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DRAFT DETERMINATION OF NORTHUMBRIAN WATER'S IN-PERIOD OUTCOME DELIVERY INCENTIVES FOR 2020-21

Northumbrian Water Response

SUMMARY / INTRODUCTION

1. We welcome the opportunity to respond to this important consultation on Ofwat's Draft Determinations (DDs) for Northumbrian Water and other companies' in period Outcome Delivery Incentives (ODIs) for 2020-21. We raise a relatively small number of comments in relation to Ofwat's DDs that we summarise here.

Leakage Reporting

2. Ofwat raises concerns about our leakage reporting. In particular, there remain some gaps in our reporting compliance with the Ofwat guidance and it queries the corresponding impact of these gaps on our performance. In this response we examine the two 'amber' reporting components from our leakage reporting in our North East region and conduct sensitivity analysis to understand the extent to which these gaps might drive material changes in our reported leakage. This analysis shows that the impact cannot be material.

3. This was also the finding of our independent auditor in their review of our APR data who confirmed that:

   "*based on the procedures we have performed and the evidence we have obtained, nothing came to our attention that caused us to believe the Selected Information [including leakage reporting for the year ended 31 March 2021] had not been prepared, in all material respects, with the Reporting Criteria*".[1]

C-Mex Reporting

4. Ofwat's calculation of C-Mex rewards appears to use the PR19 Final Determination financial model for NWL. We have checked the reported outputs using the CMA's FD models and there is a small variance. The CMA FD replaces the original Ofwat FD, so the PR19 reconciliation model inputs should reflect that. We appreciate the difference is small, but in future years, the CMA FD values diverge more materially, so we recommend Ofwat uses the CMA FD values for all PR19 reconciliation models for all years.

WINEP Reporting (BES31)

5. Ofwat has not adjusted our WINEP programme timelines from the ones set out in the Final Determination despite the fact that the Environment Agency has discussed with companies and agreed a new timeline reflecting the reasonable impacts of the global Covid-19 pandemic. The new timeline continues to commit to the delivery of all the agreed WINEP outputs by 2025 but pushes more of the activity into later years. We remain on track with the revised WINEP programme.

6. It is clearly important that companies are held to account for the delivery of the settlement for customers but where factors outside of companies' control influence the timelines, such as the pandemic, we believe that Ofwat should adjust companies PCs and associated ODIs. At the moment the APR reporting implies that companies are behind on their WINEP delivery when in fact they are not and this has unhelpful negative reputational impacts and may be confusing for customers.

[1] See https://www.nwg.co.uk/about-us/nwl/how-we-are-performing/annual-performance-report/ , Data Assurance Statement, p37

7. We raised this issue with Ofwat on 29th March earlier this year and Ofwat subsequently acknowledged the issue in IN 21/01 and specifically stated that companies should explain in their APRs "how they have dealt with the issue and the basis of their reported figures for the 2020-21 reporting year"[2] which we accordingly did by adjusting the delivery schedule to match the latest version agreed with the Environment Agency.

8. Whilst there are no financial consequences from the proposed approach the reputational impacts we consider warrant an adjustment particularly since the EA has formally agreed and is tracking companies against the new delivery schedule.

9. In addition reporting of PC BES31 in this manner contradicts reporting of a second WINEP PC (NEP01), where targets do update dynamically to reflect changes made by the Environment Agency, and which hence indicates that we are on track with WINEP delivery. Reporting against these two PCs in a contradictory manner further undermines transparency for customers.

10. Finally, it is unclear whether Ofwat's objection to making this adjustment is a procedural one (i.e. it requires companies to make a formal Annex 2 submission before making such an adjustment) or a more substantive one - and it would be helpful to understand this.

Greenhouse Gas Emissions Reporting (BES21)

11. We wrote to Ofwat with a formal Annex 2 submission requesting a change to our GHG emissions reporting ODI on 11th June. Our submission was clear that we wanted Ofwat to consider this change as part of its 2020/21 determinations for ODI rewards and penalties. As part of that submission we highlighted that the proposed change will:

    a. Align the definition with the latest guidance on GHG reporting rather than previous guidance for which clear flaws and errors have been highlighted;
    b. Be consistent with Ofwat's proposed approach for reporting for all companies including those that do not have a GHG ODI as per Ofwat's earlier consultation on the matter and the agreed RAGs going forward; and
    c. Result in a reduction to our ODI reward for 2020/21.

