee that the Application had been received:

- English Nature

Note:

The Operator was consulted on the content of the draft Permit and Reporting forms on the 19th July 2006. A response was received from John Leah (QSE Manager) on the 24th July 2006 which stated: *"We have reviewed the draft PPC permit at Befesa [Salt Slags Ltd] and have no objections to the permit or conditions."*

A3 Consideration of consultation responses

Responses were received from the following statutory and non-statutory consultees:

- Food Standards Agency
- Wrexham local health board
- National Assembly for Wales
- Wrexham County Borough Council
- Countryside Council for Wales

No responses were received from members of the public during the determination period.

All responses have been considered by the Agency in determining the Application. The ways in which material responses have been taken into account are summarised in the appendix to this document.

A4 Matters of commercial confidentiality or national security

The Applicant made a claim for commercial confidentiality, the nature of the claim is as follows: The process, which has been developed over 5 years at considerable cost, is the only salt slag treatment and recycling plant in the UK. The process description holds technically and commercially sensitive information.

The Agency upheld the claim for commercial confidentiality, considering that the inclusion of the relevant information on the public register would prejudice the Applicant's commercial interests to an unreasonable degree

A5 Further information requirements

The Application was deemed duly made by the Agency, but further information was required in order for the Agency to be able to determine the Application. Further information was requested from the Applicant during the site visit, as follows:

- Progress on construction of Ammonium Sulphate storage lagoon
- Identification of damaged bunding and areas of hardstanding
- Site of the pond
- Confirmation that there are no releases to water or sewer
- Location of chemical storage area

Responses were received from the Applicant on 02/02/06 These were placed on the public register, and have been taken into consideration by the Agency in making its determination.

A6 Regulation 10(3) (operator competence)

The Agency is satisfied that the Operator is the person who will have control over the operation of the Installation after the grant of the Permit, and that the Operator will be able to operate the Installation so as to comply with the conditions that have been included in the Permit. The operator has been regulated by the Agency under IPC and has management techniques in place.

A7 Regulation 10(4) (requirements for SWMAs)

The Operator has replied to application question [B7.1] stating that the installation does not contain an SWMA and the Agency agrees with this assessment.

A8 EOPRA profile

The Agency is satisfied that the EOPRA profile submitted with the Application remains accurate following the determination of the Application, and it will be used as the basis for subsistence and other charging, and for all other relevant purposes at the commencement of the Permit. In accordance with the Agency's EOPRA Scheme however, the Operator's EOPRA profile for the installation may change over time. The EOPRA score at the time of issue was 72 with an associated fee of £12744 plus 2 part B process at £1396 each making a total of £15422.

PART B – THE INSTALLATION AND ITS MANAGEMENT

B1 Permit Section 1.1.1 - The permitted activities

The Agency has determined that the Installation comprises the following activities listed in Part 1 of Schedule 1 to the PPC Regulations and the following directly associated activities.

- Section 4.2 Part A1 (a)(v) – *“Producing inorganic chemicals such as non-metals, metal oxides, metal carbonyls or other inorganic compounds such as calcium carbide, silicon, silicon carbide, titanium oxide.”*

Directly associated activities:

- Section 3.5 Part B (a)- *“The crushing and grinding or other size reduction of any designated mineral or mineral product, including metallurgical slag.”* [Separation of aluminium from slag by milling. Crushing Line A.]
- Section 3.5 Part B (a)- *“The crushing and grinding or other size reduction of any designated mineral or mineral product, including metallurgical slag.”* [Separation of aluminium from slag by milling. Crushing Line B.]
- Storage and handling of aluminium oxide and salt. (From receipt of raw material to despatch as product or disposal.)
- Boiler plant – provision of steam for Crystallisation plant . (Kerosene fuelled. 6.5MW thermal input.)

The activities comprise a single installation because they form successive steps in one integrated industrial activity. The Boiler plant provides steam to the listed activity and the storage areas for aluminium oxide serves the listed activity. Crushing lines A and B are separate Part B activities, but both serve the stationary technical unit. All activities share common drainage, services and power supplies.

B2 Permit Section 1.2 - Site plan

The Operator has provided a plan which the Agency considers is satisfactory for showing the site of the Installation and its extent. A plan is included in the Permit at Schedule 5, and the Operator is required to carry on the Permitted activities within the site boundary.

B3 Permit section 1.5 - Minor operational changes; (Changes allowed within the scope of this Permit)

The Permit constrains the Operator to operate the activities subject to the limits and conditions in the Permit. However the Operator may make minor changes as defined within the Application by notifying the Agency in writing under Conditions 1.5.1 -1.5.4.

B4 Site Report and Protection of the site,

The Applicant has provided a Site Report as required by paragraph 1 of Part 1 of Schedule 4 to the Regulations, the main elements of which are:

Site location: Mereside Industrial Park, Fenns Bank near Whitchurch. Small industrial park in a mainly rural area. The site is flat, with several drainage ditches and ponds just outside the installation boundary.

History: Previous land uses show the site was used as a brickyard with associated clay pit and kiln. In later years these clay pits became ponded. A site visit has found that an Aluminium smelting plant was present in the vicinity of the installation, with various quantities of salt slags and aluminium drosses landfilled. These are evident close to the installation boundary, with evidence of the waste at the surface.

Site Setting: The site holds an IPC authorisation with the Agency AZ1388. There are several non potable water extractions in the vicinity. There is also a landfill in the vicinity.

Geological/Hydrogeological/hydrological: The solid geology below the site is Mercia Mudstone, Dolomitic Conglomerate and rhaetic. The site is situated on a non-aquifer with negligible permeability. The nearest surface water is the Shropshire union canal located 770m east of the site.

Land Pollution Incidents: There has been a diesel spillage within the site boundary, but extent and location are unknown.

Site Reconnaissance: 7 storage tanks, 2 silos, 2 storage drums and 7 other storage containers, all above ground. Although all are bunded, none are tested for their integrity and some have fill points outside the bund. There are some areas of hardstanding where the containment kerbs are cracked and damaged and offer no protection to the unmade ground. The pond shown on the plans is outside the installation boundary. Some waste skips were uncovered and sited on unmade ground. The Operator confirmed no site drainage to surface water, and all old drains capped.

Pollution Potential: Primary, secondary and tertiary levels of containment are detailed along with inventory of all substances stored. The likelihood of pollution is assessed in appendix D. The Operator assesses that there is generally little likelihood of pollution, but that the diesel spill had a reasonable possibility.

Adequate information to enable the Agency to determine the Application has been provided in the Application Site Report, however certain data gaps do exist and further information, as described below, will need to be collected in the Improvement Programme:

- Step 4 in H7 guidance has not been followed correctly and effectiveness of pollution prevention measures have not been fully assessed including integrity of hardstanding, fill points outside bunds and waste skips on unmade ground and potential for leaching from the landfills adjacent to the site. An improvement condition has been added to ensure the Operator addresses these areas, and polluting substances are prevented from entering surface water.

To ensure the continued effectiveness of pollution prevention measures to protect the land the Operator is required to implement and operate under a Site Protection and Monitoring Programme, (Conditions 2.1.2 and 2.10.9), the design of which must be reported to the Agency within two months from the date of permit issue, Condition 4.1.7.

The Application indicates that there is a "reasonable possibility" of future pollution of the land and therefore reference conditions must be established. Collection of reference data is required (Conditions 2.10.10 - 2.10.10.2) and the data must be reported to the Agency within six months from the date of permit issue.

B5 Permit Section 2.12 - Multiple Operator installations

This is not a multi-Operator installation

Management

Management techniques are one of the available techniques for emission prevention and control and are therefore part of the determination of BAT see also Part C ahead for the installation. The permit contains standard conditions at 1.3 and 2.3, which are designed to deliver the requirements in most cases.

B6 Permit Section 1.3 - Overarching Management Condition

The Agency is satisfied that appropriate management systems and management structures are in place for this Installation, and that sufficient financial, technical and manpower resource is available to the Operator to ensure compliance with all the Permit conditions. Standard condition 1.3.1 will ensure that the Operator maintains this position.

The Operator's Environmental Management System, is externally accredited to ISO 14001 This is an internationally recognised standard of environmental management .

B7 Permit Section 2.3 - Management

B7.1 Permit Section 2.3.2-4 Staffing and Training

The information provided in response to Questions in Section 2.3 of the Application indicates that the installation is operated by an adequate number of staff, who are suitably trained and supervised. Appropriate written operating instructions are available, and a system is in place for the recording of staff training. Standard conditions 2.3.1 to 2.3.4 will ensure that the operator maintains this position. See pages 35 – 40 of the Application.

B7.2 Permit Section 2.3.5-6 Operation and Maintenance

The information provided in response to Questions in Section 2.3 of the Application indicates that the installation is operated and maintained in compliance with the Conditions in the Permit. Standard conditions 2.3.5 and 2.3.6 will ensure that the operator maintains this position.

The Operator has a formal maintenance system, which includes maintenance planning, programmed preventative maintenance, breakdown history and recording of all maintenance done. See pages 35 – 40 of the Application.

