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Environment Agency Permitting and Support Centre
Quadrant 2,
99 Parkway Avenue,
Parkway Business Park,
Sheffield. S9 4WF

Dear ██████████

**Response to Environment Agency Permit Variation Application –
EPR/XP3832NV/V004**

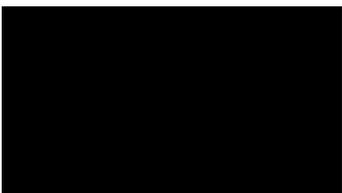
A permit variation application was submitted by Ramboll, on behalf of Angus Fire Limited (referred to hereafter as “Angus Fire” or “the Client”) to the Environment Agency (EA) on 29th April 2025. The permit variation application was to vary the Environmental Permit EPR/XP3832NV/V004 for the Angus Fire site located at Station Road, Bentham, Nr Lancaster, LA2 7NA (the “Site”).

Following the submission of the application, and a response to a Schedule 5 Notification. A request for further information was issued by the Environment Agency on 2nd September 2025.

This letter report has been prepared to provide/confirm the request for further information. The response is set out in the following table and appendices.

We trust that the above information is sufficient to close out the request for further information received on 2nd September 2025, allowing you to progress with the determination of the variation of the Permit.

Yours sincerely,



Compliance, Strategy & Transactions UK & Ireland

Request for Information	Response
Comments Provided in Request for Further Information	
<p>1. Demonstrate that the treatment train proposed (SAFF and PAC) is sufficient to treat the range of short and long C-chained molecules that may be present as PFAS compounds in the Angus Fire stormwater.</p>	<p>See Schedule 5 responses (Angus Fire Permit Variation Application EPRXP3832NVV004 -Schedule 5 Response, Sept, 2025.) and BAT assessment (BAT Assessment Technical Note, Sept, 2025) for the efficacy of the treatment train. See also Q2</p> <p>Angus Fire undertook sampling of stormwater from different areas of the Site to characterise the nature and magnitude of the PFAS contamination. All sampling undertaken is of the full PFAS suite provided by Element laboratories. The full PFAS suite that is available has evolved from 50 PFAS species to an expanded 53 PFAS species which became available at the beginning of 2025.</p> <p>From the 53 PFAS species, analytical data has demonstrated that the stormwater collected during the onsite sampling programme consistently included the following 13 PFAS Compounds - PFOS, 6:2FTAB, 6:2FTS, PFHxA, 8:2FTS, PFPeA, PFHpA, PFBA, PFOA, PFHxS, FHxSA, PFNA and PFDA. The remainder of the PFAS species in the PFAS suite were below the limit of detection.</p> <p>A BAT assessment was developed in response to a Schedule 5 notification issued by the EA. The BAT assessment concluded that the treatment train consisting of SAFF and PAC was representative of BAT since:</p> <ul style="list-style-type: none"> • SAFF delivers >99% PFOS removal, proven at the site through trials of the process; • PAC is capable of removing short-chain PFAS which may not be fully captured through the SAFF stage; • PAC dosing can be configured to deliver optimum removal whilst minimising waste generated; • The combined system is capable of removing over 90% of all PFAS compounds present; • The combination of SAFF and PAC has been demonstrated to achieve the proposed emission limit of <10ng/l PFOS; • SAFF provides a sustainable mode of operation with a low energy input and generation of small volumes of waste. <p>Whilst the only current regulated PFAS compound is PFOS, the proposed discharge concentrations targeted by Angus Fire has always been defined as: <10ng/l PFOS and a greater than 90% reduction of total PFAS.</p> <p>To date through testing of commissioning samples, after an extensive phase of optimising system performance, the Treatment Train has delivered PFOS removal to levels to below 6.5 ng/l. However, the project focus has been on optimising the removal of all exhibited PFAS compounds and in this regard has consistently achieved removal rates in excess of 99% during the commissioning phase.</p> <p>The table below presents the results of the PFAS suite for six samples of contained stormwater prior to treatment and post-treatment. It can be seen that the average concentration of all recorded PFAS in the pre-treatment water is 75 ug/l. Following full scale treatment, the concentration of PFOS was reduced to <6.5 ng/l and all other species were reduced by >99%. This provides clear demonstration that the proposed treatment train is sufficient to treat the PFAS compounds identified in the stormwater.</p> <p>Although the proposed removal target has been demonstrated, it is intended to continue to further optimise the process. However, this cannot be undertaken at this point in time due to the significant volumes of contained stormwater currently stored on site, meaning there is no capacity to operate the treatment train until the discharge of treated stormwater is permitted.</p>