12. We discussed and agreed this submission with the Water Forum before providing it to Ofwat. Whilst we are pleased that Ofwat is considering its approach to reporting in this area across the sector given the need for consistency we are keen to ensure that this can be resolved quickly and ideally the new definition would be reflected in our Final Determinations for 2020/21. This will allow consistency of reporting across the AMP and avoid the need to explain to customers why our 20/21 reporting and reward is different from subsequent years.

[2] Ofwat IN 21/01 p4

Aligning Customer and Shareholder Interests

13. We have previously emphasised our support for incentive-based regulation[3] as delivered by the ODI regime. This helps to align the interests of shareholders and customers through financial and reputational incentives. Where companies perform well relative to their committed service levels they receive rewards and where they underperform they incur penalties. This ensures that shareholders and boards take a keen interest in service performance for customers.

14. We also recognise and support the work that was undertaken ahead of and during PR19 to align both the consistency of the reporting definitions and the performance targets and ODI rates. This has helped to ensure that companies whose performance is not strong relative to their peers are not able to earn rewards that are questionable in comparison to their peers.

15. Where companies do either incur penalties despite having comparatively strong performance relative to peers or gain rewards despite having comparatively weak performance relative to peers this damages the credibility of the regime and can be difficult to explain to customers impacting upon their levels of trust. Unfortunately there are examples of this in the Draft Determinations for other companies.

16. In the main body of this response we describe one such example in relation to Sewer Blockages.

[3] For example in NWL response to PR19 draft methodology

C-MEX REWARDS – RESIDENTIAL RETAIL REVENUE

C-MEX Rewards – Residential Retail Revenue

17. The CMEX DD model as published uses a value of **£55.249m** for Residential retail service revenue (sum of margin, CTS and revenue adjustment) – nominal.[4]

18. The CMA FD financial model has a slightly different value of **£55.282m**.[5]

19. Using the correct CMA value in the CMEX model changes the CMEX reward for NWL to **£2.927m**, rather than the £2.925m in the DD. This is the value that should be input into the in period adjustment model.[6]

20. The CMA FD replaces the original Ofwat FD, so the PR19 reconciliation model inputs should reflect that. We appreciate the difference is small, but in future years, the CMA FD values diverge materially, so we recommend Ofwat uses the CMA FD values for all PR19 reconciliation models for all years.

[4] Inputoverride tab, line 57, Cell F57.
https://www.ofwat.gov.uk/wp-content/uploads/2021/10/C-MeX-model-IPD2021-DD.xlsx
The value is taken from the Ofwat FD financial model, Residential Retail Tab, line 101, cell L101.
[5] residential retail tab, line 101, cell L101). https://www.ofwat.gov.uk/wp-content/uploads/2021/06/Financial-model_NES_CMA-FD_POST_FINAL.xlsb
[6] F Inputs cells I14 & I15.

LEAKAGE

Introduction

21. This section responds to Ofwat's observation in its DD that:

"Whilst most companies were able to demonstrate that the impact of not being fully compliant with the methodology for leakage data was not material, in the case of Northumbrian Water the company has not been able to quantify the impact of non-compliant components on reported performance. As part of its response to this draft determination, we expect Northumbrian Water to quantify the impact of non-compliant components of its leakage performance commitment on its reported performance. Should the impact of the non-compliant components be material, in our final determinations we may defer our decisions on these performance commitments to 2022."[7]

22. We respond to Ofwat's request by:
    a. Describing in more detail our auditor's opinion on our 2020-21 reporting;
    b. Clarifying exactly which components of our leakage reporting are not yet fully compliant;
    c. Performing sensitivity analysis on remaining Amber components; and
    d. Providing more detail regarding the specific testing undertaken on these components by our auditor.

