

Scottish Environment Protection Agency	Document Number	IED-DD-02
Pollution Prevention and Control (Scotland) Regulations 2012 Application for a Permit or Variation to a PPC Part A Permit Decision Document	Issue Number	V2.0
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Fourstones Paper Mill Company Limited
Sapphire Mill, Glenwood Road, Leslie, Fife
Permit Variation
PPC/A/1083904/VAR01

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How to use this form

Purpose of the document - This document is intended to demonstrate transparency of the determination process to all interested parties. It should record all significant issues, decisions made, actions taken, and rationale for the approach adopted. It should be sufficiently detailed to demonstrate that all legal requirements were adhered to and provide the basis for defending any appeal.

Language used – You should use non-technical language as far as practicable, avoiding unexplained acronyms and technical terms. While aiming to be comprehensive, it must also be as brief as possible, consistent with the overriding need for clarity and accuracy. Officers should bear in mind that much of the document may be available publicly under the Freedom of Information Act etc.

Timely recording of information - Completion of the various forms should be done on a progressive basis rather than at the end of the process.

Level of detail - Officers should use their professional judgement as to the level of detail required which will depend on the complexity of the process. Officers must consider why the information is required and ensure appropriate detail is included. Each table is designed to be expanded as text is added and will obviously allow the insertion of additional rows where necessary

Applicability of any Section - Do not delete whole sections of the form unless directed to do so. If something is not applicable to your determination please record this on the form and give a justification if appropriate indicating you have considered the issue and not just missed it.

1 Non-Technical Summary of Determination

Provide a non-technical summary of the process and determination

The proposed variation to this permit includes the installation of a modern paper machine with, associated stock supply, drying equipment and dust extraction. This will approximately double the papermaking capacity on site from 51100 tonnes to 80000 tonnes and will increase the number of paper machines on site from two machines to three.

The existing pulping and steam generation equipment on site will not change however this will be utilised more fully.

The incoming gas line and meter will be increased in capacity to cope with the additional drying demand.

There will be an increase to the annual site emissions to air and sewer however the ratio of paper product to volume emissions will be improved by using a more modern and efficient paper machine.

Current environmental controls and monitoring of emissions will be reviewed as part of the variation procedure.

The level of the increase in capacity at the site mean the changes the operator is making are equivalent to an activity in its own right and therefore constitute a Substantial Variation.

As a Substantial Variation the Regulations require SEPA to review the existing permit and introduce new or updated conditions were appropriate, this may mean additional changes will be required in addition to those requested by the operator.

Glossary of Terms

BAT - Best Available Techniques
 BREF – Best Available Techniques Reference Document
 BAT-C – Best Available Technique Conclusions
 CO – Coordinating Officer
 DAF – Dissolved Air Flotation
 ELV – Emission Limit Value
 WWTW – Wastewater Treatment Works
 PP&B – BAT Reference Document for the Production of Pulp, Paper, and Board

2 External Consultation and SEPA’s response

Is Public Consultation Required? (if no delete rows below)		Yes
Advertisement Check:	Date	Compliance with advertising requirements
Edinburgh Gazette	06/09/24	Compliant
Fife Free Press	12/09/24	Compliant
Officer Checking advert: ██████████		
No of responses received	None	
Summary of responses and how they were taken into account during the determination:		

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None

Summary of responses withheld from the public register on request and how they were taken into account during the determination:

None

Is PPC Statutory Consultation Required?
(if no delete rows below) **Yes**

Food Standards Agency: No concerns raised

Health Board: NHS Fife, No response received

Local Authority: Fife Council Identified/ raised possible Noise issues but had No objections to variation proposed

Scottish Water: No concerns raised

Discretionary Consultation required?
(if yes provide justification and details below, otherwise delete row) **No**

Enhanced SEPA Consultation required?
(if yes provide justification and details below, otherwise delete row) **No**

“Off site” consultation required
(if yes provide justification and details below, otherwise delete row) **No**

Transboundary Consultation required?
(if yes provide justification and details below, otherwise delete row) **No**

Is Public Participation Consultation Required?
(if yes provide justification and details below, otherwise delete rows below) **Yes**

STATEMENT ON THE PUBLIC PARTICIPATION PROCESS
The Pollution Prevention and Control (Public participation)(Scotland) Regulations 2005 requires that SEPA’s draft determination of this application be placed on SEPA’s website and public register and be subject to 28 days’ public consultation. The dates between which this consultation took place, the number of representations received and SEPA’s response to these are outlined below.

