



Appeal Decision

Hearing held on 2 July 2024

Site visit made on 3 July 2024

by B Davies MSc FGS CGeol

an Inspector appointed by the Secretary of State

Decision date: 13 September 2024

Appeal Ref: APP/EPR/659

Reading Sludge Treatment Centre, Island Road, Reading, RG2 0RP

- The appeal was made under Regulation 31(1)(b) of the Environment Permitting (England and Wales) Regulations (2016) on 24 January 2024
 - The appeal was made by Thames Water Utilities Ltd. It is aggrieved by Condition 2.4.1 on the Environment Agency's Notice of Variation of permit EPR/MP3338LU, dated 25 July 2023
 - Condition 2.4.1 requires that the operator completes the improvements in Schedule 1 Table 1.3 by the date specified. Thames Water Utilities Ltd is specifically aggrieved by Improvement Conditions 9 and 13.
 - Improvement Condition 9 relates to 'secondary containment design'.
 - Improvement Condition 13 relates to 'review of effectiveness of abatement plant'.
-

Decision

1. The appeal is dismissed insofar as it relates to Improvement Condition (IC)9.
2. The appeal is allowed insofar as it relates to the 'date' in IC13 and the Environment Agency (EA) is directed to vary condition IC13 of Permit number EPR/MP3338LU dated 25 July 2023, as set out below:
 - In the 'date' column of Table S1.3 'Improvement programme requirements' IC13, delete '6 months of permit issue or such other date as agreed in writing with the Environment Agency' and replace with 'by 30 April 2024 or such other date as agreed in writing with the Environment Agency'.

Procedural matters

3. Thames Water Utilities Limited (TWUL) submitted additional legal submissions before the hearing. The EA confirmed that it would have sufficient time to consider these before the close of the hearing. I accepted the submissions on this basis.
4. Notices were displayed in the area slightly less than the recommended two weeks before the hearing. However, at no point has the EA identified anyone with an interest in the land (other than the appellant) nor anyone that it considered would be affected or interested in the proposal. I also note that a member of the public attended having seen a notice. She explained that her purpose for attending was to better understand how the site was regulated,

as opposed to making specific comments on this appeal. Taking all these factors into consideration I am satisfied that there are no potentially interested persons that have not had the opportunity to contribute.

5. TWUL asked the EA to consider joining the appeals for Reading Sludge Treatment Centre (STC) and Camberley STC. The EA resisted this suggestion for numerous reasons, maintaining that the Camberley STC appeal should be put into abeyance, which I note TWUL later agreed to. Based on these arguments, I see no problem in determining Reading STC on its own merits.

Improvement Condition 13 (IC13)

6. At the hearing it was reported that agreement had been reached between the parties regarding the interim timescale associated with IC13 and I see no reason to come to a different conclusion. Although a change in timescale is allowed for under the wording of the condition, for the avoidance of doubt I am allowing the appeal insofar as it relates to the date in IC13.
7. I was advised that the remaining grounds relating to IC13 were no longer being contended.

Background and main issues – Improvement Condition 9 (IC9)

8. Reading STC accepts up to 915,000 tonnes per annum of indigenous and imported waste sludge. Liquid sludge is stored in 14 tanks with volumes between 15m³ and 1775m³. The sludge undergoes biological treatment in the form of anaerobic digestion. Biogas from the process is stored in gas holders and the sludge dewatered to produce a cake, which is stored before transferring offsite. The facility has been operating since 2005.
9. The Industrial Emissions Directive (IED) (2010/75/EU) was transposed into UK law in 2013 by amendments to the Environmental Permitting Regulations (England and Wales) 2010 (EPR). This introduced the requirement to implement all relevant Best Available Techniques (BAT). In 2019 it was confirmed that these requirements applied to large scale biological treatment of sewage, such as that at Reading STC.
10. The BAT Conclusions for Waste Treatment, 'the BREF', was published in August 2018. 'BAT 19: emissions to water' is relevant in this case. This states that BAT is to use an appropriate combination of the techniques listed, including those '*to reduce the likelihood and impact of overflows and failures from tanks and vessels*'. The description of these in the BREF includes techniques '*such as... suitable secondary containment*'.
11. The UK's BAT guidance, 'Biological waste treatment: appropriate measures for permitted facilities' was published in September 2022. This states that BAT for secondary containment is defined by the Construction Industry Research and Information Association (CIRIA) 'Containment systems for the prevention of pollution: Secondary, tertiary and other measures for industrial and commercial premises' (2014) (CIRIA C736) or an equivalent standard.
12. TWUL subsequently applied for a permit variation to deliver BAT at Reading STC. The application was accompanied by the 'Reading STC – Containment Options Report' (Jacobs, May 2023) (the 'Jacobs' report). This reported on modelling for the site which identified that a sludge spill from one of the