Auditor's Opinion

23. We have engaged PwC to provide assurance over what we consider to be the more critical areas of our Annual Performance Report (APR) for the past four years. The scope of PwC's work specifically included testing of our reporting against our leakage PCs.[8]

24. For the year ended 31 March 2021, PwC did not identify anything during their testing that indicated any material issues with the data reported, and accordingly issued us with an 'unmodified' audit opinion which read:

"*based on the procedures we have performed and the evidence we have obtained, nothing came to our attention that caused us to believe the Selected Information had not been prepared, in all material respects, with the Reporting Criteria*". [9]

25. The assurance that PwC provides us with is an ISAE 3000[10] Limited Assurance opinion. The ISAE 3000 standard requires them to design and apply testing procedures which assess any risk of material misstatement in order that they can provide us with an opinion regarding whether or not our reporting has been prepared in accordance with the reporting criteria (i.e. the Ofwat guidance).

[7] Draft Determination Section 2, page 5
[8] See https://www.nwg.co.uk/about-us/nwl/how-we-are-performing/annual-performance-report/ , Data Assurance Statement, p41
[9] See https://www.nwg.co.uk/about-us/nwl/how-we-are-performing/annual-performance-report/ , Data Assurance Statement, p37 – contains PwC's Assurance Statement
[10] See: https://www.ifac.org/system/files/publications/files/ISAE%203000%20Revised%20-%20for%20IAASB.pdf

26. We believe the level of assurance we receive from PwC over reported leakage figures goes above and beyond what may be obtained from some alternative assurance providers in line with the rigour provided by the audit standard. PwC compared every step of our reporting methodology against the prescribed guidance, used our data to recalculate our reported performance, and then goes on to select data samples and trace these back to source information to ensure they have been included in our reporting accurately.

27. For leakage specifically, PwC performed sensitivity testing in relation to Amber components, and PwC's conclusions on these tests are set out in the following sections after our own sensitivity analysis.

Current Leakage Reporting Compliance – RAG Status

28. Leakage reporting compliance is ascertained using a Red/Amber/Green (RAG) assessment against a number of reporting Elements as set out in the reporting guidance[11] as follows[12]:
    a. Green: Fully compliant with the guidance
    b. Amber: Not compliant with the guidance and having no material impact on annual average leakage
    c. Red: Not compliant with the guidance and having a material impact

29. Elements are grouped into components and component RAGs are also ascertained as per the reporting guidance. Including specifically:
    a. Green: More than half the elements in a component are green
    b. Amber: Half or more of the elements in a component are amber
    c. Red: One or more red element, or the combined effect of amber elements is material

30. Table 1 below sets out our latest RAG assessment for leakage reporting for 2020-21. Our Northumbrian and Essex & Suffolk regions are shown separately as they have independent leakage targets.

TABLE 1 – NWL LEAKAGE REPORTING RAG – 2020/21

Component	Element	Northumbrian		Essex & Suffolk	
		Element RAG	Component RAG	Element RAG	Component RAG
1. Coverage	1a				
2. Availability	2a				
3. Properties	3a				
	3b				
	3c				
	3d				
	3e				
4. Night flow period and analysis	4a				
	4b				
	4c				

[11] https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-leakage.pdf - Annex A
[12] Above reporting guidance, page 25

	4d				
	4e				
	4f				
	4g				
	4h				
	4i				
	4j				
	4k				
5. Household night use	5a				
	5b				
	5c				
	5d				
	5e				
	5f				
	5g				
6. Non-household night use	6a				
	6b				
	6c				
	6d				
	6e				
	6f				
	6g				
	6h				
7. Hour to day conversion	7a				
	7b				
	7c				
8. Annual distribution leakage	8a				
	8b				
9. Trunk main losses	9a				
	9b				
	9c				
10. Service reservoir losses	10a				
	10b				
	10c				
11. Distribution input	11a				
	11b				
	11c				
	11d				
	11e				
	11f				
12. Measured consumption	12a				
	12b				

	12c				
	12d				
	12e				
13. Unmeasured consumption	13a				
	13b				
	13c				
	13d				
	13e				
	13f				
	13g				
	13h				
	13i				
	13j				
14. Company own water use	14a				
	14b				
	14c				
15. Other water use	15a				
	15b				
	15c				
16. Water balance and MLE	16a				
	16b				
	16c				
	16d				
	16e				

Source: NWL assessment of leakage reporting compliance

31. Ofwat's request relates to non-compliant components. This means we need to determine the impact on leakage reporting of the Amber assessment for components 2 and 16, for our **Northumbrian region only** – Essex & Suffolk having no amber components. Table 2 below shows the relevant components and elements.

