

Meeting Minutes

Meeting Title:	AGC Chemicals Europe Ltd., (AGCCE) & Environment Agency (EA) discussion on draft Regulation 61 Notice
Objective:	To discuss AGCCE feedback on draft Regulation 61 notice on PFAS releases from AGCCE Hillhouse site
Location:	Online (Teams)
Date & Time:	04/04/2023 13:30 – 14:30
Attendees:	[REDACTED]
Agenda:	1. Introductions (AGCCE/EA) 2. Overview of aim of Regulation 61 notice (EA) 3. Discussion and feedback on draft Regulation 61 notice (AGCCE/EA) 4. Next steps (AGCCE/EA)

1) Introductions

See list of attendees.

2) Overview of Regulation 61 notice

Overview of the aim of the Regulation 61 noticed provided by the EA.

The EA explained their key objective was to understand all current PFAS emissions to air, water, waste and product from AGCCE processes, but then focus on the key emissions.

The EA confirmed that that they were not targeting fluoropolymer emissions, they agreed to use the OECD PFAS definition, and stated fluoropolymers are to be excluded from the scope of the Regulation 61 information request as they are not of current interest.

The EA want to work with AGCCE to find a suitable method to deliver this and work in partnership. AGCCE agrees and will work with the EA to provide a comprehensive understanding of PFAS emissions in the most cost-effective manner.

The EA confirmed they are investigating historic PFOA emissions and looking to model where the historical depositions would have occurred and where it might be present at other sources – for understanding any residual risks.

3) AGCCE Comments on Draft Regulation 61 Notice 31/03/23

Covering Letter and Notice

AGCCE feedback:

There is reference in the cover letter and notice to *“Throughout correspondence in 2022 you have provided limited information concerning the releases of PFAS from your site”*, we are concerned, that to somebody who has not been part of our discussions, this reference might suggest that AGCCE has been less than co-operative.

From our perspective we have provided all the information regarding PFAS that has been requested to date. In addition, as you know, AGCCE has provided detailed information to the Environment Agency for development of the Chemical Assessment Unit review and shared information with the Site Inspector as required including provision of modelling reports and modelling files for the ARK plant, ecological survey of the River Wyre, sharing of plans for emissions abatement and invitations to visit site from AGCCE to site for more detailed discussions on PFAS emissions. We also provided detailed information when we applied to vary our permit to replace PFOA with SAA-1000 in 2012.

Would you consider changing the language so that it says we provided information in 2022 and you now require additional information?

EA agree AGCCE suggested wording.

General Comments on Guidance

The EA provided general context prior to responding to AGCCE comments on the Guidance document.

The EA want to understand all current PFAS emissions to air, surface water, waste and product from AGCCE processes at Hillhouse.

The EA referenced the Manchester PFAS analysis of our effluent reported in the Guardian where a high number of different PFAS were reported. The EA would like to understand which of the PFAS identified are coming from AGCCE.

The EA are seeking to compare common named PFAS & Total Organic Fluorine (TOF) content to establish PFAS released from AGCCE. The EA confirmed the purpose of this is to identify unknown PFAS (that AGCCE aren't currently monitoring). The EA confirmed they would be open to other suggestions.

The EA agree with suggested screening step to identify PFAS in W1 effluent discharge.

Action [REDACTED]: AGCCE to discuss requesting Manchester Metropolitan University PFAS results.

AGCCE Feedback:

Within the document there is reference to the Environment Agency reviewing AGCCE proposed procedures. Are you able to give an indication as to how long the EA will need to review?

How much detail of proposed monitoring methods is required for Environment Agency reviews? AGCCE will need to explore options for analysis with external contractors and in some cases expand or develop internal methods, are the EA able to join discussions on

methods with 3rd party laboratories and AGCCE to ensure methodologies being investigated meet expectations.

The above will impact how quickly we can provide the overall information and the final date of submission – as we won't be able to start the work until approval of methods, which can only be done once we have identified suitable laboratories and contractors. It may be better to have agreement on milestones / specific information requests, as a single date for all information to be provided may not yet be possible to accurately define.

