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► **B** ► **M2** **DIRECTIVE 2006/118/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**
of 12 December 2006
on the prevention and control of groundwater pollution ◀
(OJ L 372, 27.12.2006, p. 19)

Amended by:

		Official Journal		
		No	page	date
► M1	Commission Directive 2014/80/EU of 20 June 2014	L 182	52	21.6.2014
► M2	Directive (EU) 2026/805 of the European Parliament and of the Council of 30 March 2026	L 805	1	20.4.2026

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**DIRECTIVE 2006/118/EC OF THE EUROPEAN PARLIAMENT
AND OF THE COUNCIL**

of 12 December 2006

on the prevention and control of groundwater pollution

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Article 1

Purpose

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1. This Directive establishes specific measures as provided for in Article 17 of Directive 2000/60/EC to prevent and control groundwater pollution with the aim of achieving the environmental objectives set out in Article 4(1)(b) of that Directive. Those measures include the following:

- (a) criteria for the assessment of good groundwater chemical status; and
- (b) criteria for the identification and reversal of significant and sustained upward trends and for the definition of starting points for trend reversals.

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2. This Directive also complements the provisions preventing or limiting inputs of pollutants into groundwater already contained in Directive 2000/60/EC, and aims to prevent the deterioration of the status of all bodies of groundwater.

Article 2

Definitions

For the purposes of this Directive, the following definitions shall apply in addition to those laid down in Article 2 of Directive 2000/60/EC:

- 1) ‘groundwater quality standard’ means an environmental quality standard expressed as the concentration of a particular pollutant, group of pollutants or indicator of pollution in groundwater, which should not be exceeded in order to protect human health and the environment;

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- 2) ‘threshold value’ means a groundwater quality standard established at Union level and listed in Annex II part D or established by Member States in accordance with Article 3(1)(b);

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- 3) ‘significant and sustained upward trend’ means any statistically and environmentally significant increase of concentration of a pollutant, group of pollutants, or indicator of pollution in groundwater for which trend reversal is identified as being necessary in accordance with Article 5;
- 4) ‘input of pollutants into groundwater’ means the direct or indirect introduction of pollutants into groundwater as a result of human activity;

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- 5) 'background level' means the concentration of a substance or the value of an indicator in a body of groundwater corresponding to no, or only very minor, anthropogenic alterations to undisturbed conditions;
- 6) 'baseline level' means the average value measured at least during the reference years 2007 and 2008 on the basis of monitoring programmes implemented under Article 8 of Directive 2000/60/EC or, in the case of substances identified after these reference years, during the first period for which a representative period of monitoring data is available;

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- 7) 'indicator of pollution' means a parameter which can be monitored to give a value that is representative of the level or concentration of a pollutant or a group of pollutants and thus of the risk posed by them.

▼B*Article 3***Criteria for assessing groundwater chemical status**

1. For the purposes of the assessment of the chemical status of a body or a group of bodies of groundwater pursuant to Section 2.3 of Annex V to Directive 2000/60/EC, Member States shall use the following criteria:

- (a) groundwater quality standards as referred to in Annex I;
- (b) threshold values to be established by Member States in accordance with the procedure set out in Part A of Annex II for the pollutants, groups of pollutants and indicators of pollution which, within the territory of a Member State, have been identified as contributing to the characterisation of bodies or groups of bodies of groundwater as being at risk, taking into account at least the list contained in Part B of Annex II;

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- (c) threshold values established at Union level listed in Part D of Annex II.

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The threshold values applicable to good chemical status shall be based on the protection of the body of groundwater in accordance with Part A, points 1, 2 and 3 of Annex II, having particular regard to its impact on, and interrelationship with, associated surface waters and directly dependent terrestrial ecosystems and wetlands and shall *inter alia* take into account human toxicology and ecotoxicology knowledge.

