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guardians of drinking water

DWI Information Letter 15/2002

21 October 2002

To: Board Level and Day-to-Day Contacts of Water and Sewerage Companies and Water Companies in England and Wales

Dear Sir or Madam

**DISTRIBUTION OPERATION AND MAINTENANCE STRATEGIES (DOMS)
- DWI REQUIREMENTS AND EXPECTATIONS**

Purpose

1. The purpose of this Information Letter is to set out DWI requirements and expectations for the preparation and implementation of strategies for the proactive management of drinking water distribution systems, so that water companies meet and continue to meet drinking water quality standards. Explanatory notes on the scope and form such strategies may be expected to take are attached for illustration.
2. Key parts of the strategy documents need to be in place in sufficient time for them to be included in the assessment by water companies of their future operation and maintenance needs for incorporation into the PR04 Business Plans.

Summary of actions arising from this Letter

3. Key actions are summarised as follows.
 - **By 31 December 2002**, water companies to submit a DOMS incorporating
 - arrangements for pro-active, periodic, medium-term, system-by-system investigations (as in paragraph 10a below), and
 - monitoring of water quality at a local level leading to timely responsive maintenance (as in paragraph 10b below).
 - **By 28 February 2002**, DWI to respond to these submissions.

- **By 30 June 2003**, water companies to submit a further revised DOMS incorporating mechanisms for or links to
 - control of operational activities related to risks to water quality (as in paragraph 10c below), and
 - regular inspection and maintenance for certain components of the distribution system related to risks to water quality (as in paragraph 10d below).
- **By 15 August 2003**, water companies to submit their draft business plans to Ofwat compatible with their proposals to DWI of 30 June 2003.
- **By 30 September 2003**, DWI to respond to these submissions.
- **By 7 April 2004**, water companies to submit their final business plans to Ofwat in line with DWI expectations in the responses to company June submissions.
- **By 31 December 2005**, water companies to review the functioning of the DOMS, taking account of feedback on its effectiveness, the interaction between its components, and incorporate improved knowledge and methods (as in paragraph 10e below).

Background

4. Since 1990, water companies have carried out extensive renovation of their distribution systems to secure compliance with various standards, including those for iron, manganese, aluminium, turbidity and benzo 3,4 pyrene. Renovation of distribution systems will continue in the next quinquennium for many water companies. The construction phases of all programmes are scheduled to be completed by March 2010, although for a few water companies, post-renovation assessments will continue beyond this date.
5. DWI wishes to ensure that recent improvements in the quality of drinking water are not compromised by inadequacies in the maintenance and operation of water companies' asset base, including new, renovated and existing assets. Although the improvement programmes carried out are substantial, DWI is particularly concerned that many assets were untouched by these programmes.
6. It continues to be the responsibility of water companies to operate and maintain their supply systems so as to minimise the risk of failure to meet water quality standards, to maintain service to consumers, and to maintain the serviceability of their assets. DWI draws water companies' attention to the requirement in the 2000 and 2001 Regulations for water companies to

investigate the causes of likely failures, as well as failures that have occurred¹.

7. In Information Letter 13/98, all water companies were made aware of the requirement to develop DOMS, and this was also made a specific requirement of Section 19 distribution Undertakings that were accepted in 2000. To meet this obligation, most water companies have submitted draft strategies to DWI. The content of the strategies and draft strategies submitted varied widely in their depth and apparent purpose, and DWI has concluded that further guidance is needed. In setting out its requirements and expectations, DWI seeks to balance the proper expectations of water companies to manage autonomously the operation and maintenance of their assets, with DWI's objective to secure drinking water quality for consumers in the long term.
8. The requirement to provide a DOMS is now specifically extended to include water companies that have not offered a distribution system Undertaking. For these and other water companies, draft submissions should be made in accordance with the timetable in paragraph 3 above.

DWI Expectations for DOMS

9. DWI expects the DOMS adopted by water companies to take account of the risks to water quality, that is the combination of the likelihood (probability) of a failure in asset or operational performance and the consequence (extent and seriousness) of the failure on the quality of water received by consumers. The objectives for DOMS should include (but need not be limited to) the following:
 - to identify the activities necessary to improve water quality where it is not satisfactory, and to quantify them;
 - to identify the risks to drinking water quality in the distribution system, and to quantify their likelihood and consequence by reference to water quality standards and internal operating criteria;
 - to identify the activities necessary to safeguard water quality on a continuing basis where it is already satisfactory, and to quantify them; and
 - to ensure that procedures are in place to implement these activities so as to maintain water quality at acceptable levels on a continuing basis into the future, and to inform the process of funding for these activities.