Date SEPA notified applicant of draft determination

Date draft determination placed on SEPA’s Website

Details of any other ‘appropriate means’ used to advertise the draft.
Seek advice from the communication department

Date public consultation on draft permit opened

Date public consultation on draft permit consultation closed

Number of representations received to the consultation

Date final determination placed on the SEPA’s Website

Summary of responses and how they were taken into account during the determination:

Summary of responses withheld from the public register on request and how they were taken into account during the determination:

REMOVE THIS BOX FROM ANY VERSION OF THIS DOCUMENT TO BE PLACED ON THE WEBSITE OR PUBLIC REGISTER. RETAIN IN THE VERSION FOR THE WORKING FILE.

3 Administrative determinations

Determination of the Schedule 1 Activity

The original permit was issued under the Pollution Prevention and Control (Scotland) Regulations 2000 falling under Section 6.1 Part A (a)(ii)

- (a) Producing—
(ii) paper and board with a production capacity exceeding 20 tonnes per day.

This translates to Section 6.1 Part A (b) under the PPC Pollution Prevention and Control (Scotland) Regulations 2012 Regs as

- Producing in an industrial installation—
(b) paper or card board if the production capacity is more than 20 tonnes per day,

The existing permit also includes the activities described in the PPC Pollution Prevention and Control (Scotland) Regulations 2012 Regs, SECTION 1.1, Combustion, PART B, (d) The burning of fuel in a medium combustion plant with a rated thermal input of 1 – 20 MW

The variation will change one of the existing Medium Combustion Plant described within the permit.

Determination of the Stationary Technical Unit to be permitted

As listed in the original permit (as varied) plus changes to the STU added through this variation

Determination of Directly Associated Activities

As listed in the original permit (as varied) plus the additional Directly associated Activities introduced through this variation

Determination of Site Boundary

There are no changes to the existing site boundary because of this variation.

4 Introduction and Background

4.1 Historical Background to the activity and variation

This variation will expand production at the Sapphire Mill which holds a PPC Part A permit for Paper and card board manufacture issued in 2011 under the Pollution Prevention and Control (Scotland) Regulations 2000.

As the site is increasing production by more than 20 tonnes then the variation is considered Substantial (the increase being over the Threshold for an activity in its own right). As described across the document as a Substantial Variation, SEPA is required to update conditions within the permit to accommodate changes that have been made to the Regulations since the permit was issued.

In addition SEPA has simultaneously undertaken a separate review of existing Part A permits to ensure compliance with Medium Combustion Plant Directive requirements which had been adopted prior to Brexit and translated into Scottish law through amendment to the 2012 regulations.

4.2 Description of activity

The principal activity carried out at the Sapphire Mill is paper and board (card board) manufacture

4.3 Outline details of the Variation applied for

This variation is to expand production at the site by the installation of a new paper manufacturing machine with associated stock supply, drying equipment, and dust extraction .

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This will approximately double the papermaking capacity on site and will increase the number of paper machines on site from two machines to three. The existing pulping and steam generation equipment on site will not change but will be utilised more fully.

As the variation is substantial (equivalent to an activity in its own right) SEPA has a Statutory Duty to review certain conditions due to changes in legislation since the permit was issued. In addition SEPA has agreed with the operator to undertake changes required by the Medium Combustion Plant Directive adopted before Brexit

4.4 Guidance/directions issued to SEPA by the Scottish Ministers under Reg.60 or 61.

Not Applicable

4.5 Identification of important and sensitive receptors

Nature Scot sites.

Holl Meadows SSSI PA Code 790, European Code 135475, is located approx. 1850m to the North West of the site. This application did not meet the criteria for referring to Nature Scot as defined in their consultation procedure 'How and when to consult Nature Scot'

Residential

The nearest residential receptors located at a higher elevation than the site:

Housing is located at approx. 121m to the north of the site, and approx.164m to the south.

5 Key Environmental Issues

5.1 Summary of significant environmental impacts

There are no significant environmental impacts anticipated as a result of this variation.

5.2 Emissions to Air

Point Source emission to air:

The monitoring parameters and frequency for the existing infrastructure and the emissions to air will not change. The new boiler installed on site is a second-hand unit first operated in 2013 but new to this site. It will be incorporated into the existing monitoring structure in line with the requirements of the MCP regulations.

Fugitive emissions to air:

The proposals contained within this variation do not alter the potential for fugitive emissions to air from the site.

Odour:

The potential from odour from the site is predominantly from the effluent treatment system.