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1a. The quality standards for the substances numbered 3 to 8 in Annex I to this Directive shall take effect from 22 December 2027, with the aim of achieving good groundwater chemical status in relation to those substances by 22 December 2039 and preventing deterioration in the chemical status of groundwater bodies in relation to those substances. For that purpose, Member States shall, by 22 December 2027, establish a supplementary monitoring programme and, by 22 December 2030, a preliminary programme of measures covering those substances. A final programme of measures, in accordance with Article 11 of Directive 2000/60/EC, shall be included in the 2033 river basin management plan produced in accordance with Article 13(7) of that Directive.

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Article 4(4) to (9) of Directive 2000/60/EC shall apply *mutatis mutandis* to the substances referred to in the first subparagraph of this paragraph. Insofar as the time extensions provided for in Article 4(4) of that Directive are concerned, they shall be limited to a maximum of one further update of the river basin management plan except in cases where the natural conditions are such that the objectives cannot be achieved within that period.

1b. Threshold values established in accordance with Article 3(1)(b) and the threshold values listed in Part D of Annex II shall take effect from the beginning of the following river basin management plan period after the date the threshold value was set, with the aim of achieving good groundwater chemical status in relation to the corresponding substances by the end of that river basin management plan period and of preventing deterioration in the chemical status of groundwater bodies in relation to those substances.

Article 4(4) to (9) of Directive 2000/60/EC shall apply *mutatis mutandis* to the substances referred to in the first subparagraph of this paragraph. Insofar as the time extensions provided for in Article 4(4) of that Directive are concerned, they shall be limited to a maximum of one further update of the river basin management plan except in cases where the natural conditions are such that the objectives cannot be achieved within that period.

2. Threshold values referred to in paragraph 1(b) may be established at the national level, at the level of the river basin district or the part of the international river basin district falling within the territory of a Member State, or at the level of a body or a group of bodies of groundwater.

Threshold values referred to in paragraph 1(b) and (c) shall be applied at the level relevant to the occurrence of the pollutant.

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3. Member States shall ensure that, for bodies of groundwater shared by two or more Member States and for bodies of groundwater within which groundwater flows across a Member State's boundary, the establishment of threshold values is subject to coordination between the Member States concerned, in accordance with Article 3(4) of Directive 2000/60/EC.

4. Where a body or a group of bodies of groundwater extends beyond the territory of the Community, the Member State(s) concerned shall endeavour to establish threshold values in coordination with the non-Member State(s) concerned, in accordance with Article 3 (5) of Directive 2000/60/EC.

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5. Member States shall publish all threshold values referred to in paragraph 1(b) of this Article in their river basin management plans to be produced under Article 13 of Directive 2000/60/EC, together with a summary of the information set out in Part C of Annex II to this Directive.

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Member States shall, by 22 December 2027, inform the Commission of their lists of pollutants of national concern and national threshold values referred to in paragraph 1(b). The Commission shall ensure that that information is made publicly available. Subsequent updates of the list of national threshold values shall be published in accordance with the first subparagraph of this paragraph.

6. Member States shall amend the list of threshold values applied in their territories whenever new information on pollutants, groups of pollutants or indicators of pollution, also taking into account the precautionary principle, indicates that a threshold value needs to be set for an additional substance, that an existing threshold value needs to be modified or that a threshold value previously removed from the list needs to be re-inserted. If relevant threshold values are established or amended at Union level, Member States shall adapt the list of threshold values applied in their territories to those values.

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Threshold values can be removed from the list when the body of groundwater concerned is no longer at risk from the corresponding pollutants, groups of pollutants, or indicators of pollution.

Any such changes to the list of threshold values shall be reported in the context of the periodic review of the river basin management plans.

7. The Commission shall publish a report by 22 December 2009 on the basis of the information provided by Member States in accordance with paragraph 5.

*Article 4***Procedure for assessing groundwater chemical status**

1. Member States shall use the procedure described in paragraph 2 to assess the chemical status of a body of groundwater. Where appropriate, Member States may group bodies of groundwater in accordance with Annex V to Directive 2000/60/EC when carrying out this procedure.

