

APP/M1900/W/21/3278097
WITNESS STATEMENT

**Environment Agency Remediation Plan significant to
The proposed quarrying activity at the Hatfield Aerodrome**

By:	Sue Meehan / Michael Hartung - Members of Ellenbrook Area Residents Association
Date:	17 October, 2021
Use:	Appeal APP/M1900/W/21/3278097 (Nov. 2021) on rejection of proposed quarrying activity, Hatfield Aerodrome
Witness called by:	Ellenbrook Area Residents Association (EARA) and Smallford Residents Associations (SRA)

Environment Agency Remediation plan

1. Introduction

- 1.1 The bromate pollution has been referred to extensively throughout the planning application process and in the many documents provided for this appeal.
- 1.2 The bromate plume, as it is often referred to, is an unknown phenomenon that is proving difficult to predict and manage. Pollution of this nature is a rare event and little academic research exists on which to base theories on its behaviour. The plume is unique. The manner in which the original pollution occurred is not fully understood, and the extent of the spread of the pollution is influenced by the specific ground conditions. Therefore it is really difficult to have a complete understanding of exactly how and where it has spread to. Borehole readings can give an indication but only that. They cannot 100% guarantee exactly where the plume is and where it is going to travel to.
- 1.3 Therefore in our view, it is of utmost importance that no risks are taken with the management of the plume. It is for this reason that we believe that it is a high risk strategy to allow quarrying to be undertaken in the area where the plume exists.

2. First EA remediation plan

- 2.1 The first EA remediation plan has also been referred to extensively in various documents. As you are aware the Environment Agency are responsible for the remediation plan to manage the “clean up” of the bromate plume, yet despite 10 years of remediation work the plume shows little sign of abatement and continues to spread across Hertfordshire.
- 2.2 It is a fact that the first 10 year EA remediation plan has failed to clear the bromate pollution.
- 2.3 It is fair to say that as residents associations we had high expectations that the first remediation plan as agreed by the EA would have dealt with the bromate contamination and that after 10 years of operation the plume would have been eradicated or at the very least there would have been a considerable reduction in the levels of pollution and a reduction in the size of the plume.
- 2.4 However it is clear that this has not happened and that the plume has not reduced in size and that despite there being an extensive volume of bromate and bromide extracted through the Bishops Rise Scavenging station, and

millions of gallons of water wasted during the process, the bromate is as much an issue as it was when it was first discovered some 20 years ago.

3. Second Remediation Notice

- 3.1 A second remediation notice has been served. However the details of how the second plan will operate is yet to be determined.
- 3.2 The only operation that is currently taking place is that Affinity Water will continue to carry out the 'Scavenge Pumping' whilst the actions from the second notice are carried out.
- 3.3 It is clear from the second remediation notice that the EA believe that extracting the pollution from Bishops Rise Scavenging Station is not enough. The following are extracts from the Environment Agency remediation notice document for At Leonards Court.

Paragraphs of particular interest are highlighted in grey

REMEDIATION NOTICE – St Leonard's Court

"In accordance with 6.12 of the Contaminated Land Statutory Guidance, April 2012 (2012 Guidance) the Agency considers that a further remediation notice is needed for further phases. Actions under the First Notice have not achieved the remediation of the land to the required standard and further action is still necessary to achieve remediation of the land."

SCHEDULE 2

Remediation requirements and periods (Section 78E(1)EPA) The final Remedial Treatment Actions which will enable the land and controlled waters to be effectively remediated, to the required standards, still cannot be identified. This is because specific Assessment Actions are needed to characterise in detail the Significant Contaminant Linkages and to collect data to evaluate the likely effectiveness of Remedial Treatment Actions. Schedule 2 identifies a series of Assessment Actions that will enable Remedial Treatment Actions to be specified in one or more subsequent Remediation Notices or Voluntary Remediation Statements. However pollution of controlled waters is continuing. Schedule 2 therefore also includes an interim Remedial Treatment Action which is required to be implemented in a timescale and a form set out in this schedule.