Data Summary From Angus Fire SAFF/PAC Treatment Train Commissioning

Data covers 6 influent samples and 6 Effluent Samples

Commissioning Stage Reference	Date	Outline description of scope	Influent Source	Influent PFOS (ug/l) LOD of 0.05ug/l Lab Standard level.	Influent Non-PFOS PFAS Total Targetted Species (ug/l) Various LOD, at Standard Lab LOD. 6:2FTAB (Capstone B), 6:2FTS, PFHxA, 8:2 FTS, PFPeA, PFHpA, PFBA, PFOA, PFHxS, FHxSA, PFNA, PFDA	Total Influent Concentrations (All recorded PFAS) (ug/l)	Post PAC PFOS (ug/l) LOD of 0.0065 ug/l (x10 dilution to low level)	Post PAC Total Detected PFAS Species PFAS Total Targetted Species (ug/l) Various LOD, x10 dilution to Std low level. 6:2FTAB (Capstone B), 6:2FTS, PFHxA, 8:2 FTS, PFPeA, PFHpA, PFBA, PFOA, PFHxS, FHxSA, PFNA, PFDA	% Reduction of other identified Compounds (Target > 90%)	Effluent Capture	Effluent Sample Volume
T11	08/04/2025	Final Optimised Process Trial with foaming agent (This trial became the current standard for Tank Scale commissioning)	Contained Stormwater harvested from Lineside Sump or Tank Farm Bund	3.05	58.8	61.85	<0.0065	0.380	99.6%	To Tank	27m ³
T12A	15/05/2025	Operational Standard (As T9, T10, T11) but at larger scale to feed to 1 (ONE) Discharge Tank (B10) - One batch indicative sample only		3.77	85.9	89.67	<0.0065	0.223	99.8%	To Tank	27m ³
T12B	15/05/2025	Operational Standard (As T9, T10, T11) but at larger scale to feed to Discharge Tanks (B11/B12) - One batch indicative sample only		4.53	93	97.53	<0.0065	0.224	99.8%	To Tank	27m ³
T12C	03/06/2025	Operational Standard (As T9, T10, T11) but at larger scale to feed to Discharge Tanks (B13/B14) - One batch indicative sample only		2.39	54.47	56.86	<0.0065	0.480	99.1%	To Tank	27m ³
T13	05/06/2025	Operational Standard (As T9, T10, T11) but at larger scale to feed to Discharge Tanks (B15/B16) - One batch indicative sample only		2.7	76.53	79.23	<0.0065	0.591	99.1%	To Tank	27m ³
T14	09/06/2025	Operational Standard (As T9, T10, T11) but at larger scale to feed to Discharge Tanks (B17/B18) - One batch indicative sample only		2.76	62.58	65.34	<0.0065	0.505	99.2%	To Tank	27m ³