2. A body or a group of bodies of groundwater shall be considered to be of good chemical status when:

(a) the relevant monitoring demonstrates that the conditions set out in Table 2.3.2 of Annex V to Directive 2000/60/EC are being met; or

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(b) the values for the groundwater quality standards listed in Annex I and the threshold values referred to in Article 3(1)(b) and (c) are not exceeded at any monitoring point in that body or group of bodies of groundwater; or

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(c) the value for a groundwater quality standard or threshold value is exceeded at one or more monitoring points but an appropriate investigation in accordance with Annex III confirms that:

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- (i) on the basis of the assessment referred to in paragraph 3 of Annex III, the concentrations of pollutants exceeding the groundwater quality standards or threshold values are not considered to present a significant environmental risk, taking into account, where appropriate, the extent of the body of groundwater which is affected;
- (ii) the other conditions for good groundwater chemical status set out in Table 2.3.2 in Annex V to Directive 2000/60/EC are being met, in accordance with paragraph 4 of Annex III to this Directive;
- (iii) for bodies of groundwater identified in accordance with Article 7(1) of Directive 2000/60/EC, the requirements of Article 7(3) of that Directive are being met, in accordance with paragraph 4 of Annex III to this Directive;
- (iv) the ability of the body of groundwater or of any of the bodies in the group of bodies of groundwater to support human uses has not been significantly impaired by pollution.

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2a. The Commission is empowered to adopt an implementing act to establish a list of pesticide metabolites that may be found in groundwater and for which an assessment of their relevance has been carried out in the Union, indicating whether they are relevant or not relevant, by 11 May 2028. The list shall not include metabolites assessed as being of no concern. The list shall be based on data generated during the process for approving active substances under Regulation (EC) No 1107/2009 of the European Parliament and of the Council ⁽¹⁾ and Regulation (EU) No 528/2012 of the European Parliament and of the Council ⁽²⁾ and associated scientific output from the European Food Safety Authority (EFSA) and the European Chemicals Agency (ECHA), and, if available, new scientific data on existing metabolites or newly discovered previously unidentified metabolites. The Commission shall adopt an implementing act to update the list at least every six years. The implementing acts referred to in this paragraph shall be adopted in accordance with the examination procedure referred to in Article 9(2) of this Directive.

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3. Choice of the groundwater monitoring sites has to satisfy the requirements of Section 2.4 of Annex V to Directive 2000/60/EC on being designed so as to a coherent and comprehensive overview of groundwater chemical status and to provide representative monitoring data.

⁽¹⁾ Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC (OJ L 309, 24.11.2009, p. 1, ELI: <http://data.europa.eu/eli/reg/2009/1107/oj>).

⁽²⁾ Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products (OJ L 167, 27.6.2012, p. 1, ELI: <http://data.europa.eu/eli/reg/2012/528/oj>).

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4. Member States shall publish a summary of the assessment of groundwater chemical status in the river basin management plans in accordance with Article 13 of Directive 2000/60/EC.

This summary, established at the level of the river basin district or the part of the international river basin district falling within the territory of a Member State, shall also include an explanation as to the manner in which exceedances of groundwater quality standards or threshold values at individual monitoring points have been taken into account in the final assessment.

5. If a body of groundwater is classified as being of good chemical status in accordance with paragraph 2(c), Member States, in accordance with Article 11 of Directive 2000/60/EC, shall take such measures as may be necessary to protect aquatic ecosystems, terrestrial ecosystems and human uses of groundwater dependent on the part of the body of groundwater represented by the monitoring point or points at which the value for a groundwater quality standard or the threshold value has been exceeded.

Article 5

Identification of significant and sustained upward trends and the definition of starting points for trend reversals

1. Member States shall identify any significant and sustained upward trend in concentrations of pollutants, groups of pollutants or indicators of pollution found in bodies or groups of bodies of groundwater identified as being at risk and define the starting point for reversing that trend, in accordance with Annex IV.