B7.3 Permit Section 2.3.7-8 Incidents and Complaints

The information provided in response to Questions in Section 2.3 of the Application indicates that there is a suitable incident/complaint logging and response system in place. Standard conditions 2.3.7 and 2.3.8 will ensure that the operator maintains this position.

B7.4 Permit Section 2.3.9 Fit and Proper

Not applicable as the installation does not include any specified waste management activities.

PART C: DETERMINATION OF PERMIT CONDITIONS

C1. The legal requirements relating to permit conditions.

Regulation 11 of the PPC Regulations requires that certain general principles are taken into account in the determination of permit conditions for PPC installations. These include that installations should be operated so as to ensure that (a) all appropriate preventative measures are taken against pollution, in particular through the application of BAT, and (b) no significant pollution is caused. Additional general principles include pursuance of the waste strategy objectives of the Waste Framework Directive, using energy efficiently, preventing accidents and returning sites to a satisfactory state on definitive cessation.

Regulation 12 requires the permit to include such conditions as the regulator considers appropriate to comply with a range of requirements including the following:

- ensuring a high level of protection of the environment;
- setting emission limit values (ELVs) for pollutants likely to be emitted from the installation in significant quantities, having regard to their nature and potential to transfer pollution from one environmental medium to another;
- that these ELVs shall be based on BAT for the description of installation but shall take account of its technical characteristics, geographical location and the local environmental conditions;
- that the ELVs may, where appropriate, be supplemented or replaced by equivalent parameters or technical measures;
- that, where an EQS requires stricter ELVs, these shall be set;
- that conditions should aim to minimise long distance and transboundary pollution; ensure protection of the soil and groundwater and management of waste generated; relate to periods of abnormal operation, start up, stoppages etc; set steps to be taken prior to and after definitive cessation of operations; and set suitable emission monitoring, reporting and notification requirements.

Regulation 3 contains the definition of BAT and this is supplemented by a number of other considerations set out in Schedule 2.

There are also a number of other regulatory requirements beyond those in the PPC Regulations described above, which may affect the operating conditions that are required to be included in the permit. These are generally dealt with in Part C5 ahead.

C2. The Agency's general approach to the determination / condition setting.

The Agency has produced technical guidance for most sectors subject to PPC. Together with cross-sectoral technical guidance, these include indicative standards that the Agency considers likely to deliver the various requirements set out above, having regard to any corresponding BREF Note. The indicative standards are divided into sections that correspond to each of the relevant requirements described in Section C1 above. The operator's application should include information about how it is proposed to operate the installation so as to meet these indicative standards or justify why other standards should apply instead. The Agency will assess the operator's proposals and if it is satisfied will apply specific as well as standard permit conditions designed to ensure the approved standards of operation of the installation will be maintained.

Where there is no specific technical guidance for the activities that make up the installation there will be other related technical guidance that can be used to identify the technologies and techniques employed and the standards that can be obtained. There is also other technical literature that the Agency may use to support its analysis of the installation.

C3. Conditions relating to point source emissions

The indicative BAT techniques relevant to this installation are set out in Technical Guidance Note TGN IPPC S4.03 Inorganic Chemicals Sector that has been developed having regard to the related BREF Note (LVIC-AAF). The Agency has assessed the operator's BAT proposals as set out in the main application and compared them against the indicative standards applying to this sector as described in the TGN.

The Agency has also reviewed the operator's assessment of the environmental impact of emissions from the installation. The assessment shows that, applying the conservative criteria in H1 some emissions may be categorised as environmentally significant Particulates, Ammonia and Oxides of Nitrogen.

Pollutant	PEC (= PC + Background concentration) $\mu\text{g}/\text{m}^3$	PEC as % of environmental benchmark
Particulates (long term)	14.8	36.8
Particulates (short term)	97.1 (PC only)	379 (%PC of headroom)
Nitrogen Dioxide (long term)	24	80
Ammonia (long term)	2.92	36.5

Emissions to Air

Particulates, Oxides of Nitrogen and Ammonia levels are assessed as being significant under H1. The Operator has not conducted any detailed modelling and suggests this is unnecessary due to the emission limits set under IPC remaining unbreached. The limits set are shown below:

Release Point	Particulates(mg/m^3)	Ammonia (mg/m^3)	Oxides of Nitrogen (mg/m^3)
A1	15	-	-
A2	-	30	-
A3	Annual monitoring	-	Annual monitoring
A5	-	30	-

In reviewing the Operators monitoring data, the following was shown:

A3	Q3,04	Q4,04	Q3,05
Particulates(mg/m^3)	8		
Particulates @ 3% O_2 (mg/m^3)	10	1.29	4.7
NO_x (NO_2) @ 3% O_2 (mg/m^3)	218	19.4	214
NO_x (NO_2) (mg/m^3)	147.3		

	Q3,04	Q4,04	Q1,05	Q2,05	Q3,05
A1 Particulates(mg/m^3)	10	1.09	3.81	0.11	4.9
A2 Ammonia (mg/m^3)	6.8	6.02	3.3	4.3	4.3
A5 Ammonia (mg/m^3)	5.4	2.9	6.7	3.4	0.91

The Monitoring data showed there was scope for the Agency to reduce the emission limit in the Permit directly, without the requirement of further modelling. This was also necessary, as the input figures used in the H1 assessment were lower than the ELV's set under IPC and these lower figures had shown significance when assessed by H1. New values of particulates to $12 \text{ mg}/\text{m}^3$ and ammonia to $15 \text{ mg}/\text{m}^3$ were set in relation to what the processes are currently achieving. A habitats assessment (HR01, see attached) carried out

has found that there would be a likely significant effect from emissions of Ammonia, Particulates and Oxides of Nitrogen on the European sites Fenn's Whixall, Bettisfield, Wem and Cadney mosses and Brown Moss, the closest of which is only 250m from the installation. The Operator has not carried out further modelling and will be requested to do so by an improvement condition.

As a result of the conclusions from the HR01 (see attached), an appropriate assessment (HR02, see attached) was conducted by the Agency in consultation with the Countryside Council for Wales (CCW).

Due to the elevated levels of nutrient-N deposition modelled at the Fenns, Whixhall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar from Oxides of Nitrogen (Nox) deposition it is not possible to conclude no adverse affect on site integrity in the context of local environmental conditions. The operator has not modelled deposition from emissions of ammonia, however monitoring carried out at the SAC indicates that the installation is contributing to the elevated background levels of N-deposition that can be attributed to ammonia.

Particulates are also likely to result in an adverse affect (short-term effect), with emissions at 194% short-term EAL.

An improvement condition has been set, which will result in the reduction of nitrogen emissions from Befesa Salt Slags Ltd. The conditions will ensure that the deposition of nitrogen is less than 10% of the relevant critical loads, or that the predicted environmental concentration (PEC) is less than 70% of the relevant critical loads at Fens, Whixhall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar for both nutrient enrichment and acidification.

Part of the improvement programme set under IPC was to monitor the flare stack (A4) for Hydrogen Sulphide to determine the effectiveness of the caustic scrubber. This has been continued in the PPC Permit to monitor on an annual basis, as the pre burn figures provided in the application were significant when assessed through H1.

The Operator has provided details of a new LEV monitoring point (A6) on the intermediate BFA storage bay. This is on the exhaust from a new acid scrubber system to serve the Wet BFA storage shed, and is designed to reduce ammonia emissions from the site. It is due for installation before April 2007. No monitoring data has been provided for this emission point, but emission from this point are not expected to be significant. An improvement condition (IC3) has been included in the Permit to carry out detailed dispersion modelling of the emissions from this point.

Emissions to Water

There are no point source emissions to Water or Sewer from the installation. The Agency has concluded that Direct Toxicity Assessment is not required.

Together the ELVs set in permit conditions 2.2.1 to 2.2.3, the equivalent parameters / technical measures secured under conditions 2.1 and the improvement conditions contained in condition 1.4 secure that the approved position based on BAT and the other requirements of the Regulations for point source emission control described above will be maintained by the operator.

It is considered that the ELVs/ equivalent parameters or technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured

C4. Conditions relating to fugitive emissions.

Various requirements in regulations 11 and 12 mean that control of fugitive emissions should be secured by permit conditions. The Agency has assessed the operator's proposals for control of fugitive emissions.

Emissions to Air

Areas identified by the Operator and the Agency (on a site visit) were the BFA storage area, where fugitive emissions of ammonia were located. Abatement and venting techniques are to be assessed through the addition of an improvement condition.

Emissions to surface /groundwater

It mentions in the Operators' site report that there is no drainage off site, this needs to be looked into as discharges have been noted from their discharge pipe (by the Agency). The surface water drain is currently blocked in order to prevent any contaminated discharge leaving the site. However, this can only be a short term measure and needs to be resolved with the Operator investigating what discharges are made via this system and the potential sources of contamination.

If there is to be no discharge off site, a better system is required (as water ponding as previously discussed) and so the preparation of a surface water management plan will be required through an improvement condition. Standard conditions 2.2.3 and 2.2.5 will ensure that the operator maintains this position. An improvement condition has also been included to review the measures in place to prevent polluting substances entering surface and groundwater throughout the installation.

C5. Conditions relating to raw materials and water.