<p>2. Demonstrate that the use of PAC treatment in conjunction with SAFF is BAT compared against the use of ion exchange resin in conjunction with SAFF – particularly in their abilities to remove short chained PFAS compounds.</p>	<p>As presented within the response to the Schedule 5 request for further information submitted 5th September 2025, an assessment of BAT considered the use of PAC to be equivalent to ion exchange. The estimated waste volume from the use of PAC is currently estimated at 12.48 tonnes a year, however by applying a single-use approach it reduces the risk of breakthrough and preferential adsorption, delivering a consistent output in relation to PFAS. PAC does not require the specificity of ion exchange in relation to its availability, ensuring a consistent supply to maintain a high level of treatment.</p> <p>Ion exchange can be applied as either single-use with disposal and replacement once the resin is saturated or using a regeneration and reuse approach. To maintain the effective operation of the units, backwashing would be required on a regular basis, generating a contaminated backwash effluent that would require off-site disposal. Single-use resins would be expected to generate similar levels of waste to the PAC process and due to specific nature of the resins required would generate additional cost. Alternatively, regeneration would require the use of solvents such as methanol to undertake the recovery process. Whilst this would reduce the generation of solid waste from the disposal of the resin, this is offset by the storage and use of solvents and the generation of hazardous waste from the regeneration process. Alternative regeneration solvents such as sodium chloride solutions can be applied, but this has the potential to limit the options for currently available disposal techniques.</p> <p>Commissioning tests on the treatment train have demonstrated removal rates for the 13 species of PFAS identified exceed 99% on average, providing a high level of removal. The data clearly demonstrates that within the treated stormwater, all PFAS species with the exception of PFBA, PFPeA and PFHxA are reduced to below the limits of detection, and that the remaining species concentrations are reduced by around 90%. The data on the LOD and analytical method is also presented.</p> <p>The H1 assessments undertaken for the discharge, including assessment against the Drinking Water Inspectorate standards at the point of abstraction to Langthwaite Reservoir (see Q9) demonstrates that the proposed treatment achieves levels within the discharge that result in insignificant impacts at the identified assessment points. See data provided for Q3b for full details on species concentrations.</p> <p>Angus Fire notes that the proposed treatment train is modular, allowing for review and replacement of stages of the treatment process in future should alternative techniques be considered more appropriate. For the purposes of the current situation, the application of PAC as a second stage in the treatment train is considered to represent BAT as it has been demonstrated to achieve a consistent and high-level removal rate that results in an insignificant impact in the receiving environment and achieves this using a simple and consistent methodology that does not require additional chemicals.</p>
<p>3. (a) Will the proposed Angus Fire treatment train (SAFF/PAC) reduce PFAS concentrations in stormwater to comply with the Drinking Water Inspectorate (DWI) non-binding guidance for England and Wales of a guideline value of 0.1µg/l for the sum of 48 named PFAS compounds, effective from January 2025.</p>	<p>During the commissioning process, the treatment train has been shown to be effective at removing >99% of all encountered PFAS species and reducing PFOS to <6.5 ng/l. The analyses of the treated stormwater would indicate that 0.4 ug/l of all encountered PFAS species is present in the discharge.</p> <p>The Drinking Water Inspectorate (DWI) provides regulatory guidance and ensures compliance with drinking water quality standards in England and Wales. The DWI does not provide legally binding limits for PFAS in drinking water, however, the precautionary guidelines provide a value of 0.1 ug/l for the sum of 48 named PFAS compounds. The treatment train developed at Angus Fire has not been designed to produce drinking water and therefore it is not considered appropriate to compare the discharge to drinking water standards.</p> <p>However, an impact assessment of the residual PFAS species within the discharge in relation to the abstraction point on the River Lune at Caton was undertaken using the EA’s H1 assessment tool. The outcome of this assessment is presented in detail in Q9. In summary, the discharge would not result in significant impact at the point of water abstraction for drinking water. It is noted that water abstracted at this point undergoes further treatment by United Utilities before it is distributed to the potable water supply.</p>

<p>3. (b) Submit a set of analytical results on at least six samples each of pretreatment and post-treatment stormwater against the range of PFAS substances outlined in Annex 1 to this note and delivering the limits of detection (LOD) for each PFAS substance also outlined in Annex 1 to this note.</p>	<p>The results or pre- and post-treatment stormwater against the range of PFAS substance outlined in Annex 1 of the RFI is presented in Appendix 1.</p> <p>The data clearly demonstrates that within the treated stormwater, all PFAS species with the exception of PFBA, PFPeA and PFHxA are reduced to below the limits of detection. The data on the LOD and analytical method is also presented.</p> <p>For concentrations of PFAS species in the influent, please refer to Q1.</p>
<p>3 (c) Submit a set of analytical results on three samples each of pre-treatment and post-treatment surface water to determine the total organofluorine content of these effluent streams. For this, you should use Total Organic Fluorine (TOF) analysis or Total Oxidisable Precursor (TOP) Assay on the samples.</p>	<p>A set of samples have been collected and sent to the laboratory for testing for total organic fluorine by TOP assay, Total Organic Fluorine and full PFAS suite (+6:2 FTAB) at standard limits. The samples were sent to the laboratory on 17th September 2025. The expected timeframe to receive the results is 3-4 weeks from submission. The results will be issued to the EA on receipt.</p>

4 Demonstrate that final stage destruction of PFAS-contaminated SAFF and PAC waste by high temperature incineration (HTI) is BAT when compared against other techniques to fully mineralise the remaining PFAS compounds.

The proposed use of high-temperature incineration for disposal of the final PFAS concentrate is considered to represent BAT as the only currently available technology which can be immediately applied to achieve full mineralisation of the extracted PFAS.