¹ Regulation 17(1) of the 'Water Supply (Water Quality) Regulations 2000' (for companies whose area of supply is wholly or mainly in England) and of the 'Water Supply (Water Quality) Regulations 2001' (for companies whose area of supply is wholly or mainly in Wales), both of which come into force on 25 December 2003, require a water company that has reason to believe that a water supply fails, *or is likely to fail*, to meet standards of wholesomeness to investigate the cause of that failure or likely failure, leading to appropriate action where necessary.

10. The shape of the DOMS adopted, and its integration with other aspects of a water company's activities, is for each water company to decide. However, to gain the acceptance of DWI, at least the following components should be incorporated.
- a) Pro-active, periodic investigations on a system-by-system basis, in which actual and impending water quality performance, causes of problems and the condition and deterioration of assets are considered in context. These should have a medium-term horizon (say 5 – 7 years), quantify performance with reference to water quality standards and internal operating criteria, take account of risks to water quality, and lead to quantified activities which may include
 - programmes of 'capital' maintenance work,
 - programmes of 'operational' maintenance activity,
 - reconsideration of requirements for treated water quality, or
 - reconsideration of operational procedures.
 - b) Monitoring of water quality at a local level leading to timely responsive maintenance (say within the current year).
 - c) Control of operational activities related to risks to water quality;
 - where risks vary between individual actions of the same type, risk assessments should precede each such action,
 - where risks do not vary appreciably, or cannot realistically be estimated, standard procedures are appropriate.
 - d) Regular inspection and maintenance for certain components of the distribution system related to risks to water quality.
 - e) Cyclic review of the DOMS and its components; this review should
 - incorporate feedback on the effectiveness of the approaches and procedures adopted,
 - improve the integration of the activities covered by the DOMS, including maintenance and operation, and
 - incorporate improvements in knowledge and techniques, such as improved data gathering, better methods of quantifying risks and better methods of quantifying the activities needed to control them.
11. It should be an aim to develop a holistic approach covering all relevant aspects of operation and maintenance. All aspects of water quality that may be affected by the state or operation of the distribution system should be considered, including the risks of contamination posed by inadequate physical integrity of the system. All elements of the supply system downstream of treatment works should be covered. (The scope of DOMS is discussed further in Section 6 of Annex A.)
12. DWI expects the DOMS document to set out the methods for investigation and for determining the level of maintenance activity (capital and operating) required. It is likely that some aspects of the DOMS will take time to develop, so that the methods will need to be regularly reviewed. Water companies are likely to have existing procedures dealing with many

of the operational activities relevant to these strategies. DWI expects the DOMS document to act as an 'umbrella', and show links to more detailed procedures on these operational activities, but the detailed procedures themselves would not form part of the DOMS document. However, in due course their interaction with other aspects of the strategy should be considered, and changes made as necessary.

Regulatory position of DOMS

13. The preparation and implementation of a DOMS itself is not a new regulatory obligation; it is a development and reinforcement of current good practice, and consistent with the requirements of Regulation 17(1) of the 2000 and 2001 Regulations¹. In this context, the provision of a DOMS will continue to be an action for water companies as part of their distribution undertakings. The issue of this Information Letter is a public statement by DWI of its expectations of the steps water companies will need to consider to prevent a deterioration of water quality supplied to consumers. DWI considers that this is best achieved by a strategy of the type described here or of equivalent rigour. The lack of a DOMS conforming to these expectations would not of itself be a matter for enforcement action. However, it is difficult to envisage how a competent water company might manage its distribution system proactively, and systematically maintain water quality standards, without a DOMS or equivalent. Also, in the event of a drinking water quality incident that may have been affected by the operation or maintenance of the distribution system, the lack of a DOMS would be a material consideration.

Integration of the DOMS into the PR04 process

14. DWI expects water companies to make adequate provision in PR04 Business Plans for the development and implementation of DOMS, and has confirmed these expectations in IL 14/2002. DWI will facilitate this process by supporting water companies in the development of DOMS, and by confirming by desk-top assessment that a DOMS submitted by a water company incorporates the main elements of this guidance. This will be carried out to the timetable in paragraph 3 above, which takes account of water company requirements for the PR04 process timetable. The DWI assessment process will be helped if water companies are able to provide clear and well-presented DOMS that broadly conform to the outline given in Annex A. Where DWI is satisfied, it will confirm this acceptance to the water company.