digesters could have an impact on the land adjacent to the STC, watercourses, groundwater and local businesses, including the sewage works itself.

13. To address this, the Jacobs report identified a 'preferred containment option' of constructing a low bund wall (500m to 1000mm high) around the permitted area with ramps at road crossings. The design spill volume was 2915m³, which equated to 25% of the total volume of all 14 tanks.
14. The proposals in the report were acceptable in principle to the EA and the variation was granted in July 2023. However, the EA required further information before construction could proceed as listed in IC9, which states:

The operator shall submit a written 'secondary containment implementation plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the finalised designs and an implementation schedule for the identified secondary containment systems proposed in the document, Reading STC Containment Options Report, dated May 2023. The finalised design(s) and specifications shall be produced by appropriate competent individuals (qualified civil or structural engineer), in accordance with the risk assessment methodology detailed within CIRIA C736 (2014) guidance.

The plan should include but not be limited to the following components:

- *An updated BAT assessment with specific regard to BAT 19 of the Waste Treatment BREF.*
- *An assessment of the suitability for providing containment when subjected to the dynamic and static loads caused by catastrophic tank failure.*
- *Finalised designs and specifications of the proposed secondary containment proposal completed by appropriate competent individuals.*
- *A program of works with timescales for the commissioning of the secondary containment systems to comply with CIRIA C736 (2014) guidance, or equivalent.*
- *An updated site and infrastructure plan.*
- *A preventative maintenance and inspection regime.*

The plan shall be implemented in accordance with the Environment Agency's prior written approval.

15. The condition also requires that the 'secondary containment implementation plan' must be submitted in 6 months of permit issue or such other date as agreed in writing with the EA. Implementation of all required and approved containment improvements must be completed by 31 December 2024, subsequently extended to 31 March 2025 for all IED improvement sites.
16. In summary, the grounds of appeal are that:
 - By constraining the operator to the design set out in the Jacobs report, the appellant is unable to submit an updated and site-specific

assessment of secondary containment to achieve BAT based on credible scenarios.

- The Jacobs report was based on erroneous advice from the EA in respect of the interpretation of CIRIA C736.
- The resulting secondary containment would be overengineered and would be impractical to construct within the constraints of the site.
- The time limits do not account for, amongst other things, site specific risk assessment, the steps necessary to design and construct the containment, the level of uncertainty around BAT, funding, wider business implications and the appellant's regulatory obligations.

17. In respect of IC9, I conclude that the main issues are:

- whether all components of the condition are necessary and reasonable, or
- whether the condition is otherwise unreasonable because
 - the premise on which it is founded is based on potentially erroneous advice from the regulator, and/or
 - the approach to BAT has been clarified since the variation.

Reasons

Are all components of the condition necessary and reasonable?

Is reference to the Jacobs report necessary and reasonable?

18. The appellant states that they had committed at a high-level to implementing BAT and details of how this is delivered should be controlled through time sensitive conditions. In their opinion, this renders reference to the Jacobs report unnecessary.

19. It is not in question that operators must implement BAT and I consider that enshrining this high-level requirement in a condition would therefore be a pointless exercise. To require this in a condition without knowing if an appropriate level of protection was achievable, affordable or deliverable could result in a it being unenforceable. The EA was correct to require commitment to a scheme of sufficient detail that they could be confident it was achievable and could be enforced against.

20. The appellant has also argued that an inability to consider alternative proposals is wrong, stating that the use of improvement conditions should not fetter the legitimate discretion of the operator to determine how BAT is to be achieved. Practical impacts and potential improvements continue to be identified following the submission of the permit application and there should be provision to revise the approach if needed.