The site has designed the paper mill processes and water treatment system to minimise the potential for odours. Stock and water storage tanks, pipes etc. have been installed in such a way as to avoid prolonged retention times, dead zones or areas with poor mixing in water circuits. Small tanks with short retention times are used throughout the process to minimise the potential for uncontrolled deposits and the decay/decomposition of organic and biological matter.

The site also uses water treatment chemicals, biocides, dispersants, oxidising agents etc. to minimise the potential for odour and decaying bacteria growth.

These procedures are in line with the requirements of BAT 7 PP&B

5.3 Emissions to Water

Point Source Emissions to Surface Water and Sewer:

There are no changes to the emissions to surface water because of this variation.

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Primary treatment of effluent is carried out on site prior to discharge to sewer, a trade effluent agreement is in place with Scottish Water which covers this discharge, and final treatment of the effluent is carried out at Levenmouth WWTW.

The operator has installed a higher capacity Dissolved Air Flotation (DAF) unit at the site's effluent treatment plant and is currently in operation. The new paper machine will also have its own DAF clarifier that will allow the recycling of process water and minimisation of the use of freshwater within the process.

In addition to this treated water from the effluent will be further clarified to allow its use in some cleaning applications around the site. This will reduce the potential volume of abstraction and discharge from the site.

There will be no change to the composition of the ingredients discharged to the sewer. There will be some increase in discharge volume and load to sewer in line with the increased production capacity of the site, this will be within the permitted discharge limits agreed with Scottish Water.

Point Source Emissions to Groundwater:

There are no point source emissions to groundwater included within this permit.

Fugitive Emissions to Water:

There are no changes to the potential for fugitive emissions to the water environment because of this variation.

5.4 Noise

An assessment of noise in relation to noise receptors outside the mill perimeter was submitted as part of the application.

On site there will be an increase in noise levels in certain areas within the mill, this will necessitate the use of hearing protection in certain areas for employees.

There are no current issues with noise complaints from residents within the vicinity of this site.

Noise details -

a) The site has no noise reduction program in place - Noise is currently monitored at points within the site and near the site perimeter on a regular basis using a calibrated handheld device. Additional monitoring points have been established on the roof. Independent testing and reporting takes place on a 4 yearly basis (measured from 4 points outside the site in Leslie and Glenrothes).

b) Distance/ buildings- the new paper machine will be located within main paper machine hall on the site of the previous PM1 Smith Anderson paper machine. The building is a largely brick and cladding wall construction with a cladding type roof. There are minimal doors and windows within this area. The building is located on the valley floor with the nearest receptors located at a higher elevation to both the north (121m) and south (164m) of the proposed new machine. Some woodland sits between the mill and the housing to the south. Due to geographical limitations and site constraints there are no options to move the location further away from receptors. The impact on noise from the paper machine is expected to be small however this cannot be verified until the machine starts.

Location of the vacuum, stock preparation, and extraction systems is inside the stock preparation building, this is at a slightly higher elevation than the paper machine. The building is, again, brick with a cladding roof, some polycarbonate windows and a bay door to the west side of the building. Stone walls are present in certain parts of the structure. Some roof venting is required. The impact on noise from the stock preparation equipment is expected to be small however this cannot be confirmed until the machine is commissioned.

- c) Management – A maintenance program is in place to prevent equipment failures and doors to the building are closed whenever possible.
- d) Enclosure – Most pieces of the new equipment are too bulky to consider enclosing. Once an assessment is made of the noise impact then consideration will be given on how to mitigate any noise from individual areas of the machine.
- e) Use of modern equipment. - The equipment to be installed, papermachine, vacuum pumps, and fans, are all new energy efficient equipment.
- f) Vibration insulation - All fans for the new machine are installed with rubber isolation to reduce noise and vibration
- g) Soundproofing buildings - Once the new equipment has been commissioned an assessment will be made of the noise impact and consideration given to mitigating any noise from individual areas of the buildings.
- h) Abatement – Installation within buildings.
At present the mill does not use attenuators on vents and the new papermachine will be installed in line with the current set up. Noise screening currently relies on the main fabric of the building and no additional screening is installed at present.

The proposals contained within the variation are consistent with the requirements Bat 17 PP&B

5.5 Resource Utilisation

Water use

Whilst the overall consumption of water on site will increase in line with production, the operator has installed measures to maximise the potential for water reuse on site as described in Section 5.3 above. This will assist in minimising the increase in water use and reduce the volume of water required per unit of paper produced.

Energy use and generation

Energy use on site will increase in line with the increase in production capacity.

Overall the consumption of Natural gas will increase by 56% in the case of all equipment running at capacity.