2. Member States shall, in accordance with Part B of Annex IV, reverse trends which present a significant risk of harm to the quality of aquatic ecosystems or terrestrial ecosystems, to human health, or to actual or potential legitimate uses of the water environment, through the programme of measures referred to in Article 11 of Directive 2000/60/EC, in order progressively to reduce pollution and prevent deterioration of groundwater.

3. Member States shall define the starting point for trend reversal as a percentage of the level of the groundwater quality standards set out in Annex I and of the threshold values established pursuant to Article 3, on the basis of the identified trend and the environmental risk associated therewith, in accordance with Part B, point 1 of Annex IV.

4. In the river basin management plans to be submitted in accordance with Article 13 of Directive 2000/60/EC, Member States shall summarise:

- (a) the way in which the trend assessment from individual monitoring points within a body or a group of bodies of groundwater has contributed to identifying, in accordance with Section 2.5 of Annex V to that Directive, that those bodies are subject to a significant and sustained upward trend in concentration of any pollutant or a reversal of that trend; and

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- (b) the reasons for the starting points defined pursuant to paragraph 3.

5. Where necessary to assess the impact of existing plumes of pollution in bodies of groundwater that may threaten the achievement of the objectives in Article 4 of Directive 2000/60/EC, and in particular, those plumes resulting from point sources and contaminated land, Member States shall carry out additional trend assessments for identified pollutants in order to verify that plumes from contaminated sites do not expand, do not deteriorate the chemical status of the body or group of bodies of groundwater, and do not present a risk for human health and the environment. The results of these assessments shall be summarised in the river basin management plans to be submitted in accordance with Article 13 of Directive 2000/60/EC.

Article 6

Measures to prevent or limit inputs of pollutants into groundwater

1. In order to achieve the objective of preventing or limiting inputs of pollutants into groundwater, established in accordance with Article 4 (1)(b)(i) of Directive 2000/60/EC, Member States shall ensure that the programme of measures established in accordance with Article 11 of that Directive includes:

- (a) all measures necessary to prevent inputs into groundwater of any hazardous substances, without prejudice to paragraphs 2 and 3. In identifying such substances, Member States shall in particular take account of hazardous substances belonging to the families or groups of pollutants referred to in points 1 to 6 of Annex VIII to Directive 2000/60/EC, as well as of substances belonging to the families or groups of pollutants referred to in points 7 to 9 of that Annex, where these are considered to be hazardous;
- (b) for pollutants listed in Annex VIII to Directive 2000/60/EC which are not considered hazardous, and any other non-hazardous pollutants not listed in that Annex considered by Member States to present an existing or potential risk of pollution, all measures necessary to limit inputs into groundwater so as to ensure that such inputs do not cause deterioration or significant and sustained upward trends in the concentrations of pollutants in groundwater. Such measures shall take account, at least, of established best practice, including the Best Environmental Practice and Best Available Techniques specified in the relevant Community legislation.

For the purpose of establishing measures referred to in points (a) or (b), Member States may, as a first step, identify the circumstances under which the pollutants listed in Annex VIII to Directive 2000/60/EC, in particular essential metals and their compounds referred to in point 7 of that Annex, are to be considered hazardous or non-hazardous.

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2. Inputs of pollutants from diffuse sources of pollution having an impact on the groundwater chemical status shall be taken into account whenever technically possible.