Angus Fire's approach is to separate and remove the PFAS from the stormwater, with destruction provided through third-party technology providers offsite. It is not Angus Fire's intention at this point in time to manage the technical complexities of a full mineralisation process onsite.

Angus Fire is aware of alternative technologies including Electrochemical Oxidation (EO), Supercritical Water Oxidation (SCWO) and Hydrothermal Alkaline Treatment (HALT). These all represent potential alternatives for future treatment either on- or off-site. However, it is Angus Fire's understanding that there remains some uncertainty over the efficacy of these technologies – for example, a review of EO in the Journal of Hazardous Materials¹ noted that "High removals of long-chain PFASs ranging from 77% to > 99% were recorded, but short-chain PFASs concentrations including PFBA, PFBS, PFPeA and PFHxA increased after treatment, indicating formation of short-chain PFAS intermediates during the treatment". It is not Angus Fire's intention to increase the presence of short-chain PFAS within the discharge, so the preferred approach remains to remove the PFAS concentrate for off-site disposal at a regulated facility. The review also identifies that whilst EO has been shown to be effective in laboratory conditions, "the widescale application of EO is challenged by 1) the low PFASs concentrations and low-conductivity of contaminated water in real scenarios, 2) high energy consumption and 3) high capital costs".

A recent study published by the EA on 24th September 2025, assessed the efficacy of incineration and alternative remediation methods for PFAS treatment "Rapid evidence assessment of PFAS incineration and alternative remediation methods: summary"².

The Chief Scientist Group report summarised that HTI can achieve near-complete mineralisation and destruction efficiencies above 99.99% for PFAS in firefighting foams when operated at 1,110°C with a 2-3 second residence time. Emerging destructive technologies including mechanochemical degradation, hydrothermal alkaline treatment, sonolysis, plasma treatment, electrochemical oxidation, supercritical water oxidation, and pyrolysis show promise for PFAS destruction across different waste streams. However, they face challenges with cost, scalability, and long-term reliability. Sequestration methods, such as activated carbon and ion exchange, are widely used to remove PFAS from water and treat localised contamination. These do not destroy PFAS and instead generate PFAS-rich residuals that must be carefully managed to prevent re-release into the environment.

The report concluded "HTI remains the only proven method for large-scale PFAS destruction, but it must operate under strict conditions to ensure effectiveness. Further research is needed to optimise performance and improve oversight. Although alternative destructive technologies are not yet fully commercialised, combining them with sequestration in a "treatment train" may offer the most practical and sustainable way forward"

Angus Fire recognises that alternative destruction technologies may offer a suitable alternative for PFAS destruction in the future once the scalability and long-term reliability issues identified by the Environment Agency are resolved, and will continue to review options in relation to management of PFAS within the stormwater (including final disposal of solute) as part of its environmental management system.

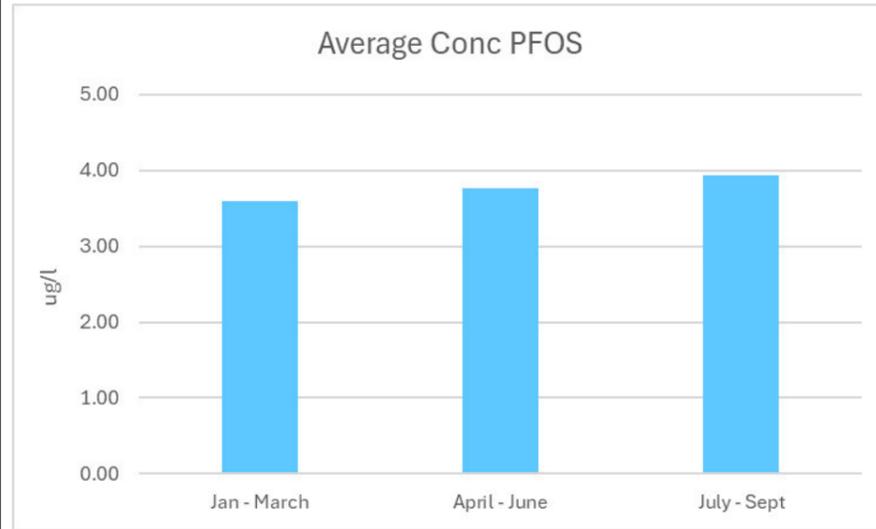
¹ Electrochemical oxidation processes for PFAS removal from contaminated water and wastewater: fundamentals, gaps and opportunities towards practical implementation: Journal of Hazardous Materials, 2022)

² /www.gov.uk/government/publications/rapid-evidence-assessment-of-pfas-incineration-and-alternative-remediation-methods/rapid-evidence-assessment-of-pfas-incineration-and-alternative-remediation-methods-summary

5 Confirm what assessment has been carried out to characterise the variation of PFAS composition of site stormwater across the calendar year. If no characterisation across the year has been carried out, demonstrate why seasonal effects impacting on PFAS composition of stormwater are not relevant.