The use of raw materials and water are some of the available techniques for emission prevention and control and are therefore part of the determination of BAT for the installation. In addition "the consumption and nature of raw materials (including water) used in the process" is one of the factors to be considered in determining which of the other available techniques are BAT (see Schedule 2 of the PPC Regulations). The Agency has assessed the proposals set out in the Application in response to question B2.4. They are considered satisfactory and the standard Conditions 2.4.1.1-3 will ensure that the operator maintains this position.

C6. Conditions relating to waste handling and storage.

Waste handling and storage techniques are some of the available techniques for emission prevention and control and are therefore part of determination of BAT for the installation. Regulation 12(9)(b) also requires consideration of appropriate measures for the management of waste generated by the installation. The Agency considers that the Applicant has appropriate measures in place for the storage and handling of waste to prevent releases during normal operations and to minimise the potential for accidental releases. The standard Permit Condition 2.5.1 will ensure that the operator maintains this position.

Additional information received from the Operator on the 19th August 2005 outlines their proposal to construct a 3000m³ storage facility for Ammonium Sulphate solution – which is produced as part of the acid scrubber abatement system. The storage facility is in the form of a lagoon, the location of which is shown in Appendix 3c of the Application. The Operator has proposed a design which is below ground, but which has considerable measures in place to prevent and to detect any leakage from the lagoon. The design of the lagoon is considered to be BAT.

C7. Conditions relating to Odour

On consideration of the Application and further information provided by the Applicant and from its previous knowledge of the operation of the installation, the Agency considers that

the activities carried out at the installation have the potential to cause odour, but that such odour is not likely to cause annoyance, and that the Applicant's proposals in respect of odour control represent BAT. Agency therefore considers that the standard Condition 2.2.6.1 is appropriate and sufficient.

Further conditions have been included in the Permit in respect of odour emissions from the installation (specifically ammonia) and emission limit values have been set. The Operator conducts monitoring of background ammonia levels at two points on the site boundary. If readings are above the set action limit, site procedures are put in place to investigate the odour source.

C8. Conditions relating to Noise (and vibration)

On consideration of the Application (and further information provided by the Applicant) and from its previous knowledge of the operation of the installation and from details provided by Wrexham Borough Council, the Agency considers that the activities carried out at the installation may cause noise that has the potential to cause annoyance.

The source of this noise has been identified as waste skip movements and metal clanking noises, generally at night. However these noise sources could be from other Operators on the Mereside Industrial Estate. The Agency considers that the Applicant's proposals represent BAT to prevent/minimise noise and as such the Agency considers that it is inappropriate to impose conditions to mirror those currently set by Wrexham Borough Council in planning permission CB/01515.

C9. Conditions relating to Pre-operation

Regulation 12(9)(d) allows the imposition of conditions in respect of "steps to be taken prior to the operation of the installation.

The Agency considers that the circumstances do not require the imposition of any pre-operational Conditions.

C10. Conditions relating to Off-site (including Off-site monitoring)

Regulation 12(12) allows the imposition of off-site conditions, subject to compensation in accordance with the Regulations.

The Agency considers that it is not necessary to impose any off-site Conditions.

C11. Conditions relating to Waste recovery or disposal

Regulation 11(3)(a) requires a consideration of appropriate conditions to ensure that "waste production is avoided in accordance with Council Directive 75/442/EEC on waste; and where waste is produced, it is recovered or, where that is technically and economically impossible, it is disposed of while avoiding or reducing any impact on the environment". The Agency has considered the proposals in the Application for the avoidance of waste production and, in respect of such waste as is produced, its potential recovery or subsequent disposal. (See pages 56 – 61 of the application) The Agency is satisfied that the proposals show that waste production will be avoided as far as possible, and where waste is produced it will be recovered unless technically and economically impossible. The Agency is further satisfied that the Operators justification for their proposed waste disposal option shows that such waste that does arise from the installation that can not be recovered will be disposed of using a disposal method that avoids or reduces any impact on the environment. Standard Conditions 2.6.1 will ensure that this position is maintained. A performance indicator has been requested to show how much stored Salt slag is used annually in the process.

C12. Conditions relating to Energy Efficiency

Some aspects of energy efficiency form part of the consideration of BAT above. Regulation 11(3)(b) also requires appropriate conditions to be imposed in order to secure that "energy is used efficiently". The Agency has considered the information in the Application in respect of energy efficiency, including that for the Applicant's energy management system. (See pages 61 to 63 of the application) The Agency considers that it is appropriate to include requirements to produce an Energy efficiency plan in Improvement Conditions in addition to the Standard Conditions 2.7.1-2.7.3. As only limited information is included in the application and the site is not part of a Climate Change Agreement.

In respect of Condition 2.7.1, the Operator is required to report annually

C13. Conditions relating to Accident prevention and control

Regulation 11(3)(c) requires the consideration of appropriate conditions to secure "the necessary measures are taken to prevent accidents and limit their consequences."

The Agency has considered the accident management plan submitted under Section 2.8 of the Application and considers that the Applicant has a suitable system in place to identify, assess and minimise the environmental risks and hazards of accidents and their consequences. Standard Condition 2.8.1 in the Permit is appropriate and sufficient to ensure that the necessary measures will be taken to prevent accidents and to limit their consequences.

C14. Conditions relating to Closure and decommissioning

Regulation 11(3) provides that "upon definitive cessation of activities the necessary measures are taken to avoid any pollution risk and to return the site of the installation to a satisfactory state". Regulation 12(9)(d) also requires that there be appropriate conditions in terms of steps to be taken after the definitive cessation of operations.

The Agency has considered the application response submitted by the operator and considers that there are no proposals for closure and decommissioning and that an improvement condition will ensure that the operator complies with BAT.

C15. Conditions relating to On-site monitoring

Regulation 12(9)(f) requires consideration of appropriate conditions to address "emission monitoring requirements specifying measurement methodology, frequency, and evaluation procedure". The Agency has decided that emissions monitoring should be carried out for the parameters listed in Tables 2.2.2 and 2.10.1 using the methods and to the frequencies it has specified in those Tables. (See Condition 2.10.1.) These monitoring requirements have been imposed in order to control particulate and ammonia releases from the installation. The levels set are tighter than those in the IPC authorisation as monitoring data has shown that actual emissions were much lower than the limits set.

Monitoring conditions have also been imposed on the flare stack (A4) for Hydrogen Sulphide, to ensure the caustic scrubber is working effectively. Monitoring will also be required on the boiler stack (A3) to allow the Agency to check on particulate and Oxides of Nitrogen levels being released.

C16. Conditions relating to Records

Effective record keeping is considered to be one of the management techniques for emission prevention and control. It is considered that the standard condition requirements are appropriate for this Installation.

C17. Conditions relating to Reporting

Regulation 12(9)(f) requires consideration of appropriate conditions in respect of the reporting of monitoring results. It is considered that the standard condition requirements are appropriate for this installation

C18. Conditions relating to Notifications

Regulation 12(9)(f) requires consideration of appropriate conditions for notification of incidents or accidents which may cause significant pollution. It is considered that the standard condition requirements are appropriate for this installation.

C19. Other legal requirements relevant to the determination of the Application and to the setting of permit conditions

Industry Specific

C19.1 Relevant Secretary of State Directions

There are no Secretary of State Directions made under the Pollution Prevention and Control (England and Wales) Regulations 2000, as amended, which are relevant to the determination of this Application.

C19.2 Regulation 12A – implementation of the Solvent Emissions Directive (SED) (1999/13/EC)

The Installation does not include any activity listed in Annex I of the Directive or activity which, whilst listed in Annex I, is above the relevant threshold in Annex IIA. so no provisions of the SED apply.

Air

C19.3 Environment Act 1995 – Section 81 (National Air Quality Strategy)

In determining the conditions for this Permit, the Agency has had regard to the National Air Quality Strategy. The Agency considers that it has taken its decision in compliance with the NAQS, and that there are no additional conditions that should be included in this Permit.

Water

C19.4 Groundwater Regulations 1998

The installation does not permit the direct discharge of List 1 substances to groundwater.

C19.5 Water Framework Directive Regulations 2003

Consideration has been to whether any additional requirements should be imposed in terms of the Agency's duty under regulation 3 to secure the objectives of the Water Framework Directive through (inter alia) PPC permits, but it is felt that existing conditions are sufficient in this regard and no other appropriate requirements have been identified.

Waste

C19.6 Waste Management Licensing Regulations (WMLR 1994) - (pursuit of the relevant objectives where there is the disposal or recovery of waste)

The installation includes no activities for the disposal or recovery of waste.

C19.7 Waste Oils Directive

The installation does not contain waste disposal or recovery activities involving waste oils to which the Directive applies.

C19.8 Hazardous Waste Directive

The installation does not contain hazardous waste disposal or recovery activities to which the Directive applies.

Conservation

C19.9 The Conservation (Natural Habitats etc) Regulations 1994

See appendix 3 of this Document.

An assessment was carried out (HR01) of the potential for emissions from the Installation to have a significant effect on the following European sites:

- West Midlands Meres and mosses
- Fenn's Whixall, Bettisfield, Wem & Cadney mosses
- Midlands meres and mosses
- Brown moss

The result of this assessment was that emissions of Particulate and Ammonia from the Installation on the European sites (Fenn's, Whixall, Bettisfield, Wem & Cadney mosses and Brown Moss) are likely to be significant. This is because the modelling in the Application shows the emissions to be not insignificant, IPC Limits set are also considerably higher than the input data used for H1 modelling, and the SAC sites are only 250m from the site boundary.