3. Without prejudice to any more stringent requirements in other Community legislation, Member States may exempt from the measures required by paragraph 1 inputs of pollutants that are:

- (a) the result of direct discharges authorised in accordance with Article 11(3)(j) of Directive 2000/60/EC;
- (b) considered by the competent authorities to be of a quantity and concentration so small as to obviate any present or future danger of deterioration in the quality of the receiving groundwater;
- (c) the consequences of accidents or exceptional circumstances of natural cause that could not reasonably have been foreseen, avoided or mitigated;
- (d) the result of artificial recharge or augmentation of bodies of groundwater authorised in accordance with Article 11(3)(f) of Directive 2000/60/EC;
- (e) in the view of the competent authorities incapable, for technical reasons, of being prevented or limited without using:
 - (i) measures that would increase risks to human health or to the quality of the environment as a whole; or
 - (ii) disproportionately costly measures to remove quantities of pollutants from, or otherwise control their percolation in, contaminated ground or subsoil; or
- (f) the result of interventions in surface waters for the purposes, amongst others, of mitigating the effects of floods and droughts, and for the management of waters and waterways, including at international level. Such activities, including cutting, dredging, relocation and deposition of sediments in surface water, shall be conducted in accordance with general binding rules, and, where applicable, with permits and authorisations issued on the basis of such rules, developed by the Member States for that purpose, provided that such inputs do not compromise the achievement of the environmental objectives established for the water bodies concerned in accordance with Article 4(1)(b) of Directive 2000/60/EC.

The exemptions provided for in points (a) to (f) may be used only where the Member States' competent authorities have established that efficient monitoring of the bodies of groundwater concerned, in accordance with point 2.4.2 of Annex V to Directive 2000/60/EC, or other appropriate monitoring, is being carried out.

4. The competent authorities of the Member States shall keep an inventory of the exemptions referred to in paragraph 3 for the purpose of notification, upon request, to the Commission.

▼ **M2***Article 6a***Watch list**

1. The Commission is empowered to adopt implementing acts to establish, having regard to scientific reports prepared by ECHA in accordance with paragraph 2 of this Article, a watch list of substances for which Union-wide monitoring data are to be gathered by the Member States for the purpose of supporting future reviews of Annexes I and II and to lay down the formats to be used by the Member States for reporting the results of that monitoring and related information to the Commission. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 9(2).

The watch list shall contain a maximum of five substances, groups of substances, or indicators of pollution at any one time, and the possible methods of analysis for each substance. Those methods shall not entail excessive costs for the competent authorities. The substances to be included in the watch list shall be selected from amongst those substances for which the information available indicates that they could pose a significant risk at Union level to or via the aquatic environment and for which monitoring data are insufficient. This watch list shall include substances of emerging concern.

On the basis of the scientific reports prepared by ECHA in accordance with paragraph 2, the Commission shall include microplastics and appropriate indicators of the presence, evolution or transmission of antimicrobial resistance (“indicators of antimicrobial resistance”) in the watch list, provided that methods of sampling and analysis that are reliable and do not entail excessive cost are available. By 1 December 2027 the Commission shall identify such methods of sampling and analysis.

2. ECHA shall prepare scientific reports to assist the Commission in selecting the substances, and indicators for inclusion in the watch list referred to in paragraph 1 of this Article, taking into account the following information:

- (a) Annex I to Directive 2008/105/EC of the European Parliament and of the Council ⁽¹⁾ and the results of the most recent review of that Annex, as well as the results of the most recent review of Annex I to this Directive;
- (b) the watch lists established in accordance with Directives 2008/105/EC and (EU) 2020/2184;
- (c) requirements to address soil pollution, including related monitoring data;

⁽¹⁾ Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council (OJ L 348, 24.12.2008, p. 84, ELI: <http://data.europa.eu/eli/dir/2008/105/oj>).