21. For the reasons above, it would be inappropriate for the EA to consider fundamentally different approaches from those committed to in the variation. Feasibility and deliverability of the proposed approach are all matters that should have been considered by the appellant prior to the

application and are not grounds to challenge the reasonableness of a condition.

22. This is not to say that details of the BAT assessment cannot be updated as the practical implications are fully realised. On the contrary, this is in part the purpose of the condition. However, subsequent recognition of practical impacts so large that an alternative approach is required would necessitate a further variation and is not something that can be addressed through appeal.
23. Consequently, I am persuaded that reference to the Jacobs report in the condition is both necessary and reasonable.

Consideration of costs

24. There is provision for consideration of costs in the CIRIA guidance, which references cost-benefit analysis, 'as low as reasonably practicable' (ALARP) and BAT. The guidance is clear, however, that upgrades must be sufficient to satisfy the relevant legislation. The EA has indicated that it would consider any recommendations that delivered an appropriate level of protection to meet BAT, which allows an applicant to take into account the practicalities of delivery incorporating costs.
25. Costs are also a matter that should have been tackled by the appellant before submitting their proposed solution. It is entirely reasonable that the EA has assumed that the proposals were affordable because it was submitted by the operator, who is best placed to advise on this matter. It would be irrational for an operator to propose a scheme that they cannot afford.
26. I have nothing before me to suggest that the condition is unsound based on costs. If it is subsequently discovered that a different approach could deliver equivalent protection for less money, this would need to be examined through a new permit variation.

Can the condition be read in two parts?

27. The appellant has suggested that the condition is 'mutually inconsistent'. This is because the first part requires adherence to the approach to BAT in the Jacobs report, but the second part requires an updated BAT assessment and both things, they argue, cannot be true.
28. The word 'update' is defined in the Oxford English Dictionary as 'bring up to date'. With this in mind, my reading of the condition is that the BAT assessment in the Jacobs report should be updated, and the condition is not internally inconsistent. The condition should be read as a whole and adherence to the Jacobs report cannot be avoided by approaching the condition in two parts.

Site-specific risk assessment

29. The appellant states that the condition prevents them from submitting a site-specific risk assessment. The Jacobs report, which it must be remembered was submitted by the appellant and written by technical professionals, describes itself as 'site-specific'. It contains plans, spill modelling and calculations specific to the site. For these reasons, I am

satisfied that a site-specific assessment was submitted to the EA and informed its decision making.

30. As concluded above, it would not be appropriate for the condition to allow a new, as opposed to updated, site-specific assessment to be submitted.

Timescales necessary to design and construct the containment

31. The new timescales proposed by the appellant based on a new site-specific assessment would allow 3 months for contractor procurement, 3 months for completion of details and 9 months for on-site construction. This is a similar timeframe to that provided in IC9, which suggests that the original timescale was not unreasonable.
32. The appellant has also argued that the obligations on water companies in respect of the IED remain unclear and unagreed, characterised by the disagreement that exists on secondary containment, and that guidance was only published in 2022. For the purposes of this appeal, I am satisfied that the EA has identified BAT and, for the reasons above, I have no persuasive evidence that the timescales for implementation at this site are unreasonable.
33. I am therefore satisfied that the timescales in IC9 are sufficient to design and construct the containment.

Wider business implications

34. My attention has been drawn to section 15(1) of the Water Resources Act 1991 which requires the EA to have particular regard to the duties imposed on any sewerage undertaker which may be affected by the exercise of their powers.
35. The appellant explained that if all 25 of their sites were required to upgrade simultaneously it would significantly impact on the capacity to discharge their duties. The condition should have allowed sufficient time to allow process outage to be managed.
36. The EA extended the implementation deadline for all of the IED improvement sites to 31 March 2025, recognising the need for additional time to plan and implement improvements. In addition, the EA has recognised that these are existing operations and, rather than refusing variations that were not complete, took a pragmatic approach by applying improvement conditions.
37. I therefore have evidence that the EA has had regard to the duties imposed on the appellant. I also have nothing specific before me to explain why the timescales associated with IC9 are not achievable at this site because of these wider duties.