We would like to discuss the scope and extent of the air / water monitoring that you are requesting be carried out. Some of the monitoring (for example SAA-1000 in effluent or C6H in air) could be done internally – but will not be accredited to international standards or independent. A lot will need specialist contractor support and the costs will be significant, initial estimates suggest these costs will be in excess of £0.5 million.

We don't currently know if we have sufficient contractors / external laboratories to look at all components proposed or their availability to undertake repeat testing required / turnaround times.

AGCCE has some equipment available and has links with laboratories and invested with them to develop sampling and analysis methods limited to only the main compounds used on site. Where equipment onsite can be used, we will need to plan manning and availability without impacting routine monitoring requirements and development of abatement processes which this equipment is being utilised to support.

Can the Environment Agency recommend any laboratories with suitable experience and methods for the wider substances that we could engage with?

Action [REDACTED]: AGCCE to provide high level overview & method for discussion with EA.

The EA confirmed that they cannot advice on methods or laboratories for the testing as they need to be able to maintain independence as a regulator. The EA suggested that using AGCCE internal lab would be OK, this should be identified in the methodology proposed by AGCCE.

The EA committed to providing feedback within 1 month.

AGCCE and the EA agree to keeping communication channels open. Main points of contact will be [REDACTED] (AGCCE) and [REDACTED] (Environment Agency).

AGCCE Feedback:

AGCCE has invested significantly in abatement equipment to minimise PFAS emissions already (in excess of £6m) and has plans to invest further (circa £3m) to further reduce emissions by the end of 2024 so this isn't simply a cost issue, rather we are trying to understand the exact information you are seeking and to agree something with you that is feasible and proportionate. We would like to understand whether this monitoring could be carried out on a phased approach/smaller scale with the results of the initial monitoring then determining whether, and if so what, additional monitoring is required. We are keen to ensure the cost and effort requested is proportionate given that the aim of the exercise is to assist the EA in setting new permit conditions.

The EA agree that costs should be proportionate. The key focus is to provide a comprehensive understanding of all emissions in the most cost-effective manner.

AGCCE Feedback:

As highlighted earlier it may be better to have agreement on milestones / specific information requests, as a single date for all information to be provided may not yet be possible to accurately define.

The EA confirmed that this can be facilitated, e.g. break down into milestones.

Action [REDACTED]: Milestones to be discussed and agreed.

AGCCE Feedback:

Annex I and Annex II substances, what is the required LOD from the EA?

EA confirmed that the minimum LOD is 10 ng/l (based on PFOS, PFOA analysis).

AGCCE Feedback:

Based on out process chemistry it is not possible to generate some Annex I substances and we can confirm that these substances are not used on AGCCE site. Do we need to look for these? Or do we need to do initial screening testing only to confirm / determine presence. Only if they are identified as being present unexpectedly would further monitoring be completed to aid investigation of the source within the AGCCE processes.

Action [REDACTED]: AGCCE to provide justification for PFAS not possible to release.

EA request initial screen to determine absence and agree to focus on PFAS which are present.

AGCCE Feedback:

Annex II, should Hexafluoropropylene (HFP) be included? HFP is a PFAS we use as a comonomer, which is chemically converted and chemically bound into the final product. HFP is also generated as an unwanted impurity in pyrolysis – the majority is destroyed via High Boilers either on site or via Veolia, there are traces trace in Waste Acid Stack (emission point A2), which will normally be routed to the Thermal Oxidiser.

AGCCE confirmed that there is a potential trace in polymerisation water (discharged to river via W1) and could make an assumption on emission.

Action [REDACTED]: EA to confirm if HFP should be included in Annex II

AGCCE Feedback:

Can the Environment Agency provide clarification on how much of what we submit ends up on public register, we need to understand how to manage process information that may be confidential.

EA confirm anything provided by AGCCE could be disclosed in FOI request.

AGCCE Feedback:

1. Quantification of PFAS releases to water

- AGCCE have concern that suggested methodology is mainly for drinking water assessment – other materials in effluent could impact the validity of these methods. AGCCE recognise the Environment Agency would accept alternatives being proposed and AGCCE will engage with specialist suppliers to propose methods.