TABLE 2 – SUMMARY OF AMBER COMPONENTS AND CORRESPONDING ELEMENTS (NW ONLY)

Component	Element	Requirement for Compliance / Green Assessment	Northumbrian	
			Element RAG	Component RAG
2. Availability	2a	At least 90% of all properties within continuous night flow monitoring networks available for reporting night flow data through the year		
16. Water balance and MLE	16a	Fully measured components have a range from 2% to 4%		
	16b	Mainly measured with some estimated adjustments have a range from 2.5% to 5%		
	16c	Estimated using detailed and reliable methods have a range from 8% to 12%		
	16d	Broad estimates not fully detailed or reliable have a range from 20% to 50%		
	16e	Water balance discrepancy: <2% = Green >2% and <3% = Amber >3% = Red"		

Source: NWL assessment of leakage reporting compliance

32. Hence the reminder of this section provides further evidence and analysis of the impact of the above Amber components in relation to our Northumbrian operating area only.

33. For this purpose we have defined a materiality threshold of > 1%. This is consistent with the A1 confidence grade described in the reporting guidance[13].

Component 2 - Availability

34. This component examines the proportion of a companies' supply area where flow monitoring is available. At any one time accurate monitoring may not be available in a small proportion of District Meter Areas (DMAs) for example due to a fault with monitoring equipment, or if DMA boundary valves are open in order to supply a neighbouring area (i.e. the DMA is no longer a self-contained area of the supply network).

35. The threshold for compliance / green status is 90%. For 2020/21, we achieved 86.4% i.e. 3.6% below the threshold.

36. We can be confident that the impact of this is not material because:

    a. The gaps in monitoring are intermittent, and the corresponding data gaps are filled by interpolation using data before and after the period that the DMA was offline (i.e. we do not assume zero leakage during these periods).
    b. We run additional cross-checks on a sample of the offline DMAs to compare average flows while offline versus online.

[13] https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-leakage.pdf - page 44

c. Distribution input (DI) is monitored continuously, along with neighbouring DMAs, both of which would indicate if anything particularly atypical was occurring during the period that any DMA monitoring was offline.
d. Even if an extreme, hypothetical and rather implausible scenario is tested: For example if leakage in all of the 3.6% of offline DMA's (that form the difference between the green threshold and 2020/21 actual) somehow increased by 20% for the whole of their offline period, somehow returning to normal just as the DMA comes back online, and without any noticeable impact on DI in the area - then the impact on overall reported leakage would still be <1%.[14]

37. PWC performed similar checks independently and reached the same conclusion. Their auditor confirmed that '*we looked at what movement would have to occur within the c.4% gap for leakage to be materially misstated as a whole and determined [that the possibility of] this would be remote*'.

Component 16 – Water Balance and MLE

38. The water balance approach seeks to balance the volume of water known to be entering our supply network - in the form of DI, with the volume of water leaving it in the form of consumption, leakage, operational use and so on.

39. In a perfect world these supply and demand volumes would match exactly, in practice there is always a discrepancy – the water balance discrepancy or 'gap'.

40. The leakage reporting methodology allows for this and employs the maximum likelihood estimation (MLE) approach to reconcile the gap by distributing it across all the water balance components by reference to the size and uncertainty surrounding each component. i.e. larger and/or more uncertain components are allocated a greater proportion of the gap. Confidence intervals/grades are attached to each component to facilitate this[15]. These confidence intervals/grades are also referred to in the reporting compliance requirements as set out in Table 2.

41. To achieve reporting compliance, the confidence grade for each component needs to be as set out in the requirements for elements 16a-d, and the overall water balance gap needs to be within the range set out for element 16e. Table 2 shows that our Northumbrian region achieved an amber status for elements 16a-c i.e. the confidence grade was outside the range required for full compliance/green.

42. We can be confident that the impact of this is not material by testing the variation in overall leakage when running a second iteration of the water balance/MLE calculations, with the confidence grades for these elements adjusted to be within the required range. The difference in overall leakage which resulted was <1%.