As a result, an "Appropriate Assessment" (HR02) was undertaken by the Agency. (See Appendix 3)

The Appropriate Assessment was sent on the 18th May 2006 to the Countryside Council for Wales (CCW), as part of the statutory consultation process.

In order to be satisfied in the light of the appropriate assessment that the proposals will not "adversely effect the integrity of the European site" additional conditions have been imposed in the Permit: Improvement conditions 3,4 &6

A letter received from CCW on the 19 Jun 2006 requested an additional requirement to carry out hydrogen fluoride (HF) monitoring – because emissions of HF are likely to be released from aluminium smelting works. However this was not included because this

installation is not a smelting works, therefore there are no significant sources of HF emissions.

C19.10 Countryside and Rights of Way Act 2000 (CROW 2000)

Section 85 duty concerning Areas of Outstanding Natural Beauty (AONB)

There is no AONB which could be affected by the Installation

Section 28G Wildlife and Countryside Act 1981 (WCA 1981) duty concerning SSSIs

There are no SSSI, which could be affected by the Installation

Section 28 I WCA 1981 duty to consult English Nature/CCW

The advice received from CCW, following its consultation as required under s28 I WCA 1981 (as amended by Schedule 9 CROW 2000), has been taken into account when deciding to grant the Permit, and in determining its conditions

C19.11 Environment Act 1995 – Section 7 (Pursuit of Conservation Objectives)

Consideration has been given to whether any additional requirements should be imposed in terms of the Agency's duty to have regard to the various conservation objectives set out in s 7 EA 1995, but it is felt that existing requirements are sufficient in this regard and no other appropriate requirements have been identified.

General

C19.12 Environment Act 1995 – Section 4 (Pursuit of Sustainable Development)

By section 4 of the EA 1995, the Agency has a duty to contribute towards achieving sustainable development as considered appropriate by Ministers and set out in guidance issued to it. The relevant statutory guidance issued to the Agency by the Secretary of State for Environment, Food and Rural Affairs is *The Environment Agency's Objectives and Contribution to Sustainable Development: Statutory Guidance (December 2002)*. It is noted that this document:

"provides guidance to the Agency on such matters as the formulation of approaches that the Agency should take to its work, decisions about priorities for the Agency and the allocation of resources. It is not directly applicable to individual regulatory decisions of the Agency".

In respect of regulation of industrial pollution through the PPC Regulations, the Guidance refers in particular to the objective of setting permit conditions *"in a consistent and proportionate fashion based on Best Available Techniques and taking into account all relevant matters..."*. The Agency considers that it has pursued the objectives set out in the Government's guidance, where relevant, and that there are no additional conditions that should be included in this Permit to take account of the section 4 EA 1995 duty.

C19.13 PPC Regulations - Schedule 4, Part 2. para 13 (EIA Directive information)

No information concerning any Environmental Impact Assessment for the installation was supplied by the Applicant in response to Question B5.1 in the PPC Application Form.

C19.14 Human Rights Act 1998 (HRA 1998)

The Agency has considered potential interference with Convention rights in reaching its decision and considers that its decision is compatible with its duties under the Human Rights Act 1998. In particular, it has considered the right to life (Article 2), the right to a fair trial (Article 6), the right to respect for private and family life (Article 8) and the right to protection of property (Article 1, First Protocol). The Agency does not accept that Convention rights are engaged in the present case.

APPENDIX – Consultee responses

Summary of consultation responses received and the way in which they have been taken in to account in the determination process:

Brief summary of issues raised	Response received from consultee	Summary of actions taken or show how this has been covered
Installation has potential to cause noise. There is a history of complaints. There is an existing planning condition, which needs tidying up, but a relaxation in existing noise limits should not take place.	Wrexham borough Council	The Agency believes it is inappropriate to duplicate noise conditions already controlled through the local authority. So conditions remain, and are not relaxed.
Many mistakes and omissions in site report. The main ones concerning the following of H7 to ascertain whether the site had a reasonable possibility of causing pollution. Location of the pond Lack of maps and plans Storage information	Wrexham borough Council	An improvement condition has been added to review all pollution prevention measures to prevent polluting substances entering the surface waters, and a surface water management plan has been requested.
If Operator complies with the relevant parts of sector guidance then there will be no unacceptable effects on the human food chain	Food Standards Agency	Nothing required
Detailed air modelling carried out for short term emissions of particulates, Nitrogen dioxide and Sulphur dioxide Quantitative odour assessment to assess risk on public health Improvement plan timetable should be adhered to Noise	Wrexham Local Health Board	Detailed air modelling for Ammonia, Particulates and Oxides of Nitrogen have been requested through improvement conditions
Damaged Kerbs and Hardstanding repaired to protect surrounding earth Regular visual and integrity testing of Bunds and Hardstanding	Welsh Assembly Government	An improvement condition has been added to review all pollution prevention measures to prevent polluting substances entering the surface waters, and a surface water management plan has been requested.
HF emissions from installation may cause damage to adjacent SAC Modelling of emissions should have been done by Operator at application stage.	Countryside Council for Wales	No action taken regarding HF – this installation is not a smelting works therefore there are no emissions of HF from the activities on-site. Monitoring requirements for other parameters set as improvement conditions.

APPENDIX 2 – Improvement Programme and Justification

The Improvement Conditions described below have been imposed on the Operator for the reasons given in the table below.

Reference	Requirement	Date	Justification
IC1	The Operator shall develop a written Site Closure Plan having regard to the requirements set out in Sector Guidance Note S4.03, section 2.11. Upon completion of the plan a copy of the document shall be submitted in writing to the Agency.	31 July 2007	The Agency has considered the application response submitted by the operator and considers that there are no proposals for closure and decommissioning and that an improvement condition will ensure that the operator complies with BAT.
IC2	The Operator shall produce an Energy Efficiency Plan having regard to section 2.7 in Sector Guidance Note S4.03. Upon completion of the plan a copy of the document shall be submitted in writing to the Agency.	31 July 2007	The Agency has considered the information in the Application in respect of energy efficiency, including that for the Applicant's energy management system. (See pages 61 to 63 of the application) The Agency considers that it is appropriate to include requirements to produce an Energy efficiency plan in Improvement Conditions in addition to the Standard Conditions 2.7.1-2.7.3.
IC3	The Operator shall undertake detailed dispersion modelling of emissions to air from emission points A1, A2, A3, A4, A5 and A6, of particulates, oxides of nitrogen and ammonia. The Operator shall provide a report to the Agency detailing the findings of the study.	30 April 2007	A habitats assessment (HR01, see attached) carried out has found that there would be a likely significant effect from emissions of Ammonia, Particulates and Oxides of Nitrogen on the European sites Fenn's Whixall, Bettisfield, Wem and Cadney mosses and Brown Moss. The Operator has not carried out further modelling and will be requested to do so by an improvement condition. Modelling is also required of emissions from the new acid scrubber serving the wet BFA storage area – point A6.
IC4	The Operator shall assess the options available for venting and abatement of ammonia emissions from the final BFA storage building, having regard for Sector Guidance (S4.03). A summary of the assessment together with a timetable for implementation of the proposals shall be submitted in writing to the Agency.	31 July 2007	The Agency has assessed the Operators proposals for control of fugitive emissions and considers that it has been identified by the Operator and the Agency (on a site visit) that the BFA storage area, produces fugitive emissions of ammonia. Abatement and venting techniques are to be assessed through the addition of an improvement condition.
IC5	The Operator shall review the measures in place to prevent polluting substances entering surface and groundwater throughout the installation, having regard to Section 2.2.5 of Sector Guidance Note IPPC S4.03. The Operator shall submit in writing to the Agency a report of the survey which shall contain, but not be limited to: • a surface water management plan, • an assessment of the risk to groundwater and surface water from the Installation, and • a comparison of findings against indicative BAT requirements provided in Sector Guidance Note S4.03, and • a timetable for implementation of the proposals identified.	31 January 2007	Step 4 in H7 guidance has not been followed correctly and effectiveness of pollution prevention measures have not been fully assessed including integrity of hardstanding, fill points outside bunds and waste skips on unmade ground and potential for leaching from the landfills adjacent to the site. It mentions in the Operators site report that there is no drainage off site, this needs to be looked into as discharges have been noted from their discharge pipe (by the Agency). If there is to be no discharge off site, a better system is required (as water ponding as previously discussed) and so a surface water management plan advisable An improvement condition has been added to ensure the Operator addresses these areas, and polluting substances are prevented from entering surface water.

IC6

The Operator shall carry out an assessment of the techniques required to reduce the impact of ammonia and oxides of nitrogen from emission points A1, A2, A3, A4, A5 and A6 to a level at which air dispersion modelling shows that either the PC (Process Contribution) is less than 10%, or the PEC (Predicted Environmental Concentration) is less than 70%, of the critical load for nutrient enrichment and acid deposition at the adjacent Special Area of Conservation and Ramsar site.