As discussed, earlier TOF comparison suggested to be used to establish PFAS released, incl. initial screen.

AGCCE identified that for Annex II analytes methods are not down to LOD required, and that some Annex II substances not water soluble so would be difficult to develop methods.

AGCCE confirmed there is a method in place for EEA-NH4 (SAA-1000) analysis and this can be monitored both internally and externally.

Action ■: AGCCE to confirm technical feasibility of monitoring Annex II, EA open to discussion on alternative way of obtaining this data, e.g. mass balance.

AGCCE Feedback:

- AGCCE would propose we using the existing effluent sampler for W1, this being our discharge sampling point. This is representative of effluent discharged to River Wyre. EA agree.
- Can the Environment Agency provide clarification on sample type and flow rate measurement (assume a composite 24 hour sample with effluent flow reported for the 24 hour period?)
- Can the Environment Agency provide clarification on the requirements on flow rate from effluent. We already provide this in permit reporting – is the same number needed or is something different needed (is max, average, min needed? 24-hour period, 6 month period?)
- Can the Environment Agency provide clarification on sample number, frequency, and timescales (do each of 6 to samples need to be taken a distinct time periods or can they be grouped (e.g. 6 samples over 72 hours then repeated 3 months later vs 1 sample per week for 12 weeks, is there a minimum number of replication samples per distinct sample?).
- Is there are preference for 3 / 6 months? Is this 3 **to** 6 months, is this 3 **or** 6 months? Could it be over a 4 month period for example?

Action ■: EA to discuss clarification on sample number, frequency, and timescales with national permitting team.

AGCCE confirm production consistent on AGCCE plant 24 hours a day, 7 days a week, 365 days a year. The flow rate of discharge from W1 is approximately 30-40m³/hr normally but raises to 80-90m³/hr in periods of heavy rainfall.

AGCCE Feedback:

- Can the Environment Agency provide clarification in the relation to upstream/background chemical quality data, which we assume to mean samples of the River Wyre upstream of the effluent outfall – is there a minimum upstream distance or number of samples?
Note; AGCCE would normally utilise Environment Agency flow data for River Wyre given nature of the river and estuary.

AGCCE completed modelling on the river and there is a possibility to use modelled concentrations in combination with sampling.

Action ■: EA to discuss this approach of using modelled concentrations internally.

AGCCE Feedback:

- AGCCE do not believe there are seasonal impacts on process emissions, but the total effluent flow is dependant on rainfall. Rainfall is captured across the site and treated via the AGCCE effluent plant.
- The upstream/ background levels caused form other sources could be affected by seasonality,

- What is the Environment Agency view on seasonal changes in background levels from other sources – do the Environment Agency have any data / information they could share to aid development of the monitoring plan? Is 3 to 6 months a sufficient period to account for seasonal changes in background levels?
- ETFE and PTFE solids within the effluent could impact the TOF analysis, do the Environment Agency have an opinion on this? Are fluoropolymers included in the monitoring data and PFAS definition? Can you recommend a lab to complete the TOF analysis?

As above, the EA are not interested in PTFE/ETFE fluoropolymers, however AGCCE are concerned PTFE/ETFE could skew the TOF result. Aim of EA to compare the targeted PFAS analysis & TOF result – however this difference may be attributed to PTFE.

AGCCE Feedback:

2. Quantification of PFAS releases to air

- Can the Environment Agency provide clarification on mass emissions required, not sure why both Annex I and Annex II? In our view this should only focus on substances emitted from AGCCE.

Action ■: AGCCE to send list of PFAS releases to air (Annex II and PFOA).

The EA confirmed the main focus should be PFOA and SAA-1000 emissions. AGCCE agree and confirmed there are very low PFOA air emissions and SAA-1000 emission monitoring to air is ongoing and currently planned to be undertaken quarterly in 2023.

