



Guardians of drinking water quality

**DRINKING WATER INSPECTORATE**

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DWI Information Letter 09/2008

10 September 2008

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

**PUBLICATION OF RESEARCH REPORT ON N-NITROSODIMETHYLAMINE (NDMA) IN DRINKING WATER AND ASSOCIATED GUIDANCE TO THE INDUSTRY**

Dear Sir or Madam

**Background**

1. There has been emerging evidence from North America that very low levels of NDMA (N-nitrosodimethylamine) may occur in drinking water as a disinfection by-product. Consequently, in 2006, DWI commissioned research on behalf of Defra to assess whether similar levels occur in drinking water in England and Wales. Results of this research are now available.

**Purpose**

2. The purpose of this letter is to inform you that:
  - a) the results of the DWI research on NDMA are being published on the DWI website at [www.dwi.gov.uk/research/reports/dwi70\\_2\\_210.pdf](http://www.dwi.gov.uk/research/reports/dwi70_2_210.pdf); and
  - b) guidance to the industry on NDMA, arising as a consequence of the findings of the research is being published at the same time on our website [www.dwi.gov.uk/guidance/index.shtm](http://www.dwi.gov.uk/guidance/index.shtm)

**Findings of the research**

3. Overall the research findings are reassuring. At over 90% of the treatment works, samples of final water were free from detectable concentrations of NDMA (limit of detection 0.9ng/l). At three treatment works, trace levels of NDMA were found in the final water, all final water concentrations were

below 10ng/l, as compared to the proposed WHO guideline value of 100ng/l.

4. The literature review element of the research project identified a number of possible risk factors for the presence of NDMA in drinking water generally. In addition, the testing phase of the research identified the first evidence that ferric coagulants may contain NDMA. This new finding is the subject of a follow up research project commissioned by DWI to establish whether water treatment coagulants are a widespread source of NDMA.

### **Health advice**

5. Early in 2008, DWI commissioned from the Health Protection Agency (HPA) a comprehensive toxicological risk assessment for NDMA in drinking water. The key conclusions of this assessment were that NDMA is a potent animal carcinogen by several routes of exposure and genotoxic both *in vitro* and *in vivo*. As is the case for all substances with this profile the HPA advised that there is no identifiable threshold for adverse effects therefore exposure should be reduced to as low as reasonably practicable. However the advice also recognised that drinking water is not a major route of exposure and was reassuring in that it did not recommend immediate public health action in respect of the very low concentrations of NDMA (<10ng/l in final water) reported in the above study.

### **Action taken by DWI and others to date**

6. The Inspectorate has already notified the manufacturer of the products which appear to contain NDMA of the findings of the research and encouraged it to take whatever steps are necessary to ensure that NDMA is not present in the products. The manufacturer has made a very positive response to the Inspectorate's findings. It has completed an investigation of NDMA levels in its products which broadly confirmed the Inspectorate's findings. It found NDMA arose in its production process as a result of the use of a particular additive, which the manufacturer has now eliminated from its process. It has completed a successful works scale operations trial without using the additive. That trial demonstrated a permanent reduction in the levels of NDMA in its products. The company has now implemented these changes permanently.

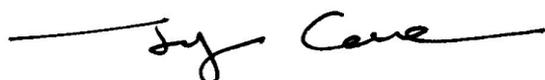
### **Guidance to the industry**

7. In light of the research findings and health advice, DWI considered it prudent to provide guidance to the water industry on NDMA. This guidance follows the risk based approach developed initially for PFOS and PFOA. It is precautionary in a number of respects, recognising the limitations of current knowledge. Advice is given in respect of monitoring to widen knowledge about NDMA in drinking water and to inform the ongoing research programme.

## Enquiries

8. Any enquiries regarding this letter should be made to Dr Peter Marsden, Principal Inspector – risk analysis.
9. Copies of this letter are being sent to Pamela Taylor, Chief Executive, Water UK; Richard Wood, Water Supply and Regulation Division, Department for Environment, Food and Rural Affairs; Nicola Thomas, Climate Change and Water Division, Welsh Assembly Government; Colin McLaren, Drinking Water Quality Regulator for Scotland; Randal Scott, Drinking Water Inspectorate for Northern Ireland; Tony Smith and Chairs of the Regional Consumer Council for Water; Kevin Ridout, Interim Head of Environment and Water Quality for Office of Water Services; Tony Warn, Environment Agency; Nigel Harrison, Food Standards Agency; and Gary Coleman at the Health Protection Agency.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Jeni Colbourne', written over a horizontal line.

Prof. Jeni Colbourne MBE  
Chief Inspector of Drinking Water