A summary of the assessment together with a timetable for implementation of the proposals shall be submitted in writing to the Agency.

8 months after completion of improvement condition IC3

Due to the elevated levels of nutrient-N deposition modelled at the Fenns, Whixhall, Bettisfield, Wern & Cadney Mosses SAC and Ramsar from Oxides of Nitrogen (Nox) deposition it is not possible to conclude no adverse affect on site integrity in the context of local environmental conditions. The operator has not modelled deposition from emissions of ammonia, however monitoring carried out at the SAC indicates that the installation is contributing to the elevated background levels of N-deposition that can be attributed to ammonia.

Particulates are also likely to result in an adverse affect (short-term effect), with emissions at 194% short-term EAL.

An improvement condition will be placed on the permit, which will result in the reduction of nitrogen emissions from Befesa Salt Slags Ltd.

Appendix 3 – Consultation with Countryside Council for Wales

APPENDIX 11

Form HR01: Proforma for new applications within Stage 2 criteria.

Environment Agency Record of Assessment of Likely Significant Effect On A European Site (Stage 2)

*The new application for a IPPC Permits detailed below is within the Stage 1 criteria of Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses (Fenns, Whixall, Bettisfield Wem & Cadney Mosses) SAC (candidate) (250m)
West Midlands Mosses SAC (candidate)(250m)
Brown Moss SAC (candidate)(5.3km), and in order to progress the application a Stage 2 assessment and consultation with EN/CCW is required.*

PART A

To be completed by relevant technical/project officer in consultation with Conservation/Ecology section and EN/CCW

1. Type of permission/activity:	IPPC Permits
2. Agency reference no:	VP3030SX
3. National Grid reference:	SJ5068038920
4. Site reference:	<u>Whitchurch Salt Slags</u>
5. Brief description of proposal:	Befesa Salt Slags Ltd are applying for a Permit to operate a site manufacturing aluminium oxide and other inorganic compounds. They have a plant capacity of 270 tonnes of salt slag per day. Aluminium salt Slags and drosses are received in 25 tonne lorry loads. The materials are segregated into designated storage areas prior to milling. Two milling plants mechanically separate the aluminium through a process of crushing and sieving. All the dust produced is treated in the chemical plant, whose purpose is to dissolve all soluble salts, hydrolyse all water reactive products, and precipitate out all insolubles and filter off as product. Soluble salts are recovered by evaporation. Emissions to air from the process include Particulates and ammonia. Both these species are shown to be significant when assessed by the Agency's H1 tool. Other air emissions come from the small steam raising boiler (6.5MW). There are no emissions to water or groundwater. The site operates under an ISO 14001 accredited system.
6. European site name(s) and status:	Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses (Fenns, Whixall, Bettisfield Wem & Cadney Mosses) SAC (candidate) (250m) West Midlands Mosses SAC (candidate)(250m) Brown Moss SAC (candidate)(5.3km)

7. List of interest features:	Brown Moss 2.1 Vascular plants of aquatic habitats (Floating Water Plantain) Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses 1.2 Bogs & wet habitats (sensitive to acidification) (Active raised bogs, Degraded raised bogs (still capable of natural regeneration)) West Midlands Mosses, Transition mires and quaking bogs 1.4 Standing Waters (sensitive to acidification) (Dystrophic lakes)	
8. Is the proposal directly connected with or necessary to the management of the site for nature conservation?	No	
9. What potential hazards are likely to affect the interest features? (Refer to relevant sensitivity matrix and only include those to which the interest features are sensitive). Are the interest features potentially exposed to the hazard?		
Sensitive Interest Feature:	Potential hazard:	Potential exposure to hazard and mechanism of effect/impact if known:

2.1 Vascular plants of aquatic habitats (Floating Water Plantain)	Acidification	No Pathway exists
	Change in salinity regime	No Pathway exists
	Changes in thermal regime	No Pathway exists
	Habitat Loss	No Pathway exists
	Nutrient Enrichment	No Pathway exists
	Physical Damage	See below
	Siltation	No Pathway exists

	Toxic contamination	Particulates (Long Term) The modelled PC (Process contribution) is $2.51\mu\text{g}/\text{m}^3$ with the EAL (Environmental Assessment Level) set at $40\mu\text{g}/\text{m}^3$ The background contribution ($12.2\mu\text{g}/\text{m}^3$) from this site has been taken from the Wrexham air quality unit, which are not likely to be the levels at this location some 20 miles south-east This gives us a PEC, predicted environmental concentration (PC +background) of $14.8\mu\text{g}/\text{m}^3$ 37% of the EAL with process contribution PC of 6% of EAL (Short term) The modelled PC (Process contribution) is $97\mu\text{g}/\text{m}^3$ which is above the EAL For particulates (short term $50\mu\text{g}/\text{m}^3$) and with the background added, gives us a PEC of 194%. This is an abated emission (bag filters) Which has an inlet dust loading of $7.8\text{g}/\text{m}^3$ and a flow rate of 60,000 m^3/hour. There are 2 milling lines A & B. The annual release of particulate matter is 1.1tonnes per annum. The particulates are made up of Aluminium metal/ oxides and salts of Aluminium from the Aluminium processing industry The Operation is already regulated under IPC AZ1388, with limits set of $15\text{mg}/\text{m}^3$ which are 6X higher than the concentration used in H1. Ammonia The modelled PC (Process contribution) is $2.51\mu\text{g}/\text{m}^3$ the EAL For Ammonia (long term $8\mu\text{g}/\text{m}^3$) and with the background added, ($2.38\mu\text{g}/\text{m}^3$) gives us a PEC of 36.5%. Short term, levels are only 0.7% of the EAL and are not significant. The Ammonia emission is an abated emission, controlled via an acid scrubber The Operation is already regulated under IPC AZ1388, with limits set of $30\text{mg}/\text{m}^3$ which is 28X higher than the $1.05\text{mg}/\text{m}^3$ used in the H1 model.
	Turbidity	No Pathway exists
	Acidification	No Pathway exists
	Changes in thermal regime	No Pathway exists
1.2 Bogs & wet habitats (sensitive to acidification) (Active raised bogs, Degraded raised bogs (still capable of natural regeneration), Transition mires and quaking bogs)		

	Habitat Loss	No Pathway exists
	Nutrient Enrichment	No Pathway exists
	Physical Damage	See above
	Smothering	No Pathway exists
	Toxic contamination	See above
1.2	Acidification	No Pathway exists
	Changes in thermal regime	No Pathway exists
	Habitat Loss	No Pathway exists
	Nutrient Enrichment	No Pathway exists
	Physical Damage	See above
	Smothering	No Pathway exists
1.4 Standing Waters (sensitive to acidification) (Dystrophic lakes)	Toxic contamination	See above
	Acidification	No Pathway exists
	Change in salinity regime	No Pathway exists
	Changes in thermal regime	No Pathway exists
	Habitat Loss	No Pathway exists
	Nutrient Enrichment	No Pathway exists
	Physical Damage	See above
	Siltation	No Pathway exists
	Toxic contamination	See above
	Turbidity	No Pathway exists

10. Is the potential scale or magnitude of any effect likely to be significant?

a) Alone? (explain conclusion, e.g. in relation to de minimus criteria)	Yes, It is the view of the Agency that the emissions of Particulate and Ammonia have the potential to have a significant effect on the European sites Fenn's, Whixall, Bettisfield, Wem & Cadney mosses and Brown Moss. This is due to the fact that H1 shows the emissions to be significant, and the Operator has not carried out further modelling. IPC Limits set are also considerably higher than the input data used for H1 modelling. The SAC sites are only 250m from the site boundary.
b) In combination with other plans or projects? (Explain conclusion and which plans/projects have been included, including those associated with other functions).	Due to the fact the site is likely to have significant impact alone, there may be an effect in-combination with other sites. A full in-combination assessment will be carried out as part of the Appendix 12.

c) In combination with plans/projects of other Competent Authorities? (Explain conclusion and which plans/projects have been included. See Appendix 23 for further information). Include list of other Competent Authorities which have been consulted and what their comments were in relation to the decision on likely significant effect.	See answer to b), above.	
11. Conclusion: Is the proposal likely to have a significant effect 'alone or in combination' on a European site? (Justification – attach any relevant supporting information and the reasons for coming to the particular conclusion)	Yes Due to the emissions and the proximity of the operations to the designated sites it can be concluded there is a likely significant effect. A full appropriate assessment will be carried out.	
12. Name of EA Officer:	Steve Mearns	
13. EN/CCW comment on assessment: (If the EN/CCW officer disagrees with the conclusion of 10c, please include details of the other Competent Authorities which should be consulted).		
14. Name of EN/CCW Officer:		
IF THE PROPOSAL IS LIKELY TO HAVE A SIGNIFICANT EFFECT AN APPROPRIATE ASSESSMENT WILL BE REQUIRED (see part B for suggested scope).		

