

Annex A : Appraisal of Results of Pre- and Post-Renovation Assessment (PPRA)

A1 Application

The following procedure will be applied to all schemes subject to full PPRA in the AMP2 programmes and the AMP3/AMP4 programmes. Some schemes in the AMP2 programmes pre-dated the introduction of PPRA (these are referred to as 'Non-Standard Schemes'). These schemes have already been appraised by the Inspectorate, and definitive lists of accepted schemes have been issued, so this procedure will not be applied to non-standard schemes.

Pre-Renovation Assessment (Pre-RA) and Post-Renovation Assessment (Post-RA) are to be applied to the same areas. Companies are expected to carry out assessments at an appropriate scale. The areas subject to assessment may be whole Water Supply Zones (WSZs) or sub-zones within them. However, except in small WSZs, it is expected that companies will sub-divide WSZs into hydraulically discrete sub-zones such as metered districts or a combination of metered districts.

Results of PPRA will be used by DWI to determine whether a particular length of renovation work is credited against a company's commitment in its S19 distribution system undertaking. To qualify, results of both Pre-PRA and Post-RA must satisfy requirements (Sections A2 and A3).

Results of PPRA will be also used to determine whether a particular area (water supply zone or sub-zone) should be listed as being completed in the Annex to the undertaking. To qualify, results of Post-RA must satisfy requirements (Section A4).

For problems of discoloured water, companies are required to make measurements before and after renovation using at least one method from List A and at least one method from List B, as set out in Information Letter (IL) 4 / 96. Points made below are illustrated using summary results from only one method from each list. Where companies have included more methods of measurement in their strategy document, suitable results from one method from each list will be sufficient to satisfy requirements. Companies may choose to report results of a different combination of methods for different assessments (i.e. different sub-zones), but the *results from both before and after renovation must be from the same methods*.

A2 Pre-renovation results: Justifying renovation work

To make a convincing case for renovation in WSZs justified for inclusion in a Section 19 undertaking by Level 1 and Level 2 investigations, evidence is expected from methods of measurement in both List A and List B (A2.1 below). However it is accepted that there may also be situations where it would be appropriate to proceed with renovation work on the basis of a different combination of evidence (A2.2 and A2.3 below). Because this evidence is less broadly based and is regarded as weaker, and to encourage assessment at an appropriate scale, the application of A2.2 and A2.3 should be restricted to sub-zones of small or medium size where possible. Thus, renovation work will be considered to be justified if any of the following three conditions apply.

A2.1 Evidence from List A and List B

Results of **both List A and List B** measurements show water quality within the Water Supply Zone or sub-zone to be unsatisfactory before renovation, using the criteria in the Company's strategy document.

For example:

	Method 1 (List A)				Method 2 (list B)			
Sub-Zone	Unsat before	Satisf after	Subs diff	Signif diff	Unsat before	Satif after	Subs diff	Signif diff
1	Y				Y			

[\(See endnote for an explanation of abbreviations.\)](#)

A2.2 Strong evidence from List A

There is **strong evidence from List A** measurements alone that water quality is unsatisfactory in the Water Supply Zone or sub-zone (This condition may only be applied to sub-zones where the **total** length of all mains in the sub-zone is less than 50km). Where this is shown using only one method of measurement, the rate of exceedence of the threshold must be at least twice the rate specified in the Company's strategy document.

For example:

	Method 1 (List A)				Method 2 (list B)			
Sub-Zone	Unsat before	Satisf after	Subs diff	Signif diff	Unsat before	Satif after	Subs diff	Signif diff
4	YY*				N			

(YY* = rate of exceedence at least twice the rate in strategy document.)

A2.3 Evidence from either List A or List B, plus PCV exceedences

Results of **either List A or List B** measurements show water quality to be unsatisfactory, using the criteria in the Company's strategy document, **and** there have been **two or more exceedences of the PCV** for iron in the Water Supply Zone. These exceedences may be from compliance sampling, Pre-RA sampling or operational sampling. They should be from the 3 years preceding the milestone period in which the renovation work is to be carried out, or from that part of the milestone period before the renovation work is begun.

For example:

	Method 1 (List A)				Method 2 (list B)			
Sub-Zone	Unsat before	Satisf after	Subs diff	Signif diff	Unsat before	Satif after	Subs diff	Signif diff
5	Y and 2>PCV				N			
6	N, but 2>PCV				Y			

(2>PCV = two or more exceedences of PCV for iron)

A2.4 Other supporting evidence

In *exceptional circumstances* the Inspectorate will consider, on a case by case basis, situations where none of the three conditions above apply, but there is a large body of supporting evidence from other methods of measurement.

A3 Post-RA results: Demonstrating benefits

Section A3.1 indicates the expectation for a convincing demonstration of benefit, and Section A3.2 includes an allowance for 'triviality'. Where renovation work is justified by the criteria in Sections A2.1, A2.2 or A2.3, and benefit is demonstrated as in either A3.1 or A3.2, the lengths of renovation work may be counted towards the company's commitment in the undertaking. Section A3.3 outlines possible borderline cases that the Inspectorate would consider individually, providing sufficient supporting evidence is available.