Since Angus Fire commenced the storage of contained stormwater in June 2024, numerous samples have been taken and analysed. The graph below presents the average concentration of PFOS across the seasonal range (from 30 samples). It can be seen that the effluent is consistent with insignificant variation across the year. Whilst there is an absence of data available for the months October to December, it is anticipated that this will be a period of higher rainfall and likely lower concentrations (similar to those encountered in January to March).

The treatment train that has been developed is capable of treating significantly wider variations in concentration than encountered during this sampling programme and has demonstrated treatment efficacy across this range. The range reported for SAFF is 0.005 – 50,000 ug/l Total PFAS in the influent. For reference, the PFAS influent sample results presented in Q1 show a range of 56-97 ug/l.



6 Confirm that a continuous proportionate effluent sampling system will be installed to take samples of post-treatment surface water being discharged to W1 for demonstration and confirmation that treated stormwater released to the receiving environment is in compliance with permit emission limit values or trigger levels.

As defined in detail in the application to vary the Permit, and in the Schedule 5 response dated 5th September 2025, the sampling and analysis strategy is for a sample to be taken during the transfer of the treated stormwater to the pre-discharge tanks. This is a much more effective methodology as it ensures that only once the sample has been analysed at a third-party laboratory and they confirm that that the sample is <10 ng/l of PFOS will the discharge process be initiated. This is a much more robust system than allowing continuous discharge, whilst results from the laboratory are not known. The proposed methodology ensures that this never happens. This method is designed to ensure that the discharge is within specification **prior** to any discharge.

Angus Fire provided a detailed response in the Schedule 5 notification document. This is summarised below.

The treatment train has been designed to achieve a consistent performance for the specific nature of the stormwater contained on site. Data has shown that the influent is consistent regardless of seasonal variability. Commissioning data has demonstrated:

- (i) Consistent non-PFAS influent characteristics
- (ii) Consistent PFOS influent characteristics – consistent influent range of between ~3-5 ug/l.
- (iii) Consistent Foam Fractionation cycling
- (iv) Consistent Powdered Activated Carbon (PAC) dosing
- (v) Consistent reduction in PFOS and the 13 PFAS species identified.

During the optimisation of the treatment system, sampling of each of the post-treatment tanks was undertaken. The sample results show that all nine tanks reported post treatment total PFOS concentrations below the low-level MRL of 6.5 ng/l, achieving the proposed total PFOS discharge criterion of <10 ng/l.

Review of EA Guidance 'Monitoring discharges to water: guidance on selecting a monitoring approach' showed that there is no specific limit to the volume of effluent that can be validated by a single sample.

Therefore, on the basis that influent PFOS (~3-5 ug/l) and non-PFAS concentrations are consistent, the flow rate and batch size for each treatment stage is consistent and the level of treatment is consistent the use of one sample per 230 m³ – 265 m³ of treatment effluent is considered appropriate.

As presented in the Schedule 5 response, a short-term validation period is proposed to confirm that the above sampling approach is suitable. Angus Fire will undertake additional validation sampling during the initial period of operation to verify the consistency of the discharge concentrations.

It is proposed that for the first twelve weeks of operation, supplementary validation sampling will be undertaken. The validation sample will be a composite from each of the post treatment tanks during the fill stage.