15. DWI would also draw water companies' attention to the particular relevance for the integration of DOMS into the PR04 process of MD 161², the 'Common Framework'³ and PR 2004, Setting price limits for 2005 – 10: Framework and approach⁴. DWI expects DOMS to be compatible with the requirements of MD 161, particularly in taking a risk-based approach in determining an economic level of maintenance. This theme is further developed in the 'Common Framework' approach. This Framework enables water companies to justify appropriate and economic requirements for maintenance. It allows for all intervention options, including operational solutions, and enables water companies not only to take account of historic data on service performance, but also to take a forward look by considering the risk of failure to meet requirements. DWI considers that DOMS should be an integral part of the 'Common Framework' approach and used in that context by water companies to support the justification for appropriate and adequate funding for operations and maintenance activity.
16. Ofwat has confirmed to DWI that it welcomes the strong endorsement in this Letter of the use of a risk-based approach as described in the 'Common Framework'. It agrees that DOMS should be considered as an integral part of the PR04 process, and would expect to see DOMS as a sub-set of water companies' 'Common Framework' plans. However, it is clearly the responsibility of each water company to justify its proposals within this process.
17. DWI expects water companies to make rapid and significant progress to improve their investigation and data collection arrangements necessary for efficient decision-making within DOMS. DWI endorses the encouragement from Ofwat to water companies in paragraphs 4.24 and 4.25 of PR 2004, Setting price limits for 2005 – 10: Framework and approach⁵ to improve the state of data on their assets, and expects water companies to make adequate provision in the 'Common Framework' approach for these requirements within their draft and final business plans.

Timetable for development and implementation

18. It is recognised that these DOMS are far reaching and may affect many aspects of a water company's activities. Also, techniques and data may need to be improved, particularly in anticipating water quality problems and quantifying the levels of activity necessary to avoid them. In the interim, methods relying more heavily on professional judgements will need to be used by water companies to cover gaps in the information available. In

² Maintaining serviceability to customers. Letter to Managing Directors MD161, Ofwat, April 2000.

³ Capital Maintenance Planning: A Common Framework. UKWIR, 2002.

⁴ Periodic Review 2004, Setting price limits for 2005 – 10: Framework and approach – A consultation paper. Ofwat 15 October 2002.

some cases, water companies may be able to demonstrate that detailed quantification of risks is unnecessary.

19. The immediate aim for each water company should be to put into place a DOMS that underpins an unambiguous commitment to a policy for proactively maintaining satisfactory water quality into the future. To succeed, the process will need to lead to quantifiable activities, and to demonstrate that activity is both necessary and sufficient.
20. Subsequently (say within 5 years), DWI expects relevant parts of the DOMS to be fully consistent with the risk-based approach described in the 'Common Framework'³.
21. To facilitate this development, milestones will be set for the delivery of DOMS in stages, giving priority to the points that are most important for the next Periodic Review, and DWI accepts that DOMS will continue to evolve as methods and information improve. The timetable for the submission of DOMS to DWI is set out in paragraph 3 above.

Further explanation

22. Annex A provides further explanation of DWI's views and expectations in this area, and consideration of topics that may be addressed in, or linked to, a DOMS. This is provided for illustration, and as a basis for dialogue with water companies. It is not intended as a definitive list of requirements, and DWI would accept alternative approaches that can be shown to be effective at safeguarding the quality of water supplied to the consumer in the long term.

Dialogue with water companies

23. DWI would welcome discussions with individual water companies about issues concerning DOMS specific to the water company, and would also be happy to collaborate with representatives of the water industry to encourage the development of DOMS.

Enquiries

24. Enquiries about this letter should be addressed to Milo Purcell (milo.purcell@defra.gsi.gov.uk, 020 7944 5993), or Colin Evins (colin.evins@defra.gsi.gov.uk, 020 7944 5985).
25. This letter is being sent electronically to board level, day-to-day and PR04 contacts. Please acknowledge its receipt by e-mail to dwi.enquiries@defra.gsi.gov.uk. Hard copies are not being sent. This letter may be freely copied.

26. Copies of this letter are being sent to Pamela Taylor, Chief Executive, Water UK; Rodney Anderson, Water Supply and Regulation Division, Department for Environment, Food & Rural Affairs; Bob Macey, Environment Protection Division, Welsh Assembly Government; Tim Hooton, Drinking Water Inspectorate for Scotland; Randal Scott, Drinking Water Inspectorate for Northern Ireland; Rowena Tye, Office of Water Services; and the Chairpersons of Water Voice committees.

Yours sincerely



Michael Rouse
Chief Inspector
Drinking Water Inspectorate

Attachment: Annex A: Explanatory notes on the scope and form of Distribution Operation and Maintenance Strategies