Timescales and consideration of funding

38. The appellant states that the deadlines of 24 January 2024 for submission of the improvement plan and 31 December 2024 for implementation are unreasonable. They have requested a revised deadline of 6 September 2024 for provision of a new secondary containment plan. This is on the basis that they should be allowed to submit a new risk assessment. I have not found this to be the case and an extension is not justified for this reason.

39. It has also been requested that the deadline for improvements should be 31 March 2026 to reflect funding cycles. Confirmation of the need to obtain a permit was after the industry price review process for 2019 (PR19) and this is therefore not directly funded activity within the seventh Asset Management Period (AMP7) period (2020 – 2025). The appellant explained that funding cannot realistically be allocated in the remainder of AMP7 without having a material impact on other committed schemes.
40. I note that Ofwat is currently considering whether to provide funding or allow recovery of costs on an exceptional basis to allow delivery of IED improvements. These are necessarily matters that must be considered at a strategic level with Ofwat and are not a matter for this appeal.
41. I am satisfied that the original condition is not flawed because strategic funding streams were not explicitly accounted for at this site.

Conclusion

42. I am satisfied that all components of IC9 are necessary and reasonable. It is appropriate that the condition secures adherence to a demonstrably achievable approach to secondary containment, in sufficient detail that it can be enforced against. There is scope for this to be updated, but it would be inappropriate to allow submission of a new site-specific risk assessment and approach to BAT. There is nothing before me to suggest that the condition is unsafe on the basis of the wider business implications, costs or funding.

Potentially erroneous advice

43. It is not impossible that a regulator could provide erroneous advice. I also accept that an appellant could feel that there is no alternative but to follow it, especially if under time pressure. This could lead to an applicant being aggrieved by the condition, which would fall to be considered under the EPR.
44. The appellant argues that they were misled by the EA because they were required to follow the '110%/25%' rule of thumb, rather than taking a risk-based, or 'credible scenario' approach. They had no choice but to follow this because they were under pressure to get the application duly made by a deadline.
45. The 110%/25% rule states that where two or more tanks are installed within the same bund, the capacity of the bund should be the greater of 110% of the largest tank or 25% of the total capacity of all the tanks if they are not hydraulically linked, in which case they should be treated as though they are a single tank.
46. Much of the appellant's case relies on the advice provided for other sites. I am not aware of the specific circumstances at each site and cannot be confident that 110%/25% was inappropriate in these cases. I have therefore not been able to rely on these and have not given them weight.
47. I also have an earlier version of the BAT report for Reading from 2022 that doesn't rely on the 110%/25% rule, which the appellant states was amended in response to advice on the other sites. This was not submitted to the EA, so I have nothing to confirm how it would have reacted given the

specific circumstances of this site. It is therefore not possible for me to give this weight.

48. The appellant provided a history of guidance given by the EA on this matter from 2020 in their letter to the EA of 6 March 2024. This does not make any mention of the EA insisting on a 110%/25% baseline, apart from at their Camberley site, for which there may have been site specific reasons.
49. On the contrary, the 2023 Jacobs report explicitly states that site-specific risks and credible failure scenarios were taken into account, referencing the CIRIA guidance. It notes that the 110%/25% is arbitrary and states that it has therefore followed the quantitative risk assessment methodology, albeit it ultimately recommended that 25% minimum capacity was appropriate for the site. Jacobs are a consultancy of technical professionals, and the report was submitted by TWUL, the operator. It does not bear scrutiny that the report was written and submitted against their better judgement without any reference to these concerns.
50. Since the variation was issued, the appellant appears to have reviewed their BAT assessment and use of credible scenarios, and concluded that a different approach should be taken. At a presentation to the EA on 3 January 2024 the appellant described the proposal for reduction in containment volume of the largest tank as a '*change in approach*' and an '*alternative solution*'. This was echoed in a follow up letter of 17 January 2024 '*that a different risk assessment approach than stated in the permit is appropriate*'. This terminology is not consistent with being misled.
51. In conclusion, I have no evidence that the appellant was unable to make an alternative case during the application, that they were provided erroneous advice, or that the EA refused to countenance anything other than the 110%/25% approach at the Reading site. On the contrary, a risk based, credible scenario approach was reportedly taken and it is not proposed that a different approach would be preferable.
52. For the avoidance of doubt, I am satisfied that later references to the 110%/25% rule at the site, such as in the Compliance Assessment Report (CAR) form of 7 February 2024, can be explained by adherence to the appellant's proposed strategy.