FORM HR02: PROFORMA FOR STAGE 3 APPROPRIATE ASSESSMENT

PART A: Technical Consideration

Table 1 – Permission / activity details

Type of permission /activity:	IPPC Permits
Agency reference no:	VP3030SX
National Grid Reference:	SJ5068038920
Site reference:	Befesa Salt Slags Ltd, Whitchurch

Table 2 - Site details

European site name	Legal Status	Priority
West Midlands Meres & Mosses (Phase 2)	Ramsar	
West Midlands Meres & Mosses (Phase 2)	SAC	Medium
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses	SAC and Ramsar	Medium
Brown Moss	SAC	High

Table 3 - Features List

I.D	Features	Application has associated hazards to which features are sensitive?	Details of Hazard/s
West Midlands Meres & Mosses SAC 2.5km			
1.4	Standing Waters (sensitive to acidification) (Eutrophic & Mesotrophic lakes)	Yes	Toxic Contamination Nutrient Enrichment
1.2	Transition mires and quaking bogs		Acidification
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC 2.5km			
1.2	Bogs & wet habitats (sensitive to acidification) (Active raised bogs, Degraded raised bogs (still capable of natural regeneration))	Yes	Toxic Contamination Acidification Nutrient Enrichment
Midlands Meres & Mosses SAC 2.5km			
1.2	Bogs & wet habitats (sensitive to acidification) (Active raised bogs, Degraded raised bogs (still capable of natural regeneration))	Yes	Toxic Contamination Acidification Nutrient Enrichment
Brown Moss SAC 2.5km			
2.1	Vascular plants of aquatic habitats (Floating Water Plantain)	Yes	Physical Damage Toxic Contamination Nutrient Enrichment Acidification

1. Introduction

The application being considered is an application made in accordance with the transitional arrangements and timetable in the PPC regulations. Befesa Salt Slags Ltd are applying for a Permit to operate a site manufacturing aluminium oxide and other inorganic compounds. The plant is an existing installation and releases from the installation are not new or substantially changed.

The Whitchurch plant processes aluminium drosses and salt slags. Dross is a by-product of the aluminium smelting process and contains aluminium oxide (Al₂O₃), impurities and

aluminium metal. Salt slags are also a by-product of the aluminium smelting process and derive from the addition of salt fluxes (sodium and potassium chloride) to the furnace to control oxidation and absorb impurities.

Slag treatment capacity is over 75,000 mt/a and dross crushing and recycling capacity is up to 25,000mt/a. Slags and drosses are received in 25 tonne lorry loads. The materials are segregated into designated storage areas prior to milling. Two milling plants mechanically separate the aluminium through a process of crushing and sieving.

All the dust produced is treated in the chemical plant, whose purpose is to dissolve all soluble salts, hydrolyse all water reactive products, and precipitate out all insolubles and filter off as product. Soluble salts are recovered by evaporation.

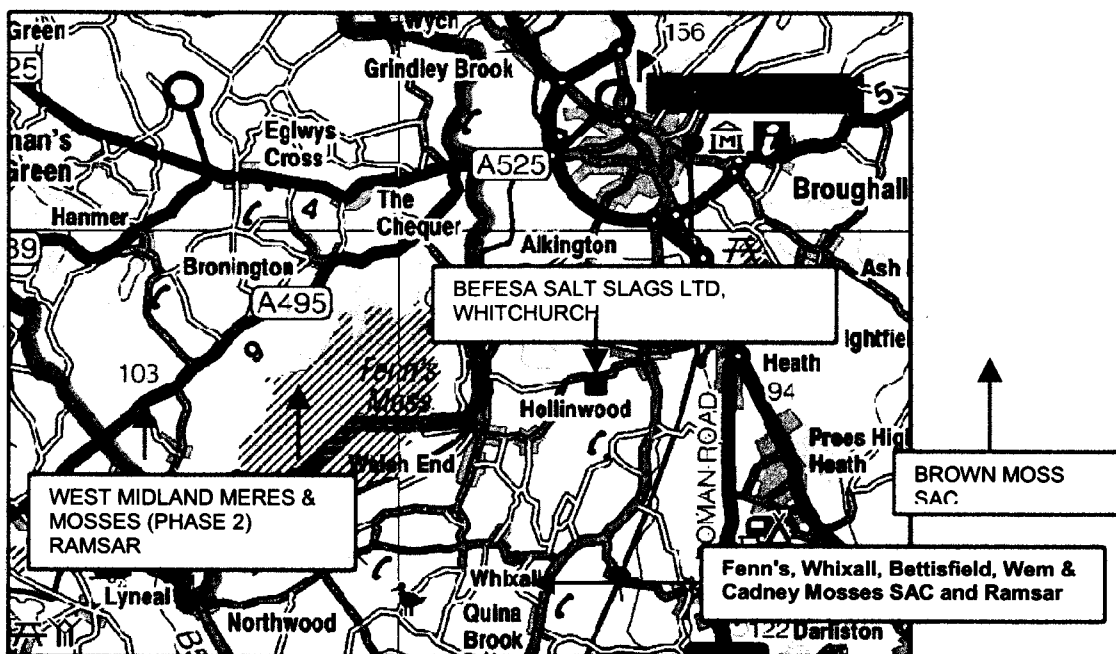
Emissions to air from the process include particulates and ammonia. Both these species are shown to be significant when assessed by the Agency's H1 tool. Other air emissions come from the small steam raising boiler (6.5MW).

There are no emissions to surfacewater or groundwater.

The assessment of likely significant effect identified a risk from emissions of ammonia and particulates. A risk has subsequently been identified from emissions of NO_x from the on site combustion processes. The appropriate assessment will therefore assess nutrient-N deposition and acid deposition from emissions of ammonia and NO_x, and smothering and toxic contamination from particulates.

The assessment will consider the nearest European Site, Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC and Midlands Meres and Mosses (Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses) Ramsar, which is sensitive to nutrient deposition, acidification and toxic contamination. As aerial emissions are linear protection of this SAC will afford protection for the more distant sites.

Figure 1 Map showing location of Befesa Salt Slags Ltd, Whitchurch and European sites



2. Conservation Objectives

In order to assess 'adverse affect' the appropriate assessment must consider the Conservation Objectives and favourable condition targets for the European sites. The Conservation Objectives for the Fenn's Whixall, Bettisfield, Wem & Cadney Mosses are listed below, Table 12 contains the relevant favourable condition targets.

To maintain*, in favourable condition, the:

- Active raised bogs
- Degraded raised bogs still capable of natural regeneration

* maintenance implies restoration if the feature is not currently in favourable condition.

3 Assessment of Impact of Emissions to Air

The applicant did not include any modelling of emissions from the processes as part of the permit application, an H1 assessment was submitted which estimates the maximum ground level concentrations from the process. Due to the close proximity of the installation to the Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar site (250m), it is considered appropriate to use the results from this assessment as a worst case scenario. Emissions and deposition are likely to be lower at the European site.

3.1 Nutrient Enrichment

Fens, Whixall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar is designated for active raised bogs and degraded raised bogs suitable for natural regeneration, the critical load range for these features is 5-10kg N/ha/yr. However UK experts recommend that the upper end of the CL range for raised bog habitats, is applicable to the UK due to our generally high precipitation rates (from a European perspective)¹. The assessment of adverse effect will therefore be based upon the upper critical load of 10kg N/ha/yr.

The dry deposition of N from NO_x emissions have been calculated in line with AQTAG06, using revised deposition rates as agreed with the AQTAG on the 29 June 2005. The method for calculation of the deposition fluxes is appended to this assessment, the result for nutrient enrichment is:

Nut-N deposition flux: 2.592kg N/ha/yr

Table 4 Process and background contributions of N deposition from NO_x

Maximum PC kg N/ha/yr from H1	National Modelling Deposition kg N/ha/yr			
	2000 NO _x Sources	2000 NO _x Background	2000 Ammonia	Total N kg/ha/year
2.592	0.39	4.04	35.64	42.66

Table 5 Process contribution to total N deposition from NO_x

Nmax Nut CL kg N/ha/yr	Local N dep flux as a % of	Total N dep flux as a % of nutN Nmax	Local N dep flux as a % of Total N
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¹ AQTAG07 GUIDANCE ON OBTAINING SITE-SPECIFIC INFORMATION FOR THE NATIONAL ASSESSMENT OF ROC HIGH PRIORITY SITES

	nutN Nmax		dep flux
10	25.9%	426.6%	6.1%

The process contribution of deposition at the European site is 25% of the minimum critical load, background levels are elevated at the site at over 400% of the minimum critical load. Considering the estimated maximum ground level concentrations it is not possible to conclude no adverse affect on site integrity.

As stated above the applicant did not complete any modelling of deposition from process emissions, no assessment was made on the deposition of nutrient nitrogen from emissions of ammonia. The installation is an existing process and will therefore be contributing to background ammonia levels at the European site, which are modelled to be at 35.64kg N/ha/yr, 356% maximum Critical Load. It is considered probable that the process contribution will not be insignificant, the dry deposition from ammonia alone contributes an estimated 0.98kg N/ha/yr, 10% maximum Critical Load. There will also be loading from the wet deposition of ammonia, this was not calculated by the applicant.

Ammonia monitoring carried out by the Centre for Ecology and Hydrology has identified elevated ammonia levels in the north of the SAC which can be attributed to Befesa Salt Slags.