The new paper machine will include the use of a thermo compressor on the MG steam system, The MG cylinder itself is a modern, steel, high pressure cylinder. Using steel gives improved heat transfer and improved efficiency. All steam and condensate pipework will be fully insulated. Condensate will be recovered and returned to the boiler feed tank. Some heat will be recovered in the machine coating system.

All the motors selected for the new machine are high efficiency IE3 motors and variable speed drives will be used wherever possible.

Variable speed drives have not been selected for the vacuum pumps due to the stable product range that will be run on the machine.

Vacuum Pumps – The most energy efficient liquid ring pump was selected rather than the BAT, turbo fan option. Due to the relatively constant nature of the intended paper machine grades, running conditions and the smaller size of the new paper machine compared to modern large tissue machines, the cost to energy benefit was not evident when discussed with vacuum pump suppliers. (Turbo fans are efficient over varying vacuum levels however they are significantly more expensive than liquid ring pumps. The additional cost for turbo fan units would have been approx. £500k)

The 3 vacuum pumps selected (180,250 and 200kw) will run at an expected total power load of 390 kw whilst the smallest turbo fan available had a power load of 400kw.

Based on the total power requirements for the newly installed equipment (4240kWh) there will be a potential increase in the total site electricity use by 118% giving approximately 7800kWh in total. The used capacity will be less than this as not all the equipment will be running all the time and not all units will run at full capacity. The additional power will be provided from the national grid.

Currently the mill is running at around 1000-1100 kWh/t and the new machine is expected to run in a similar range, BAT indicates a range of electricity use in tissue mills of 900 to 3100 kWh/t.

The proposals contained within the proposed variation in relation to energy efficiency, are within the requirements of BAT 6 PP&B

Raw Materials Selection and Use

The currently permitted raw materials, their storage, and stock monitoring, will remain unchanged because of this variation.

The volume of raw materials utilised will potentially increase by a factor of 2, assuming all machines are operating at full capacity. The exception to this is the fibre stock. Currently the mill uses 100% recycled wastepaper, but the new machine will run virgin pulp.

The change will be less than double for the functional and process additives, as running with virgin fibre products places less demand on the use of chemicals within the process.

The site is currently BAT compliant for Materials Management and Housekeeping and this is not altered by the proposed variation. BAT 2 PP&B

5.6 Waste Management and Handling

Waste Minimisation

There will be an increase in the volume of waste produced in line with the increased production at the site. The increase applies to the mechanically separated rejects from pulping and the paper crumble produced.

Waste Handling

The current site waste segregation and collection will not be affected by the proposed variation.

Waste Recovery or Disposal

The manufacturing process utilises an under machine pulper to continually handle and treat waste paper, trim edges, and return it to the papermaking process.

Fibre is recovered from waste water using a centriscreen and is also returned to the papermaking system. A DAF unit is used to treat backwater from the process returning the clarified water to the paper manufacturing process.

Currently the waste sludge produced has too high an ash content to be reused on site (approx 68%).

Colours / pigments cannot be recovered

The proposals contained within the variation are consistent with the requirements of BAT 52 PP&B

5.7 Management of the site

Environmental Management System

The current Environmental Management System is not significantly altered by the proposed variation. Where necessary the documentation will be revised to include reference to the new paper manufacturing unit. BAT 1 PP&B

Accidents and their Consequences

There are no changes to the environmental potential of accidents or their consequences because of this variation.

Closure

The proposed variation does not affect the current site closure procedures.

5.8 Site Condition report

There are no changes to the requirements of the site condition report because of this variation.

5.9 Monitoring

Air

The monitoring parameters and frequency for the existing infrastructure on site will not change. The new boiler installed on site is a second hand unit first operated in 2013 but new to this site. It will be incorporated into the existing monitoring structure with an ELV set in line with the requirements of the MCP regulations.

Water

The proposed variation does not affect the current monitoring or procedures for monitoring discharges to water.

Soil and Groundwater

The proposed variation does not affect the current monitoring or procedures for soil and groundwater.

Waste

The proposed variation does not affect the current monitoring or procedures for waste on the site.

5.10 Consideration of BAT and compliance with BAT-Cs if appropriate

Where relevant, comments have been included in the relevant sections above regarding BAT associated with this application.

6 Other Legislation Considered

Nature Conservation (Scotland) Act 2004 & Conservation (Natural Habitats &c.) Regulations 1994

Is there any possibility that the proposal will have any impact on site designated under the above legislation? If yes, provide information on the action and justification below:	No
Is there any other legislation that was considered during determination of the permit (for example installations that may be impacted by the requirements of legislation involving Animal By Products, Food Standards, Waste, WEEE regulations etc). If yes, provide information on the legislation, action and justification below:	No

7 Environmental Impact Assessment and COMAH

How has any relevant information obtained or conclusion arrived at pursuant to Articles 5, 6 and 7 of Council Directive 85/337/EEC on the assessment of the effects certain public and private projects on the environment been taken into account?