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- (d) Member States' characterisation of river basin districts in accordance with Article 5 of Directive 2000/60/EC and the results of monitoring programmes established in accordance with Article 8 of that Directive;
- (e) information on production volumes, use patterns, intrinsic properties (including mobility in soils and, where relevant, particle size), concentrations in the environment and adverse effects on human health and the aquatic environment of a particular substance or group of substances, including information gathered in accordance with Directive 2001/83/EC of the European Parliament and of the Council ⁽¹⁾, Regulations (EC) No 1907/2006 ⁽²⁾ and (EC) No 1107/2009, Directive 2009/128/EC of the European Parliament and of the Council ⁽³⁾ and Regulations (EU) No 528/2012, (EU) 2019/6 ⁽⁴⁾ and (EU) 2022/2379 ⁽⁵⁾ of the European Parliament and of the Council;
- (f) research projects and scientific publications, including, information on trends, and forecasts based on modelling or other predictive assessments, as well as information and data collected by remote sensing technologies, earth observation, such as Copernicus services, *in situ* sensors and devices, or citizen science data, taking advantage of the opportunities offered by artificial intelligence and advanced data analysis and processing;
- (g) recommendations from stakeholders;
- (h) recommendations from the working groups established under the Common Implementation Strategy for Directive 2000/60/EC;

⁽¹⁾ Directive 2001/83/EC of the European Parliament and of the Council of 6 November 2001 on the Community code relating to medicinal products for human use (OJ L 311, 28.11.2001, p. 67, ELI: <http://data.europa.eu/eli/dir/2001/83/oj>).

⁽²⁾ Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1, ELI: <http://data.europa.eu/eli/reg/2006/1907/oj>).

⁽³⁾ Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides, (OJ L 309, 24.11.2009, p. 71, ELI: <http://data.europa.eu/eli/dir/2009/128/oj>).

⁽⁴⁾ Regulation (EU) 2019/6 of the European Parliament and of the Council of 11 December 2018 on veterinary medicinal products and repealing Directive 2001/82/EC (OJ L 4, 7.1.2019, p. 43, ELI: <http://data.europa.eu/eli/reg/2019/6/oj>).

⁽⁵⁾ Regulation (EU) 2022/2379 of the European Parliament and of the Council of 23 November 2022 on statistics on agricultural input and output, amending Commission Regulation (EC) No 617/2008 and repealing Regulations (EC) No 1165/2008, (EC) No 543/2009 and (EC) No 1185/2009 of the European Parliament and of the Council and Council Directive 96/16/EC (OJ L 315, 7.12.2022, p. 1, ELI: <http://data.europa.eu/eli/reg/2022/2379/oj>).

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- (i) information on emissions, discharges and losses available in the Industrial Emissions Portal under Regulation (EU) 2024/1244 of the European Parliament and of the Council ⁽¹⁾, as well as any additional information available on substances covered by permits under Directive 2010/75/EU of the European Parliament and of the Council ⁽²⁾.

3. The scientific reports prepared by ECHA in accordance with paragraph 2 shall present a list of candidate substances, groups of substances, or indicators, an indicative method of analysis and maximum acceptable limit of quantification for each of them, with a supporting reference to scientific literature or guidance.

4. By 1 February 2028 and every three years thereafter, ECHA shall prepare a report summarising the findings of the scientific reports prepared in accordance with paragraph 2 and shall make that report publicly available. .

5. By 1 June 2028, the Commission shall establish the first watch list referred to in paragraph 1, and update it every three years thereafter.

When updating the watch list, the Commission shall remove any substance, group of substances, or indicator from the watch list, where the Commission considers it possible to assess the risk for the aquatic environment without additional monitoring data. However, an individual substance, group of substances, or indicator may be kept on the watch list for another period of three years where additional monitoring data are needed to assess the risk to the aquatic environment.

The Commission may also add one or more additional substances, groups of substances, or indicators where it considers, having regard to the scientific reports of ECHA, that there could be a widespread risk to the aquatic environment, subject to the updated watch list containing a maximum of five substances, groups of substances, or indicators, in accordance with paragraph 1.

Microplastics and indicators of antimicrobial resistance shall not be kept on the watch list for a second consecutive period of three years unless a harmonised and reliable risk assessment methodology is available which, when applied, shows that the monitoring data collected during the first monitoring period are insufficient to assess the risk they pose to or via the aquatic environment.