SCHEDULE 4

Reasons for the Environment Agency's decision on remediation requirements (Regulation 4(1)(g))

The final Remedial Treatment Actions which will enable the land and controlled waters to be effectively remediated, to the required standards, cannot yet be identified. This is because specific Assessment Actions are needed to characterise in detail the SCLs and to collect data to evaluate the likely effectiveness of Remedial Treatment Actions. Schedule 2

identifies a series of Assessment Actions that will enable Remedial Treatment Actions to be specified in one or more subsequent Remediation Notices. However pollution of controlled waters is continuing. Schedule 2 therefore also includes an interim Remedial Treatment Action which is required to continue to a timescale and in a form set out in Schedule 2.

Assess the feasibility of treating the contaminated groundwater for public water supply or similar quality standards

1. An Assessment Action must be undertaken as below:

a. Assess the feasibility of treating groundwater from locations within the bromate plume between SLCourt and Bishop's Rise. The locations are: Orchard Garage, Harefield House, Nashes Farm, Hatfield Quarry and Bishop's Rise.

Assess locations in the vicinity of Bishop's Rise and up gradient for a treatment plant and connection to the raw water public water supply network

2. An Assessment Action must be undertaken as below:

a. Assess locations near to Bishop's Rise, Orchard Garage, Harefield House, Nashes Farm and Hatfield Quarry for the installation of a treatment plant which could be installed and operated to allow connection to Affinity's raw water supply network and/or connection to an injection borehole(s), surface water and/or the sewer network.

d. Identify any alternatives to the arrangements outlined in (a)-(c) above that might achieve the same objective of removing bromate and bromide from the aquifer and dealing with the abstracted water.

Identify the best practicable technique

3. An Assessment Action must be undertaken as below:

a. Using the information gained from actions 1 and 2 above: (i) Assess the practicality, effectiveness and durability of each option;

Assess scavenge pumping from a borehole array at Orchard Garage and other sites

4. An Assessment action must be undertaken as below:

a. Assess for Orchard Garage, Harefield House, Nashes Farm and Hatfield Quarry, a scavenge pumping trial of one year's duration from borehole(s) to remove bromate and bromide from the plume.

Report F1 update

8. An Assessment Action must be undertaken as below:

a. Taking account of the information gained from actions 1-7 above and the information gained from actions taken under the First Notice: (i) Assess or update the practicality, effectiveness and durability of each option, individually and/or in combination, as appropriate;"

- 3.4 It is clear from the Assessment Actions described above that there remains a significant amount of work to be undertaken to manage the pollution and that at the moment the agency do not know what, how and where is the best method to do this.
- 3.5 Action 8 above lays out the requirement for assessing the results from the previous actions to assess the practicality, effectiveness and durability of each option. So essentially at this moment in time the optimal plan for managing the bromate is unknown.

Extract from EA St Leonards Court Decision Document Part 1 - Environment Agency July 2019

Concluding Remarks on Contaminant Migration 87.

Based on the evidence that is currently available, the Agency does not accept the suggestion in Report F1 that there has been a long term decreasing trend in the concentrations of the relevant contaminants in the upper part of the plumes, and a persistent increasing trend in the lower part, consistent with a migrating plume. There are other explanations for the changes in concentration that have been observed to consider. These explanations include factors, individually or in combination, such as abstraction rates and groundwater levels. The mechanisms acting in the upper part of the plume may not be the same as those acting in the lower part. The additional analysis in the APs consultation response leads the Agency to accept the plume is not only spreading but that the centre of mass of the more rapid, fissure flow component is also migrating down gradient. However the rate at which this is happening and where it is located currently are unknown. Therefore the Agency's position is that at present there is insufficient evidence to conclude that scavenge pumping up gradient of Bishop's Rise would not be worthwhile in addition to scavenge pumping at Bishop's Rise itself.