N/A

How has any information contained within a safety report within the meaning of Regulation 7 (safety report) of the Control of Major Accident Hazards Regulations 1999 been taken into account?

N/A

8 Details of the permit

Do you propose placing any non standard conditions in the Permit?

No

Do you propose making changes to existing text, tables or diagrams within the permit?

Yes

Outline the changes required and provide justification below:

Proposed Condition Number:	Proposed Change:	Justification:
1. Interpretation of Terms	The interpretation of terms has been altered to include references to descriptions used within the Medium Combustion Plant Directive.	The descriptions added are not included within the existing permit and are required to provide clarity.
2. Interpretation of Terms	The definition of Medium Combustion Plant has been amended.	The new description accurately reflects the definition contained within the PPC Regulations and Medium Combustion Plant Directive.
1.1.4.1	Existing condition and replaced by new condition.	The new condition includes all three paper making machines on site.
1.1.4.2 and 1.1.4.3	New conditions have been added to the permit to include descriptions of the two boilers on site.	The new conditions accurately describe the type and thermal capacity of each of the boilers used on site.
1.1.5.1	The condition has been deleted and replaced by a new condition	The new conditions accurately describe the three gas fired end hoods used on site and includes their thermal capacity.
1.2	The Site Plan has been replaced	The Site Plan has been updated to reflect the proposals contained within this variation.
1.3	A new diagram has been included to represent the process on the site	A process flow diagram has been included to accurately depict the on site processes, their inputs and outputs.
Table 5.1	Table 5.1 has been updated to reflect the emissions to air and monitoring requirements resulting from this variation	The revised Table 5.1 includes the retained emission points and ELVs for existing equipment along with the ELVs and monitoring requirements for the new boiler to the site.

Table 5.2	Table 5.2 has been updated to reflect the emissions to air and monitoring requirements resulting from this variation	The revised Table 5.2 includes the appropriate monitoring methodology and reporting requirements.
Explanatory Notes	Section 5, ADDRESS, TELEPHONE NUMBER	Section 5 has been updated to include up to date contact information.

9 Emission Limit Values or Equivalent Technical Parameters/Measures

Are you are dealing with either a permit application, or a permit variation which would involve a review of existing ELVs or equivalent technical parameters?	Yes
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Outline the changes required and provide justification below:

The ELVs associated with the existing infrastructure on site have not been altered by the proposals within this variation. The new boiler installed has ELVs taken from the Medium Combustion plant directive as follows:

Substance: Oxides of Nitrogen (as NO₂) New Site Boiler
 Relevant emission benchmarks: As per PPC 2012, Annex 2, Part 2, Table 1 Emission limit values (mg/Nm³) for new medium combustion plants other than engines and gas turbines”
 Firing on Natural Gas ELV: 140mg/m³ (The regulatory ELV is 200mg/m³ but the limit within the permit is consistent with existing permit conditions)
 Firing on Natural Gas ELV: 200mg/m³ (This is as described within the regulations

Emission point: A2
 Rationale: The ELV is in line with the currently permitted boiler emission limits and will maintain the sites performance with regards to emissions.

10 Peer Review

Has the determination and draft permit been Peer Reviewed?	Yes
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11 Final Determination

Issue of a Permit - Based on the information available at the time

Issue a Permit – Based on the information available at the time of the determination SEPA is satisfied that

- The applicant will be the person who will have control over the operation of the installation/mobile plant,
- The applicant will ensure that the installation/mobile plant is operated so as to comply with the conditions of the Permit,
- That the operator is in a position to use all appropriate preventative measures against pollution, in particular through the application of best available techniques.
- That no significant pollution should be caused.

REFERENCES AND GUIDANCE

The Pollution Prevention and Control (Scotland) Regulations 2012

Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board
Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control) 2015

The Conservation (Natural Habitats, &c.) Regulations 1994

SEPA Nature Conservation Procedure for Environmental Licensing NCP-P-01

SEPA, Odour guidance 2010

BS EN 14792:2017 Stationary source emissions. Determination of mass concentration of nitrogen
oxides. Standard reference method.

BS EN 15058:2017 Stationary source emissions. Determination of the mass concentration of carbon
monoxide. Standard reference method

BS EN 13284-1:2017 Stationary source emissions. Determination of low range mass concentration of
dust