[14] i.e. 20% x 3.6/100 = 0.7%
[15] https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-leakage.pdf - page 22/23

TABLE 3 – 2ND ITERATION OF 2020-21 MLE, SHOWING % MLD IMPACTS OF BRINGING ALL CONFIDENCE GRADES WITHIN GREEN RANGE – LEAKAGE COMPONENTS HIGHLIGHTED.

Supply/Demand Component (Leakage components highlighted)	Impact of bringing all confidence grades within green range	
	%	MLD
Unmeasured HH Consumption	0.013%	0.04
Measured Household + MUR - Ext SPL consumption	-1.547%	-2.04
Unmeasured NHH - SPL consumption	0.598%	0.02
Measured NHH + MUR - SPL consumption	-1.547%	-1.80
Supply Pipe Leakage (SPL) Unm HH + Unm NHH	1.190%	0.21
SPL External Meas HH + Meas NHH	1.190%	0.06
SPL Internal Meas HH	1.190%	0.02
SPL Voids	1.190%	0.02
Distribution losses	0.953%	1.08
Total of all leakage components:	**0.998%**	**1.39**
Operational use	0.598%	0.01
Water Taken Legally Unbilled - SPL Voids	0.013%	0.00
Water Taken Illegally Unbilled	3.44%	0.23
Distribution Input	-0.307%	-2.15

Source: NWL MLE calculations, see Appendix 1, Heading 2.

43. The difference in overall leakage which resulted from this test was <1%, or in annual MLD terms changing annual leakage from 140.02MLD to 141.41 MLD.

44. It should be noted that this is quite an extreme test. In practice improving the confidence grades of the input components would be expected to also result in the input MLD figures for these components changing, and a corresponding reduction in the water balance gap – this would reduce the impact of the above test.

45. PWC again performed similar checks independently and reached the same conclusion. Their auditor confirmed that: *'For components of the MLE calculation that were not given confidence intervals per the Ofwat guidance, we performed an analysis to consider what the impact on reported leakage would be if the "correct" confidence intervals were used instead. They all had a negligible impact on total reported leakage and therefore concluded to not be material'*

46. The final point relates to the size of the water balance gap. For 2020-21, the gap for our Northumbrian operating area was 2.60%, which is defined as Amber as per table 4 below.

TABLE 4 – REPORTING COMPLIANCE FOR WATER BALANCE GAP, ELEMENT 16E

Water Balance Range	RAG
>3%	
>2% < 3%	
<2%	

Source: https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-leakage.pdf

47. The reporting guidance also requires companies to disclose and explain any water balance gap exceeding 3%.

48. NWL's 2020/21 gap of 2.60% has been allocated to the various water balance components using the best practice MLE methodology which is well established and a key part of the reporting guidelines. Our auditors have also confirmed that '*the MLE methodology was applied to it accurately so it was included in post-MLE reported figures. No issues were noted during this testing'.*

49. Ofwat's reporting guidance defines a water balance gap of < 3% as Amber, and defines Amber as *"no material impact".* i.e. Ofwat itself must have determined, when writing the reporting guidance, that a water balance gap of <3% would have no material impact on overall reported leakage.

50. Nevertheless it is reasonable to assume that a larger water balance gap could increase the sensitivity of overall reported leakage to any uncertainty in the confidence grades which underpin the MLE approach (as they are being relied upon to apportion a greater volume of water) – and it would be prudent to test the extent to which this is the case.

51. An effective way to do this is to run successive iterations of the MLE model using an increasingly worsening confidence grade for the distribution losses component – which has the effect of increasing the proportion of the water balance gap that would be allocated to overall leakage. This tests the extent to which overall reported leakage would increase if this confidence grade gets worse (and hence the extent to which overall leakage could have been under-reported if the confidence grade used in the MLE was too optimistic).

52. For further comparison we then repeated the test against a second scenario where the water balance gap was artificially reduced to 1.99% (i.e. within the green threshold).