- 3.6 The extract above supports our concerns and view that quarrying on Ellenbrook Fields should not be permitted whilst the plume is spreading and the centre of mass is migrating down gradient, and that the rate at which this is happening and where it is located is unknown.
- 3.7 There are just too many unknowns to justify supporting the proposal.

4. Affinity Water

- 4.1 The following extracts from the Affinity Water yearly monitoring report are of extreme concern to us particularly as a new remediation actions have not yet been agreed and despite large quantities of bromate and bromide being removed, the pollution continues to spread.

Extracts from Aquifer Remediation at HATF for Bromate Licence Report 2017 published June 2018 (Note HATF refers to Bishops Rise)
(Note we do not have access to any later reports)

Paragraphs of particular interest are highlighted in grey

"During the period from January 2017 to December 2017, a further 258kg of bromate and 623kg of bromide were permanently removed from the Chalk aquifer at HATF, bringing the totals removed to 5038kg of bromate and 12,137kg of bromide.

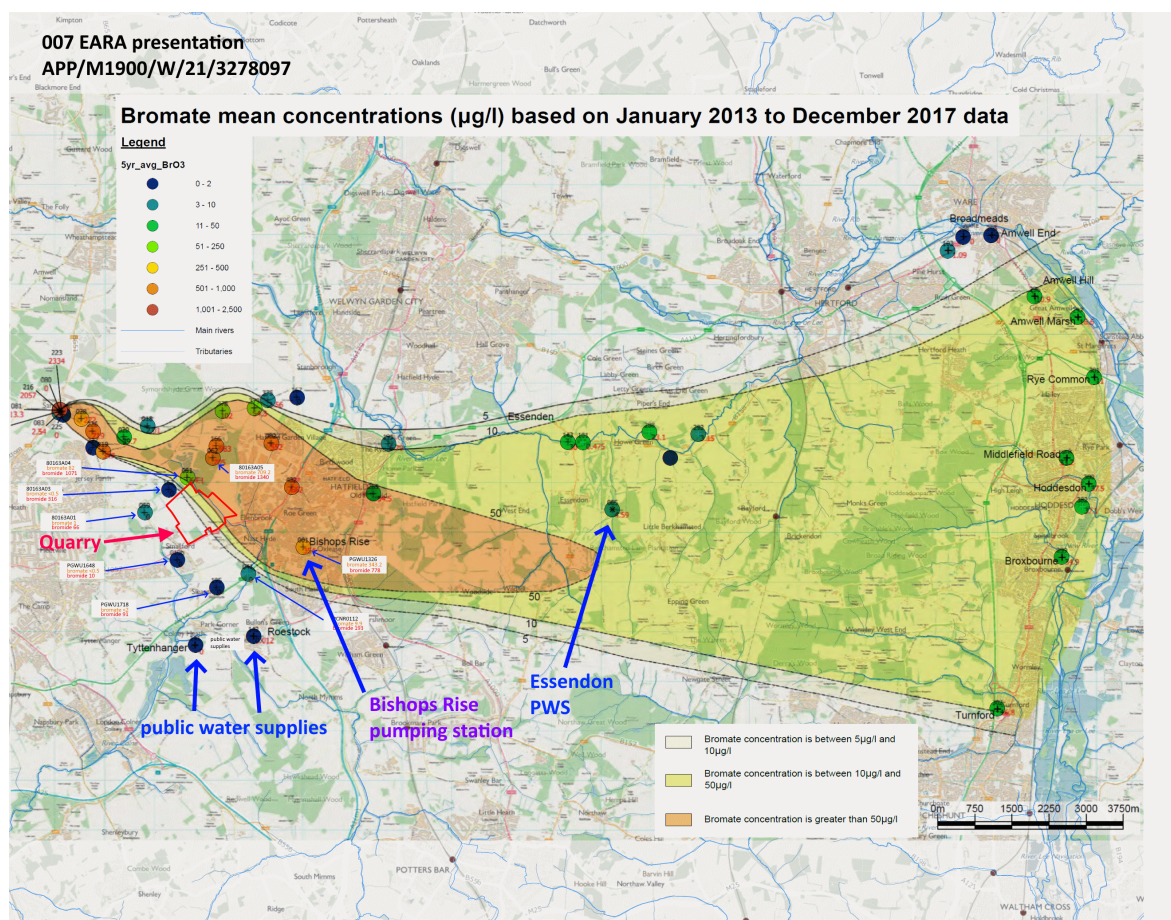
The continuously high concentrations of bromate and bromide observed within the monitoring network, the large volumes already permanently removed from the aquifer and the rapid increase in concentrations when the abstraction ceases, even for short periods, indicate that there must be a significant continuing source of both contaminants upstream.