A3.1 Benefit fully demonstrated

Where there is a strong case for renovation and a convincing demonstration of benefit, one would expect that

- water quality after renovation will be satisfactory with respect to both List A and List B measurements, including all methods of measurement used in pre-renovation assessment, **and**
- a substantial margin will be demonstrated for at least one method from List A **and** at least one method from List B, **and**
- a statistically significant difference will be demonstrated for at least one method from List A **and** at least one method from List B.

For example:

	Method 1 (List A)				Method 2 (list B)			
Sub-Zone	Unsat before	Satisf after	Subs diff	Signif diff	Unsat before	Satif after	Subs diff	Signif diff
1	Y	Y	Y	Y	Y	Y	Y	Y

A3.2 Benefit demonstrated with allowance for 'triviality'

Where benefit has not been fully demonstrated as in A3.1 above, an allowance will be incorporated into the appraisal of results analogous to the application of 'triviality' to the results of compliance sampling. Renovation work will be considered to demonstrate a water quality benefit if all of the following apply.

- Water quality after renovation must be satisfactory with respect to both List A and List B measurements, including the methods used in Pre-RA to justify the renovation work; **and**
- a substantial margin must be demonstrated for at least one method of measurement; **and**
- a statistically significant difference must be demonstrated for the same method of measurement.

The substantial margin and the statistically significant difference may be from either List A or List B, but must both apply to the same method of measurement. Where justification of the work at Pre-RA relied on 'strong evidence' from only one List A method of measurement, the substantial margin and the statistically significant difference must be demonstrated for that method. Where justification of the work at Pre-RA relied on results from only one method of measurement supplemented by PCV failures, the substantial margin and the statistically significant difference must be demonstrated for that method.

For example:

	Method 1 (List A)				Method 2 (list B)			
Sub-Zone	Unsat before	Satisf after	Subs diff	Signif diff	Unsat before	Satif after	Subs diff	Signif diff
2	Y	Y	Y	Y	Y	Y	N	N
3	Y	Y	N	N	Y	Y	Y	Y
4	YY*	Y	Y	Y	N	Y	N	N
5	Y and >PCV	Y	Y	Y	N	Y	N	N
6	N but > PCV	Y	N	N	Y	Y	Y	Y

(YY* = rate of exceedence at least twice the rate in strategy document.)
 (2>PCV = two or more exceedences of PCV for iron)

A3.3 Benefit not demonstrated convincingly

In exceptional circumstances, the Inspectorate will consider, on a case by case basis, situations where

- water quality is satisfactory after renovation with respect to both List A and List B measurements, including all methods of measurement used in pre-renovation assessment; **and**
- the requirements in Section A3.2 are met for either substantial difference or statistical difference but not both; **and**
- there is a large body of supporting evidence from other methods of measurement.

For example:

	Method 1 (List A)				Method 2 (list B)			
Sub-Zone	Unsat before	Satisf after	Subs diff	Signif diff	Unsat before	Satif after	Subs diff	Signif diff
7	Y	Y	Y	N	Y	Y	N	Y
8	Y	Y	N	Y	Y	Y	Y	N

A4 Listing zones as being completed in the Annex to the undertaking

A4.1 Where no renovation has been carried out

Where Pre-RA has been carried out, but renovation has not been justified using the criteria in Section A2 and no subsequent deterioration of water quality has been detected, the area concerned may be listed as being completed in the Annex to the undertaking. This would normally be done when the Annex is revised 3 months after the milestone date on which renovation in the water supply zone would have been due to be completed.

A4.2 Where renovation has been carried out

Where renovation has been carried out, water quality must be shown to be satisfactory (i.e. results of Post-RA must be below the specified criteria) with respect to both List A and List B measurements, including the methods used in Pre-RA to justify the renovation work. The area concerned would normally be listed as being completed when the Annex to the undertaking is revised 15 months after the milestone date on which renovation in the water supply zone would have been due to be completed.

For example:

	Method 1 (List A)				Method 2 (list B)			
Sub-Zone	Unsat before	Satisf after	Subs diff	Signif diff	Unsat before	Satif after	Subs diff	Signif diff
1		Y				Y		</TD<tr>

A4.3 Water quality still unsatisfactory

Where water quality is still unsatisfactory with respect to any of the methods of measurement used before renovation, further investigation and remedial action is required. (This may or may not be mains renovation.)

For example:

	Method 1 (List A)				Method 2 (list B)			
Sub-Zone	Unsat before	Satisf after	Subs diff	Signif diff	Unsat before	Satif after	Subs diff	Signif diff
9	Y	N	Y	Y	Y	Y	Y	Y
10	Y	Y	Y	Y	Y	N	Y	Y

i Abbreviations:

Unsat before = For this method of measurement, water quality in the zone or sub-zone before renovation is unsatisfactory, using the criteria in the Company's strategy document.

Satisf after = For this method of measurement, water quality in the zone or sub-zone after renovation is satisfactory, using the criteria in the Company's strategy document.

Subs diff = For this method of measurement, there is a substantial difference between water quality before renovation and water quality after renovation, using the criteria in the Company's strategy document.

Signif diff = For this method of measurement, there is a statistically significant difference between water quality before renovation and water quality after renovation, using the criteria in the Company's strategy document.

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