TABLE 5 – ITERATIVE MLE RUNS USING DETERIORATIONG CONFIDENCE GRADES FOR DISTRIBUTION LOSSES

Distribution Losses Confidence Grade	Impact of Deteriorating Confidence Grade on Reported Leakage – With Water Balance Gap at 2020/21 value of 2.60%		Equivalent impact of Deteriorating Confidence Grade if Water Balance Gap Reduced to 1.99%
	%	Post MLE Annual Leakage - MLD	
12%	Original value	140.02	-
15%	+0.25%	140.37	+0.19%
18%	+0.49%	140.70	+0.37%
21%	+0.72%	141.03	+0.55%
24%	+0.94%	141.33	+0.71%

Source: NWL MLE calculations – see Appendix 1, headings 3 and 5

53. As evidenced in table 5, the difference in sensitivity is not markedly different in the two scenarios, and more importantly in both cases the confidence grade would need to be incorrect by at least a factor of 2 in order to produce any material impact on overall reported leakage.

54. Overall this provides further assurance that the water balance gap of 2.60% does not have a material impact.

Conclusion

55. The above provides further evidence, consistent with our Auditor's opinion, that the few remaining Amber components within NWL's leakage reporting for 2020/21 do not have a material impact on the accuracy of our overall reported leakage.

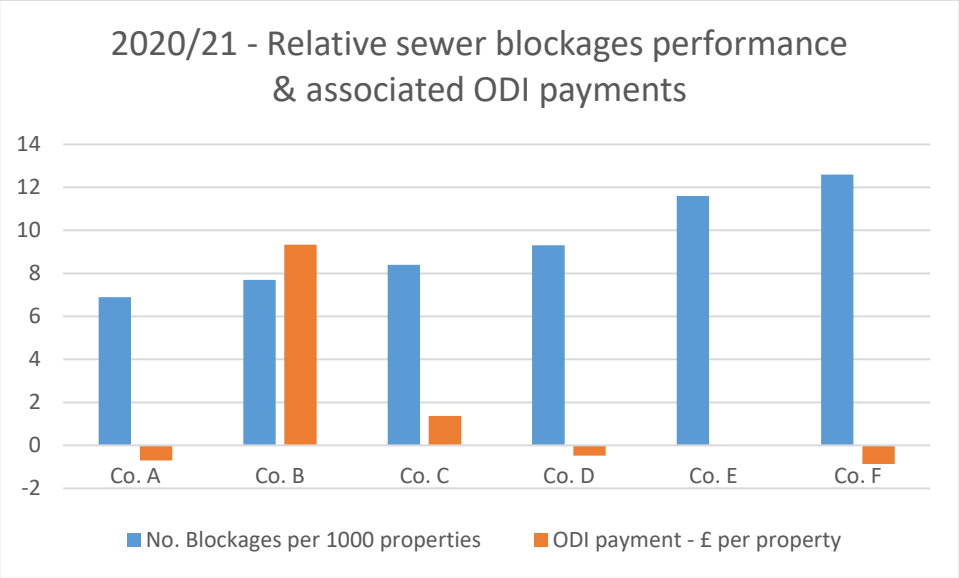
56. It should be noted that all tests have been conducted on annual NW leakage, whereas reporting against the leakage PCs is in 3 year average terms – which further reduces the impact of any uncertainty relating to Amber components.

SEWER BLOCKAGES PC – EXAMPLE OF POOR CORRELATION BETWEEN RELATIVE PERFORMANCE AND ODI INCENTIVE PAYMENTS

57. While Sewer Blockages was not a 'common' PC at PR19, it was nevertheless on a shortlist of potential bespoke measures for which common reporting definitions existed, which hence facilitated comparative analysis.

58. Nevertheless, the information in this section shows a very poor correlation between relative performance in 2020/21 - for the six companies who included a PC for sewer blockages in their PR19 business plans - and the corresponding level of ODI payments.

FIGURE 1 – RELATIVE 2020/21 PERFORMANCE AND ASSOCIATED ODI PAYMENTS FOR COMPANIES WITH AMP7 SEWER BLOCKAGE PCS



Source: 2020/21 APRs

59. In 2020/21 company 'B' has achieved a reduction in sewer blockages of some 30% - a level of improvement which is to be commended. However as shown in figure 1 above, this still leaves its performance 'in the pack' relative to others.