This approach remains a valid interim remediation strategy, but does not address the full pollution issue. The Appropriate Persons (APs) still need to develop and implement a full remediation strategy that adequately protects the affected public water supply abstractions in advance of a revised remediation notice which will be issued in 2019. A remedial pumping test has been undertaken by the APs in early 2018, alongside additional bromate monitoring being undertaken along the River Colne. Analysis of this pumping test data should lead to the definition of a long term remediation strategy as the current practice is of concern to Affinity Water due to the operational challenges and the associated implications. It is our expectation that a long-term strategy based on the outcomes of the remedial pumping test will be put forward in advance of the revision and reissue of the remediation notice."

- 4.2 Affinity Water's report back in 2017 highlight that they also have concerns regarding the remediation of the plume.
- 4.3 The alarming figures show that despite a huge amount of effort being concentrated in trying to manage the pollution, there clearly is a significant continuing source of bromate and bromide. The quarrying application must not jeopardise this precarious position.

5. Closeness of the plume

- 5.1 The map below shows just how close the bromate plume is to the public water supplies.



6. Unanswered questions

6.1 We have so many unanswered questions about the entire project that are of major concern to us.

- Is bromate already under the quarry?
- What happens if the delicate and experimental remediation plan is compromised if quarrying were to go ahead in such a close proximity to the proposed locations in the EA remediation notice?
- What happens if the identified locations in the EA remediation notice are not successful and further locations are required?
- What happens if the bromate moves and Ellenbrook Fields is identified as an optimal site for remediation?
- What happens if the quarrying has unintended consequences and the PWS is compromised?
- Why is the quarry application being considered when its method of quarrying is to extract from the lower mineral horizon, a high-risk approach in an area of contamination? The only parallel example of quarrying close to a bromate plume is CEMEX and they do not extract from the lower mineral horizon.

6.2 We believe that there are too many unknowns for the quarry to go ahead.

7. EA conditions as outlined in the quarry application

7.1 We believe that the EA third condition “Any activities close to the plume must not interfere with the remediation of the bromate and bromide pollution” will be broken.

7.2 Whilst the plume is still active, and there is no sign of any reduction in the size of the plume and quantity of bromate, and whilst the EA Assessment Actions have not identified the plan for moving forward, we believe that there is a significant risk that the EA third condition will be broken.

8. Conclusion

8.1 The first EA remediation plan has not worked, and the EA second remediation plan has not yet identified what actions should be taken to remediate the pollution apart from continuing with scavenging at Bishops Rise, therefore we believe that no quarrying should be allowed that may impact on the effectiveness of any further remediation activities.

- 8.2 We do not believe that any risks should be taken with the bromate pollution and therefore no quarrying activity should be permitted near the plume. All efforts should be made to ensure that the bromate plume is not allowed to expand or spread any further and that the pollution is dealt with as close to the source as possible.
- 8.3 We believe that no quarrying should occur on land close to the bromate plume until the bromate has been eradicated.