Review of approach to BAT since the variation

53. Since the variation was granted, interpretation of BAT has been revisited by the appellant and the EA, including at a meeting between TWUL, Defra, Ofwat and the EA in December 2023. The EA clarified its position in respect of the 110%/25% baseline and credible scenarios in February 2024.
54. If interpretation of the guidance has evolved since the variation, then the condition could be out of date and the avenue of addressing this through the appeals process is available. I am mindful that it would not be in the public interest for me to allow a condition to continue if it is now understood to be based on a flawed interpretation of the guidance. For this reason, I have also considered whether the approach underpinning the condition taken was potentially incorrect.

Review of CIRIA C736 guidance

55. Section 4.2.1 of CIRIA C736 states that the practice of using the 110%/25% rule has been in use for many years, but it *'does not follow the risk-based approach recommended in the guidance'*.
56. Section 4.3 sets out the recommended method for assessing the required site-wide capacity for containment. This is based on the total volume that could be lost in a credible incident in addition to provision for rainfall, firefighting water and surge effects. No reference is made to the 110%/25% rule of thumb.
57. However, the recommended method is also illustrated in Figure 4.3, which includes comparison of the proposed volumes to the 110%/25% rule. This figure can be read to imply that only if the loss would be greater than this rule does the secondary containment volume need to be estimated in detail.
58. It is not straightforward to reconcile the recommended method outlined in Figure 4.3 with the earlier statement that the 110%/25% rule does not follow the recommended approach and the bulleted methodology. This is not assisted by the lack of explanation for this apparent contradiction in the supporting text.
59. My interpretation is that the guidance clearly advocates a risk-based approach, as described in the bullet points. However, Figure 4.3 does not preclude use of the 110%/25% rule as a reasonable starting point for estimating the minimum secondary containment capacity. In many cases, this will be sufficient to ensure appropriate protection of the environment without the need for further detailed assessment.
60. A similar argument can be made for the use of credible scenarios. Read without the context of the wider document, Figure 4.3 implies that credible scenarios, which are only applicable if the contents are combustible, can result in the required containment volume being increased but not decreased.
61. Again, however, the figure is not supported by the text describing the recommended methodology, which only states that *'the volume of substance should be based on the loss from a credible scenario and this need not necessarily involve the entire site inventory'*. The guidance also states that *'At sites where it can be demonstrated that the probability of a simultaneous occurrence of events is sufficiently low, it may be possible to apply less stringent capacity requirements'*.
62. I conclude that the use of Figure 4.3 for estimation of capacity does not supersede the risk assessment approach advocated, in which case use of credible scenarios should in principle allow capacity to be decreased as well as increased.
63. In coming to this conclusion, I have not given weight to the EA's reported conversations with one of the authors of the guidance on this matter because no details or context of these conversations has been provided.
64. The EA does not deny that its approach is to apply the 110%/25% rule as a baseline and that, in its opinion, credible scenarios cannot be used to reduce

the volume of containment from this. It argues that it is entirely credible to foresee a situation where human error results in the loss of the entire contents of a tank and virtually impossible to eliminate that risk, so the standard rules are applied as a minimum.

65. For the reasons above, I am not convinced that this interpretation is strictly correct, although I entirely accept that it is likely to result in a pragmatic outcome in many cases.
66. In my opinion, a strict reading of CIRIA C736 means that a fully risk-based approach is both an appropriate option and the one advocated in the guidance. This means that in principle the level of containment could be reduced from an arbitrary rule of thumb. I therefore find the appellant's argument in relation to the 110%/25% rule compelling, but also conclude that the likelihood of a volume less than 25% being appropriate where contents are combustible would normally be low.