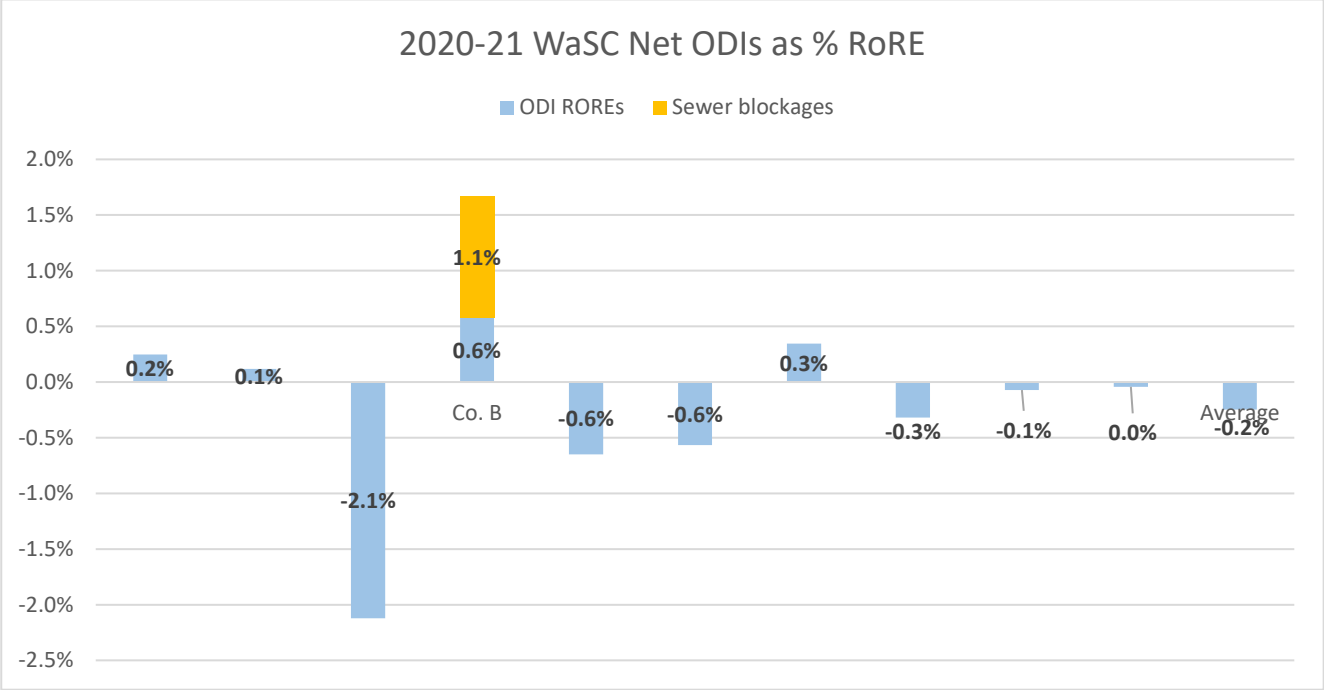
60. The associated ODI payments, including specifically the proposed reward of £39.113m for company B, hence appear no bear no correlation with relative performance. Especially when the fact that the frontier performer (Company A) accrued a penalty of £2.363m is also noted.

61. Analysis of the rate of improvement which Company B has achieved in year 1 of the period against the p10, and p90 assumptions set out in its business plan suggests that its year 1 performance is substantially beyond even the p99.99[16] position. This casts doubt upon the validity of the p10 and p90 assumptions.

62. The impact of this on relative net ODI payments is illustrated in figure 2 below.

[16] Assuming a normal distribution, and that the PC level is the p50. The p90 position would statistically be c1.3 standard deviations beyond the p50. This places Company B's Y1 performance at c8.2 standard deviations beyond the p50, substantially beyond the p99.99 position which statistically is set at c3.7 standard deviations.

FIGURE 2 – 2020-21 WASC NET ODIS EXPRESSED AS % RORE



Source: 2020/21 APRs

63. Where such substantial rewards are paid for relative performance which is 'in the pack' , this can damage customer trust in an ODI framework which is intended to align customer and shareholder interests. We are concerned that such a large apparent discrepancy appears to have occurred, despite apparent calibration processes[17].

[17] For example as set out in Ofwat PR19 final determinations: Delivering outcomes for customers policy appendix pp.200