3.2 Acid Deposition

The dry deposition of N from NO_x emissions have been calculated in line with AQTAG06, using revised deposition rates as agreed with the AQTAG on the 29 June 2005. The method for calculation of the deposition fluxes is appended to this assessment, the result for nutrient enrichment is:

Acid-N deposition flux: 0.185 keq/ha/yr

Table 6 Process and background contribution to acid deposition

National Modelling Deposition keq/ha/yr				
Regulated Sources NO _x - 2000	2000 SO _x Background	2000 NO _x Background	2000 NH _x	Total N dep flux
0.03	0.24	0.29	2.55	2.86

Table 7 Local contribution to deposition fluxes of N

ClimaxS keq/ha/yr	CliminN keq/ha/yr	ClimaxN keq/ha/yr	PC N dep flux as a % of CLmaxN	PEC N dep flux as a % of CLmaxN	PC N dep flux as a % of PEC N dep flux
0.19	0.18	0.51	36.3%	561.2%	6.5%

The process contribution is below the critical function for acidification, it is therefore possible to conclude no adverse affect alone from emissions of NO_x resulting in acidification at the European site. See graph appended to this assessment.

Deposition of ammonia can also result in acidification. The level of acidification from the deposition of ammonia is currently unknown as the applicant did not carry out any modelling of emissions of ammonia.

3.3 Particulates

The assessment of likely significant effect identified a risk from the short-term effects of particulates, H1 predicted the maximum ground level concentration to be 194% EAL ($50\mu\text{g}/\text{m}^3$). The particulates are made up of Aluminium metal/ oxides and salts of Aluminium from the Aluminium processing industry. Two milling plants mechanically separate the aluminium through a process of crushing and sieving. All the dust produced is treated in the chemical plant, whose purpose is to dissolve all soluble salts, hydrolyse all water reactive products, and precipitate out all insolubles and filter off as product. Prior to release the emissions are abated with bag filters, reducing the level of particulates released to the atmosphere.

Short term effects are caused by intermittent or periodic peak emissions at relatively high concentrations released over a short period of time. The distance over which an effect could occur will be dependent upon particulate size and prevailing wind direction. Large particles ($>30\mu\text{m}$) will mostly deposit within 100m of the source, intermediate particles ($10\text{--}30\mu\text{m}$) are likely to travel up to 200 - 500m, smaller particles ($<10\mu\text{m}$) can travel up to 1km from the source (DETR 2000). The installation is located at 250m from the European site, at this distance deposition of some intermediate and smaller particles would be expected.

Due to the close proximity of the installation to the SAC and Ramsar, it is likely that a large proportion of particulates emitted from the process will be deposited on the European site.

4. In combination assessment

Assessments of adverse affect on site integrity should consider the application for a permission alone (in the context of prevailing environmental conditions), and/or in combination with other plans/projects (in the context of prevailing environmental conditions). 'In-combination' effects can be additive, neutralistic or synergistic, and can be overlapping or discrete. In order for an in-combination effect to take place there must be a source and mechanism of impact from the landfill. The removal of the source and mechanism will remove the potential for an in-combination effect.

Table 8 In combination mechanisms

Additive effects	Those where the total effect of a number of effects is equal to the sum of the individual effects
Synergistic effects	Those where the effect of the interaction of a number of effects is greater than the sum of the individual effects
Neutralistic effects	Those where the effects counteract each other, thereby reducing the overall effect
Overlapping	That is affecting the same spatial area of a feature and/or the same attributes of the feature; e.g. the mixing zones of two separate discharges overlap
Discrete	That is affecting different areas and different attributes of the feature; e.g. two separate discharges affect geographically discrete areas of a habitat within a site. 'In combination', the total area of habitat affected may be unacceptable in terms of site integrity.

Wrexham County Borough Council and the Welsh Assembly Government were consulted as competent authorities on the 10 August 2005, they did not identify any plans or projects that should be considered in combination with this assessment.

Modelling has been undertaken for the Review of Consents, and for the assessment of new permits to identify sources of deposition at European sites. The sources included in the modelling are:

- Major industrial point sources regulated by the Environment Agency (E)
- Other Environment Agency regulated sources (119)

- Major industrial point sources regulated by SEPA or DoEH (Northern Ireland) (N)
- Other combustion and industrial processes which are likely to be regulated by local authorities (R)
- Domestic combustion, European and Global emissions (Background)
- Vehicles and Shipping (Transport)
- Emissions from livestock, fertilisers and non-agricultural sources (Ammonia)
- Sum of all sources (S)

The modelling was carried out for the year 2003 and removes some of the uncertainties associated with the modelling used in the alone assessment.

Table 9 Background N-deposition at the European Site as a %age of the maximum N critical load (10kg N/ha/yr) 2003

Regulated (E,N,R)	EA Major combustion (E)	Other EA sources (119)	Non-EA major combustion (N)	Other regulated sources (R)	Ammonia	Transport	Background	Sum of all sources
8.73	5.77	0.97	0.47	2.49	126.65	20.25	8.03	164.63

The main source of nutrient enrichment at the European site is from diffuse agricultural sources of Ammonia.

Table 10 Background N-deposition at the European Site as a %age of the total Critical Load (acid) 2003

Regulated (E,N,R)	EA Major combustion (E)	Other EA sources (119)	Non-EA major combustion (N)	Other regulated sources (R)	Ammonia	Transport	Background	Sum of all sources
148.2	123.76	13.67	4.79	19.65	177.54	34.94	33.02	302.23

The main source of acidification at the European site is from the long range deposition of S from Agency regulated sources, and ammonia primarily from diffuse sources.

The industry body for the power station operators (JEP) estimate that from a 2003 baseline, emissions of sulphur dioxide and oxides of nitrogen will reduce by about 47% and 9% respectively by 2010 and 66% and 62% respectively by 2016. These changes arise out of the requirements of the LCPD and can therefore be considered as measures which have been secured, although not yet fully implemented. They will significantly reduce the long range effects from the operation of these installations.

However the major source of NO_x (which is being considered in this assessment) is from transport, which accounted for about 40% of total emissions of NO_x in 2003. Different industry sectors (including those not regulated by the Environment Agency) accounted for approximately 44% of emissions, however, because these releases are generally made at a high level they contribute less to ground level concentrations than road transport emissions. Agriculture accounts for about 89% of total UK emissions of ammonia².

The intensive agricultural sector (pig & poultry farms) are coming under the PPC Regulations in 2007, the permitting of these larger farms will provide an opportunity to reduce emissions of ammonia, and consequently acidification at the Midlands Meres and Mosses Phase 2 Ramsar site. Within the Midlands Region of the Environment Agency it is expected that there will be 299 applications for a permit to operate an intensive pig or poultry farm under the PPC Regulations (see table below).

² AQTAG16 Guidance on completing AQ in-combination assessments within Stage 3 RoC for medium and low priority sites

Table 11 Numbers of intensive agriculture applications due in per Region

Anglian	Midlands	North East	North West	South West	Southern	Thames	Wales	Total
445	299	150	112	150	113	113	108	1490

There are currently no regulatory controls on these installations in terms of aerial emissions of ammonia. This process of re-permitting will be an opportunity to reduce emissions of ammonia from these existing installations through the implementation of best practice techniques, for example ensuring that litter is kept dry. It is expected that as a result of the re-permitting of existing intensive agricultural units, and the permitting of new installations, diffuse ammonia levels will be reduced by the year 2010, although it is not possible to quantify this until the applications have been received.

The modelling for Fenns, Whixall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar, summarised in tables 9 and 10 above, indicates that the main source of deposition at the site is transport and ammonia from agricultural sources. The installation is located in a largely rural area in close proximity to the A41 and the A495.

It is not possible to conclude no adverse affect on site integrity in combination with major combustion sources, transport and diffuse sources of ammonia.

5. Conclusion and options appraisal

Due to the elevated levels of nutrient-N deposition modelled at the Fenns, Whixhall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar from NO_x deposition it is not possible to conclude no adverse affect on site integrity in the context of local environmental conditions. The operator has not modelled deposition from emissions of ammonia, however monitoring carried out at the SAC indicates that the installation is contributing to the elevated background levels of N-deposition that can be attributed to ammonia.

Particulates are also likely to result in an adverse affect (short-term effect), with emissions at 194% short-term EAL.

An improvement condition will be placed on the permit which will result in the reduction of Nitrogen emissions from Befesa Salt Slags Ltd. The conditions will ensure that the deposition of nitrogen is less than 10% of the relevant critical loads, or that the predicted environmental concentration is less than 70% of the relevant critical loads at Fens, Whixhall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar for both nutrient enrichment and acidification.

Table 1.4.1: Improvement programme

Reference	Requirement	Date
3	The Operator shall undertake detailed air dispersion modelling of particulate, Oxides of Nitrogen and ammonia emissions to air with a method agreed in writing with the Agency. The Operator shall provide a report to the Agency detailing the findings of the study.	8 months
4	The Operator shall assess the options for venting and abatement of ammonia emissions from the BFA storage building, having regard for Sector Guidance (S4.03). Where an option is found that is considered BAT for future use, provide an implementation plan to the Agency.	12 Months
6	On completion of improvement condition 3, the Operator shall carry out a study of techniques required to reduce the impact of ammonia and Oxides of Nitrogen to a level at which air dispersion modelling shows that either the PC (Process contribution) is in the region of less than 10%, or the PEC (Predicted environmental concentration) is in the region of less than 70%, of the critical load for nutrient enrichment and acid deposition at the adjacent Special Area of Conservation and Ramsar site. The study shall include a programme to implement the techniques identified. The study shall be reported in writing to the Agency for their approval of both extent of works and timescale.	On completion of improvement condition 3

On completing improvement condition 3, the operator will be required to place abatement on the process to minimise the emissions of particulates to a level that will prevent an effect at the SAC and Ramsar site.