Revised BAT assessment

67. I have concluded that, in principle at least, it is possible to reduce the containment from the 110%/25% rule and that the EA's advice on this matter could have been misleading. For the avoidance of doubt, I have therefore reviewed the appellant's revised BAT assessment as set out in their Technical Note 'Reading STW – IED Containment' (AtkinsRéalis, January 2024). This is described as a high-level BAT assessment with specific regard to BAT19 and CIRIA C736.
68. The appellant states that the size of the containment system must be sized on a '*most likely*' credible failure scenario. It goes on to say that it is '*unlikely*' that there will be catastrophic failure of the storage vessels and '*unlikely*' that there would be cascade failure.
69. The guidance does not require an assessment of whether the risk is likely or which event is '*most likely*', but rather if it is credible. This is defined in the guidance as a '*foreseeable release event*', a subtle but important difference. The evidence before me does not confirm that failure of multiple assets is not credible.
70. On the other hand, the EA has provided a body of evidence that demonstrates multiple failures are credible on such sites, including from the risk of combustion relating to the biogas generated as part of the process. The appellant has not countered this with any substantial evidence.
71. The EA has drawn my attention to the fact that the original source hazard rating provided by the appellant was '*high*' due to the wastes stored on site. The site is adjacent to a surface water course which discharges to the River Kennet, in proximity to businesses, which could be disrupted during a spill. This vulnerable setting makes it important that substantial evidence to demonstrate that multiple losses are not credible is provided, which I am not satisfied is the case.
72. On the basis that credible scenarios of multiple asset failure have not been discounted and gas is combustible, a risk-based approach could result in the need for secondary containment capacity greater than 25% of all the tanks. However, given that this is an existing site and in the absence of further

details, I am satisfied that the 25% total capacity secured by the permit remains an appropriate and pragmatic outcome based on the guidance, which delivers BAT. If the appellant wishes to present a different argument regarding credible scenarios for the site then they would need to submit a variation.

Conclusion

73. I see no clear evidence that the appellant was misled nor given the opportunity to make their case prior to the application.
74. On a strict reading of the guidance, the EA's adherence to 110%/25% as a baseline is potentially misleading. However, given that the appellant has not made the case that multiple asset failure at this site is not credible, the outcome of the EA's approach is not inappropriate for this site.
75. I conclude that the condition is pragmatic, reasonable and consistent with BAT. Divergence from the agreed proposals would necessitate a variation in the permit.

Other matters

76. The permit references Thames Basin Heaths Special Protection Area, which is within 8.5km of the site. The EA's 'Stage 1 Habitats Regulations Assessment' concluded that there were no likely significant effects from the variation. Having reviewed this report, and for the same reasons, I am satisfied that the improvements in operations secured by the variation would not be likely to result in significant effects on the European Site and that an Appropriate Assessment is therefore not required.

Conclusion

77. It has not been demonstrated that the EA failed to have proper regard to operational demands, costs and the availability of funding. I have not been provided with compelling evidence that the appellant was misled prior to the application. Having regard to the circumstances of the site, I am satisfied that IC9 is necessary, reasonable and consistent with BAT.
78. The appeal is dismissed insofar as it relates to Improvement Condition (IC)9.
79. The appeal is allowed insofar as it relates to the delivery date of Improvement Condition (IC)13.

B Davies

INSPECTOR

Appearances:

FOR THE APPELLANT:

- Christopher Badger – Counsel
- Claire Gregory – Solicitor (Eversheds)
- Alex Nickson – TWUL, Interim Director for Environmental Compliance, Partnerships and Catchment Management
- Nicola Telcik – TWUL (Arcadis), IED Programme Manager
- Stephen Boddy – TWUL, Waste Consultant (Air & Waste Permitting Team)
- Garry Strange – AtkinsRéalis, Bioresource Treatment Technical Support
- Ashley Jonas – AtkinsRéalis, Environmental Regulation Support

FOR THE ENVIRONMENT AGENCY:

- Emma Dring – Counsel
- Clive Humphreys – EA, Senior Advisor, Environment & Business
- Sarah Raymond – EA, Senior Permitting Officer, National Permitting Service
- Dan Pursglove - EA, Senior Advisor – Biowaste Treatment, Environment & Business
- Rebecca Warren – EA, Principal Permitting Team Leader, National Permitting Service
- Kerry Sach – EA, Appeals co-ordinator
- Mr Young – EA, Installations Officer, Thames Area

Documents submitted at the Hearing:

EA - 'Stage 1 Habitats Regulations Assessment'