AGCCE Feedback:

- Can the Environment Agency provide clarification on sample number, frequency, and timescales (do each of 6 to samples need to be taken a distinct time periods or can they be grouped (e.g 6 samples over 72 hours then repeated 3 months later vs 1 sample per week for 12 weeks, is there a minimum number of replication samples per distinct sample?). To revisit once list issued.
- Is there a preference for 3 / 6 months? Is this 3 to 6 months, is this 3 or 6 months? Could it be over a 4 month period for example?
- In initial discussions with monitoring companies, they have concern about repeatability and uncertainty associated with very low concentrations emissions of compounds being monitored.
- They have highlighted no MCerts method exists for PFAS and referenced EPA OTM-45 and even then would need to have significant discussions with other experts to determine what is actually possible. Do the EA have any specialists who could advise or recommend any laboratories / methodologies.

Following AGCCE discussions with air emissions monitoring supplier that there would be difficulty in measuring such low concentrations. EA confirmed they would be open to considering other methods to getting this data e.g. mass balance.

Action ■: AGCCE to provide suggested methodology and method for calculation for air emissions.

Action ■: EA to discuss clarification on sample number, frequency, and timescales with national permitting team.

AGCCE Feedback:

3. Other PFAS releases

- Can the Environment Agency confirm the definition of PFAS that should be utilised. AGCCE recommends the OECD definition. Please note that PTFE and ETFE are defined as PFAS based on OECD and proposed EU PFAS restriction definition. Are fluoropolymer emissions excluded from this notice?
- Can the Environment Agency provide clarification on "all media", does this mean air and surface water, section 1 and 2 only cover these.

As above, EA confirmed acceptance of OECD PFAS definition and exclude fluoropolymers PTFE/ETFE.

EA confirmed that "all media" would include PFAS emissions to air, surface water, waste (e.g. landfill) and product.

AGCCE confirmed that there are some 3rd party reports available on groundwater e.g. Conceptual Site Model but groundwater monitoring is not undertaken.

AGCCE Feedback:

4. Information regarding PFAS contamination, risks and impacts on site and in surrounding areas.

- This request is very wide ranging and as you will appreciate goes back over a period of over 20 years.
- We are creating quite a lot of new data already (Request 1 & 2), which is likely to be more useful than reports going back over 20 years.
- We believe most of the reports we hold will already be held by the Environment Agency, is there a list which can be provided to AGCCE so we can cross check/confirm if additional reports are available?
- To the extent we identify any additional reports some of those reports may have confidential process information. Can we provide extracts relevant to PFAS only or redacted reports?
- The notice refer to risk assessments, impact assessments and similar documents – given this is more than a 20 year period can we agree to limit this to third party prepared site survey reports only?
- Can the Environment Agency provide clarification on the extent to which data provided will be available via the public register?

As above EA confirm anything provided by AGCCE could be disclosed in FOI request.

Action [REDACTED]: AGCCE to provide list 3rd party reports.

Action [REDACTED]: EA to provide list 3rd party reports issued by AGCCE for comparison with AGCCE list.

AGCCE Feedback:

5. Proposals to reduce PFOA releases to water

As outlined in CAR Forms BU5453IY/0451214 issued 16/02/2023 and BU5453IY/0457216 issued 01/03/23 AGCCE has already discussed outline plans with the Environment Agency [REDACTED]. The existing plans can be utilised to provide a more detailed proposal provided in the response.

6. Proposals to reduce Perfluoro(2-ethoxy-2-fluoroethoxy)acetic acid ammonium salt [EEA-NH4 (SAA-1000) releases to water

As outlined in CAR Forms BU5453IY/0451214 issued 16/02/2023 and BU5453IY/0457216 issued 01/03/23 AGCCE has already discussed outline plans with the Environment Agency

[REDACTED]. The existing plans can be utilised to provide a more detailed proposal provided in the response.

EA agree with feedback provided on point 5 and 6.