The intention of improvement condition 6 is that the process contribution to nutrient deposition from Befesa Salt Slags shall not exceed around 10% of the site critical load at the SAC and SPA, and allows for uncertainties inherent in air quality modelling.

English Nature will be provided with copies of any reports and modelling submitted by the Operator.

It is considered that the issue of a PPC Permit including the above improvement conditions is a reasonable and proportionate measure to ensure the overall protection of the environment, including the European site considered in this assessment, and those more distant from the installation.

Signed

Julian Ingram

(Team Leader, Strategic Permitting Group, Warrington)

Table 4 Appendix 12: Proforma for Stage 3 (Appropriate Assessment Record)

Summarised Conclusions:

Hazard	Interest feature	Favourable condition target for relevant attribute ¹ (including range of natural variation) based on conservation objectives	Contribution of attribute ¹ to ecological structure and function of site	Contribution of management ² or other unauthorised sources to attribute and /or feature condition	Adverse Effect of proposal alone on attribute ¹ and/or feature	Adverse Effect of proposal in combination with other plans or projects, on attribute ¹ and /or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar								
Toxic Contamination from particulates	All features	There are no specific targets within the FCT Rand and dome (mire expanse): A high cover of ombrotrophic Sphagnum; predominantly, a mix of Sphagnum species amongst cotton grasses and ericaceous plants. Rare plants e.g. marsh Andromeda.	Necessary for the ecological functioning of the site	The health of Sphagnum species is subject to suitable air quality, as is the vigour of their potential competitors, such as Molinia. Agricultural landuse and development has led to a situation on which the target is difficult to achieve in the short term. Further impacts that could limit rehabilitation should be avoided	Presence of negative indicator spp tolerant of metal rich particulate deposition	As alone	Through the use of abatement	No

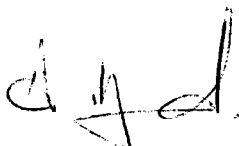
Hazard	Interest feature	Favourable condition target for relevant attribute ¹ (including range of natural variation) based on conservation objectives	Contribution of attribute ¹ to ecological structure and function of site	Contribution of management ² or other unauthorised sources to attribute and/or feature condition	Adverse Effect of proposal alone on attribute ¹ and/or feature	Adverse Effect of proposal in combination with other plans or projects, on attribute ¹ and/or feature	Can adverse affects be avoided?	Adverse affect on integrity; long term, short term. Yes, No or uncertain?
Nutrient Enrichment/ Acidification from emissions of NOx and NH ₃	All features	There are no specific targets within the FCT CL Nut_{max}N: 10kg N/ha/yr CL_{max}N: 0.51 keq/ha/yr Rand and dome (mire expanse): A high cover of ombrotrophic Sphagnum; predominantly, a mix of Sphagnum species amongst cotton grasses and ericaceous plants. Rare plants e.g. marsh Andromeda.	Necessary for the ecological functioning of the site	The health of Sphagnum species is subject to suitable air quality, as is the vigour of their potential competitors, such as Molinia. Agricultural landuse and development has led to a situation on which the target is difficult to achieve in the short term. Further impacts that could limit rehabilitation should be avoided	Presence of negative indicator spp tolerant of high nutrient/acidic conditions	As alone	Reduction of emissions to around 10% CL (PC) or 70%CL (PEC)	No

STAGE 3 AGENCY CONCLUSION

CAN IT BE ASCERTAINED THAT THE PLAN OR PROJECT WILL NOT ADVERSELY EFFECT THE INTEGRITY OF THE EUROPEAN SITE(S)? **YES**

Improvement conditions are available to prevent an adverse effect from Nutrient Enrichment, Acidification and Toxic Contamination. The operator will be required to identify methods to abate emissions of particulates, and reduce emissions of NOx and ammonia to levels that can be shown to be around 10% Critical Load, or around 70% Critical Load for the predicted environmental concentration for nutrient enrichment.

Name of EA officer undertaking appropriate assessment:



Signed:

Date: 12 May 2006

Endorsed by (if appropriate) e.g. team leader and date

EN/CCW COMMENTS ON APPROPRIATE ASSESSMENT:

IS THERE AGREEMENT WITH THE CONCLUSION? YES/NO

(Please provide summary and explanation for answer given)

Signed:

Date:

(Team Leader or as appropriate)

PART B: Final Appropriate Assessment Record

- Befesa Salt Slags Ltd, Whitchurch
- The application being considered is an application made in accordance with the transitional arrangements and timetable in the PPC regulations. The plant is an existing installation and releases from the installation are not new or substantially changed
- Agency Ref: VP3030SX
- Grid Ref: SJ 50680 38920
- Date of appropriate assessment: 12 May 2006

This is a record of the appropriate assessment required by Regulation 48 of the Habitats Regulations 1994, undertaken by the Environment Agency in respect of the above application, in accordance with the Habitats Directive (Council Directive 92/43/EEC). Having considered that the application would be likely to have a significant effect on the West Midlands Meres & Mosses (Phase 2) Ramsar, the Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses SAC and Ramsar, SAC and Ramsar and the Brown Moss SAC, and that the application was not directly connected with or necessary to the management of the site for nature conservation, an appropriate assessment has been undertaken of the implications of the proposal in view of the site's conservation objectives.

English Nature was consulted under Regulation 48(3) on 30th November 2005 and their representations, to which the Agency has had regard, are attached at Annex 1. The conclusions of this appropriate assessment are in accordance with the advice and recommendations of EN.

The site's nature conservation objectives have been taken into account, including consideration of the citation for the site and information supplied by EN. The likely effects of the proposal on the international nature conservation interests for which the site was classified or designated may be summarised as toxic contamination and nutrient enrichment.

The assessment has concluded that:

The plan or project as proposed cannot be shown to have no adverse effect on the integrity of the site. The imposition of conditions or restrictions on the way the proposal is to be carried out has been considered and it is ascertained it is possible to conclude no adverse effect on site integrity through the following measures:

Table 1.4.1: Improvement programme

Reference	Requirement	Date
3	The Operator shall undertake detailed air dispersion modelling of particulate, Oxides of Nitrogen and ammonia emissions to air with a method agreed in writing with the Agency. The Operator shall provide a report to the Agency detailing the findings of the study.	8 months
4	The Operator shall assess the options for venting and abatement of ammonia emissions from the BFA storage building, having regard for Sector Guidance (S4.03). Where an option is found that is considered BAT for future use, provide an implementation plan to the Agency.	12 Months
6	On completion of improvement condition 3, the Operator shall carry out a study of techniques required to reduce the impact of ammonia and Oxides of Nitrogen to a level at which air dispersion modelling shows that either the PC (Process contribution) is in the region of less than 10%, or the PEC (Predicted environmental concentration) is in the region of less than 70%, of the critical load for nutrient enrichment and acid deposition at the adjacent Special Area of Conservation and Ramsar site. The study shall include a programme to implement the techniques identified. The study shall be reported in writing to the Agency for their approval of both extent of works and timescale.	On completion of improvement condition 3

Signed

Julian Ingram

(Team Leader, Strategic Permitting Group, Warrington)

Calculation of N-deposition

Following on from work undertaken on the re-permitting of Power Stations, guidance was issued by AQMAU and the AQTAG on the 29 June 2005, which stated that all Habitats Directive assessments should be carried out using the updated parameters for deposition flux calculations for grassland and woodland (as used below). It also stated that NO₂ and SO₂ wet deposition from short range plumes is much less significant compared with dry deposition, therefore, will not be considered in habitats assessments.

The maximum ground level concentration of NO_x from the process is: 18µg/m³

The dry deposition velocity of NO₂ is taken as 0.0015 ms⁻¹

The dry deposition flux in µg NO₂ m⁻³s⁻¹ = 18 x 0.0015 = 0.027 µg NO₂ m⁻³s⁻¹

The conversion factor to go from µg NO₂ m⁻³s⁻¹ to kg N ha⁻¹yr⁻¹ is 96

The dry deposition flux in kg N ha⁻¹yr⁻¹ = 0.027 x 96 = 2.59 kg N ha⁻¹yr⁻¹

The conversion factor to go from kg N ha⁻¹yr⁻¹ to keq ha⁻¹ yr⁻¹ is 0.071428

The dry deposition flux of N in keq ha⁻¹yr⁻¹ = 2.59 x 0.071428 = 0.185 keq ha⁻¹yr⁻¹

Critical Load Function for Acidity and Acid Deposition at Site UK0012912 (Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses), 2149 (FENN'S, WHIXALL, BETTISFIELD, WEM AND CADNEY MOSSES)