	<p>If over the 12-week validation period the total PFOS results meet the discharge criterion of <10 ng/l, verification sampling would cease as a sufficient dataset will have been provided to validate consistent treatment performance.</p> <p>A sample point for compliance monitoring has been built into the discharge point at W2. However, it is not proposed that this will be used for routine monitoring as the above method is believed to be more robust.</p> <p>Angus Fire would also point out that where similar PFAS treatment technologies (particularly SAFF) have been deployed elsewhere in England, higher discharge flows have been permitted without the need for retention and validation prior to discharge; this appears to be indicative of the confidence the Environment Agency has in the SAFF treatment technology. The approach presented by Angus Fire is therefore precautionary, providing additional layers of protection through the validation process.</p>
<p>7 (a) Demonstrate why sampling and testing treated stormwater for only PFOS (against a limit of 10ng/l) is sufficient to provide a characterisation of the entire PFAS composition of the treated stormwater to be discharged to the receiving environment.</p>	<p>As presented earlier in the document, data has demonstrated that the treatment train performs consistently to remove the 13 species of PFAS identified in the contained stormwater, achieving a reduction of PFOS concentrations to below the Method Reporting Limit (MRL) of 6.5 ng/l and a reduction of all other PFAS species of >99%.</p> <p>At this point in time, the only PFAS species with an Environmental Quality Standard (EQS) against which impact and compliance can be assessed is PFOS, and an emission limit of 10 ng/l is proposed (as applied at other regulated facilities) to meet the required standards. To that end, the sampling and analytical method is sufficient to demonstrate that compliance with the proposed emission limit value is achieved. The performance data for the treatment train shows that where the PFOS limit is achieved, then the target reduction of 90% of all other PFAS species is also achieved. On this basis, the analysis of PFOS is an indicator or surrogate method for the other encountered PFAS species.</p> <p>As stated previously, Angus Fire is committed to optimising the treatment to achieve the optimum removal of all PFAS species. To that end, it is the intention that the treated stormwater will continue to be analysed for the full PFAS suite until the backlog of contained stormwater has been treated. This will likely be in excess of 7 million litres of treated stormwater which will provide a significant set of data. Analysis of the data will inform the decision on how best to proceed with the sampling and analysis protocol.</p>

<p>7 (b) Confirm the impact on timing of analytical testing and discharge sequences for post-treatment stormwater if analyses of further PFAS compounds, up to and including the 48 species identified by the DWI, was to be required before treated stormwater could be discharged to receiving waters</p>	<p>The current laboratory turnaround for samples for the full PFAS suite is 5 days. The responses provided to Q6 presents Angus Fire’s proposed approach to monitoring prior to discharge. However, Angus Fire will not discharge any stormwater until a sample for each batch has been submitted to a laboratory for testing and the results, regardless of long they take, are provided to confirm that discharge can take place.</p>
<p>8 (a) Confirm the expected energy usage of the PFAS treatment train processes including energy required for operation of treatment activities (SAFF and PAC units), pumping of materials and any other activities associated with the storage, transport, treatment and disposal of stormwaters contaminated with PFAS substances</p>	<p>The estimated energy requirements of the treatment train is 63,390 kW per year. This is estimated to be approximately 2.4% of the total energy use of the site.</p>