AGCCE Feedback:

7. Historic information related to releases of PFOA from the site.

- Are the Environment Agency able to provide more information on why this is requested and how it links with the permit review to aid AGCCE understanding in collating all relevant information?
- Can the Environment Agency provide clarification on what is meant by mean by first production on site - from 1999 when AGC took over? We don't have access to much information pre-1999, and some data will have been destroyed under data governance rules or retained / not provided by ICI (previous owners)
- AGCCE will have historical data on emissions that demonstrate compliance with the versions of the Environmental Permit in place historically and monitoring undertaken for the permit variation to replace SAA-1000, which have already been shared with the Environment Agency.
- Mass balance data for PFOA is available from 2003 to 2012 and a summary of this data has already been provided to the Environment Agency.
- An estimate of historic emissions between 1950 and 2012 has already been provided to the Environment Agency, and has been used in the Environment Agency in response to an information request from an external body:
Mass release emissions of PFOA between 1950 – 2012. The data is estimated using available information pre 2003 and based upon mass balance calculations from 2003 to 2012.
Of the approximate 250 tonnes of PFOA used on site releases were estimated as follows:
 - 75 tonnes to river
 - 70 tonnes to atmosphere
 - 80 tonnes to customers
 - 15 tonnes incinerated.
 - <5 tonnes to landfill.
- Can the Environment Agency provide clarification of any additional information requirements?

AGCCE noted the following regarding PTFE Micropowders:

- We would not expect sufficient impurities to be present in Fluon(R) PTFE micro powders to provide a useful fingerprint as although lower molecular weight than the other PTFE grades, they are still high molecular weight.
- PTFE irradiation completed off site.
- Treated PTFE micro powders go through ovens (abated through ARK plant ~30g/year from 400t PTFE micro powders) no route to effluent.

AGCCE identified that a large number of assumptions were made in estimating the quantities of PFOA used and emissions between 1950 and 2012. AGCCE focus is on future abatement.

EA queried the location of dominant AGCCE customers. AGCCE confirmed customers are global, with approximately 80% product exported. This is relevant to EA future investigation and outside the scope of this scope of Regulation 61 Notice. AGCCE confirmed customer information pre 2000 would be difficult to obtain but would have some customer information from early 2000 to 2012 for PTFE aqueous dispersions.

Action [REDACTED]: AGCCE to formalise data already provided on historic PFOA emissions as part of Regulation 61 response. AGCCE confirm no further work undertaken on this.

AGCCE Feedback:

8. Modelling of emissions from Product dryer

- Is AGCCE correct in the assumption that the emissions the Environment Agency are referencing is from the product oven emissions prior to the ARK plant installation (the product is dried in ovens which since late 2000s have been directed to ARK) correct?
- We can provide stack data (height and diameter) as it is now, but we will not be able to provide necessarily where ovens have been removed historically, used for alternative purposes or stacks have been relocated.
- We are unlikely to have representative velocity data or temperature – there was no requirement to monitor, we may be able to find indicative data from records, but not guaranteed. We currently have velocity and temperature data for inlet to the ARK plant, which has already been shared with the Environment Agency in modelling files.
- Release rates can be estimated from annual mass emissions, but will have varied dependant on product demand, product manufacture mix (drying cycles from few hours to 24+ hours and differing PFOA loading by grade), number of ovens online etc. we will not have the detailed analysis historical but may be able to develop an estimate.

Atmospheric dispersion modelling is currently being undertaken by the EA. The EA confirmed any approximate data that could be provided by AGCCE would be useful to assist the EA in understanding PFOA deposition in local area.

AGCCE confirmed that there were multiple stacks (approx. 8-10) across PTFE plant. As described in the feedback it would be difficult to establish emissions due to varying oven cycles, batch process (e.g. staggered start/stop), unknown oven velocities and temperatures.

AGCCE confirmed some reports for planning may include data on PFAS within soils on site, this would need to be reviewed.

4) Next steps (AGCCE/EA)

Action [REDACTED]: Circulate meeting notes.

Action [REDACTED]: Feedback from EA internal discussions on AGCCE feedback and proposed methodology.

Action [REDACTED]: Provide list of possible PFAS substances released from AGCCE Hillhouse.

Action [REDACTED]: Site visit to be arranged for EA technical group.