<p>8 b) Compare the energy required for removal of PFAS compounds from stormwater using the treatment train proposed against the quantity of energy required in high temperature incineration of stormwater containing PFAS substances.</p>	<p>Energy requirements of the treatment train are expected to be approximately 67,390 kW per year for normal operation, equivalent to 5 kWh/m³.</p> <p>Using a conversion factor of 0.177 kgCO₂e per kWh (<i>UK Government GHG Conversion Factors for Company Reporting 2025, Department for Energy Security & Net Zero DESNEZ</i>) the operation of the treatment plant would result in 11.2 tonnes CO₂e per year (based on 5 days per week and 52 weeks per year operation). The transportation of waste from the site and disposal by HTI would result in an additional 0.45 tonnes CO₂e a year, resulting in a total of 11.65 tonnes CO₂e per year.</p> <p>Comparatively, the same volume of effluent disposed of via high temperature incineration would result in 276.5 tonnes CO₂e per year in transportation emissions alone. This is based on 48m³ per day of stormwater for 5 days per week being removed from site, which is equivalent to approximately 12,480 tonnes per year.</p> <p>It is difficult to quantify the emissions from high temperature incineration of the specific waste as there are no specific published emission factors relating to this type of waste. However, according to the DESNZ generic conversion factors, 1 tonne of waste generates 4.68568 kgCO₂e (<i>DESNEZ emission factors for incineration with energy recovery 2025</i>) resulting in the release of 58.5 tonnes CO₂e per year from incineration alone. This is likely to be underestimated since the contained stormwater has an effective calorific value of zero, providing no contribution to the high-temperature incineration process and requiring additional fuel in the process (both in the form of increased fossil fuel use and blending with high-calorific wastes) to maintain the temperatures required for effective incineration.</p> <p>The emissions of the traffic movements of the waste must also be taken into account. The only facility currently able to receive the stormwater is in Fawley, near Southampton – a journey of 291 miles. Based on 12,480 tonnes of waste, the number of tanker loads removed from site would be ~500. The DESNEZ reports an emission factor of 1.50055kg CO₂e per mile (2025 data). The resulting emissions from transport would be 218.0 tonnes CO₂e.</p> <p>It can be seen that the use of the treatment train would result in significantly lower carbon emissions than that of high temperature incineration with the treatment option generating just over 4% of the CO₂ emissions of that resulting from incineration.</p> <p>The assessment does not take any account of the impact of the increased traffic and nuisance, as well as road safety implications, from the movement through the village of Bentham of the 500 tankers per year that would be required if off-site disposal of the contained stormwater was implemented.</p>
<p>9 Demonstrate that the discharge into the River Wenning of treated stormwater with PFOS concentration no greater than 10ng/l will not adversely impact human health should there be any drinking water abstraction further downstream of the River Wenning.</p>	<p>Six samples were obtained and analyses undertaken of the influent and the treated effluent in order to determine the efficacy of the treatment train. The samples were analysed for the full PFAS suite at the lowest available limit of detection.</p> <p>The laboratory "standard PFAS suite" has evolved from an initial 50 PFAS suite through 2024 to an expanded 53 PFAS suite which became available from the beginning of 2025. Throughout this timeframe both the PFAS 50 and 53 suites have included all the PFAS substances as per the DWI standards.</p> <p>The stormwater collected during the sampling programme onsite consistently and solely includes the following 13 PFAS compounds in the influent - PFOS, 6:2FTAB, 6:2FTS, PFHxA, 8:2FTS, PFPeA, PFHpA, PFBA, PFOA, PFHxS, FHxSA, PFNA and PFDA.</p> <p>With the exception of PFBA, PFPeA and PFHxA, all of the treated samples were below the applicable limit of detection (see Appendix 1 for the laboratory reports).</p> <p>In order to determine the potential impact of the discharge of treated stormwater at the drinking water abstraction point, a H1 impact assessment was undertaken using the EA methodology, "Surface Water Pollution Risk Assessment for your Environmental Permit – Screening Tests for Freshwaters³".</p> <p>The H1 methodology compares the concentration of a substance in the discharge to relevant Environmental Quality Standards (EQS). The only PFAS species that currently has a corresponding EQS is PFOS. Therefore, in order to compare the remainder of the PFAS species, it has been assumed that the EQS is equivalent to the DWI guideline value of 0.1 µg/l.</p> <p>In order to prepare a conservative estimate of the potential impact, where the concentrations of the 13 identified species were analysed as being below the limit of detection an extremely conservative view was taken and they were assumed to be at the limit of detection. The sum of the 13 identified PFAS species were then applied to the assessment. In addition, the maximum daily flow rate of 48 m³/day was used in the assessment (the average flowrate of 17 m³/d would ordinarily be used for assessment against annual average EQS).</p> <p>The consultation responses noted that the River Wenning feeds into the River Lune that is a protected drinking water source. The closest river monitoring station to the water abstraction point in the Lune is at Caton. Data from the National River Flow Archive was used in the assessment with the river flowrate at low flow (Q95) being 3.3 m³/s at monitoring station 72004.</p> <p>Input Data</p> <ul style="list-style-type: none"> • Average concentration of 13 PFAS species = 0.825 µg/l • DWI Guideline (EQS-AA) = 0.1 µg/l • Effluent flow rate = 48 m³/day (maximum daily flowrate) • River Flow Rate (Q95) = 3 m³/s <p>Using the H1 assessment, the discharge screens out as insignificant at Test 2. That is, the Process Contribution is less than 4% of the EQS.</p> <p>Despite the very conservative nature of the assessment, the impact of the discharge is considered to be insignificant at the point of water abstraction.</p>

³ <https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit#screening-tests-freshwaters>

10 Confirm if any solvents are used in the proposed treatment of stormwater containing PFAS and, if so, detail the name of the solvent, quantity of solvent to be used per year, maximum quantity of solvent to be stored on site at any one time and the storage/containment conditions accompanying that solvent.

There are no solvents used in the proposed treatment processes for the removal of PFAS from contained stormwater.