⁽¹⁾ Regulation (EU) 2024/1244 of the European Parliament and of the Council of 24 April 2024 on reporting of environmental data from industrial installations, establishing an Industrial Emissions Portal and repealing Regulation (EC) No 166/2006 (OJ L, 2024/1244, 2.5.2024, ELI: <http://data.europa.eu/eli/reg/2024/1244/oj>).

⁽²⁾ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial and livestock rearing emissions (integrated pollution prevention and control) (OJ L 334, 17.12.2010, p. 17, ELI: <http://data.europa.eu/eli/dir/2010/75/oj>).

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6. Member States shall monitor each substance, group of substances, and indicator on the watch list referred to in paragraph 1 at selected representative monitoring stations over a 24-month period. The monitoring period shall commence within six months of the establishment of the watch list, but sampling and analysis need not commence at the start of that period.

Each Member State shall select at least two monitoring stations, plus the number of stations equal to its total area in km² of groundwater bodies divided by 45 000, rounded to the nearest integer.

In selecting the representative monitoring stations, the monitoring frequency and the timing for each substance, group of substances, or indicator, Member States shall take into account seasonal variability in rainfall, water levels, use patterns and the possibility of the substance, group of substances, or indicator occurring. The frequency of monitoring shall be not less than once per year.

Where a Member State is in a position to generate sufficient, comparable, representative and recent monitoring data for a particular substance, group of substances, or indicator from existing monitoring programmes or studies, it may decide not to undertake additional monitoring under the watch list mechanism for that substance, group of substances, or indicator, provided that the substance, group of substances, or indicator was monitored using a methodology that is compliant with the methods of analysis referred to in the implementing act establishing the watch list.

7. Member States shall make available the results of the monitoring referred to in paragraph 6 of this Article annually in accordance with Article 8(4) of Directive 2000/60/EC and with the implementing act establishing the watch list as adopted pursuant to paragraph 1 of this Article. They shall also make available information on the representativeness of the monitoring stations and on the monitoring strategy.

8. At the end of the 24-month period referred to in paragraph 6 ECHA shall review the monitoring results and assess which substances, groups of substances, or indicators need to be monitored for another 24-month period and therefore are to be kept on the watch list and which substances, groups of substances, or indicators can be removed from the watch list.

Where the Commission, having regard to the assessment by ECHA referred to in the first subparagraph of this paragraph, concludes that no further monitoring is required to further assess the risk to the aquatic environment, that assessment shall be taken into account in the review of Annex I or II referred to in Article 8.

▼B*Article 7***Transitional arrangements**

In the period between 16 January 2009 and 22 December 2013, any new authorisation procedure pursuant to Articles 4 and 5 of Directive 80/68/EEC shall take into account the requirements set out in Articles 3, 4 and 5 of this Directive.

▼M2*Article 8***Review of Annexes I to IV and specific provisions for certain substances**

1. The Commission shall review the list of pollutants and indicators of pollution and the corresponding quality standards for those pollutants set out in Annex I by 11 May 2032 and every six years thereafter and, where appropriate, accompany the review with a legislative proposal to update the list of pollutants and the corresponding quality standards.

2. The Commission shall review the list of pollutants and indicators of pollution for which Member States have to consider establishing national threshold values set out in Part B of Annex II by 11 May 2032 and every six years thereafter and, where appropriate, accompany the review with a legislative proposal to update the list of pollutants in Part B of Annex II.

3. The Commission shall review the repository of harmonised threshold values in Part D of Annex II by 11 May 2032 and every six years thereafter and, where appropriate, accompany the review with a legislative proposal to update the repository and the corresponding harmonised threshold values in Part D of Annex II.

4. When conducting the reviews referred to in paragraphs 1, 2 and 3, the Commission shall take the scientific reports prepared by ECHA pursuant to paragraph 6 into account.

5. The Commission is empowered to adopt delegated acts in accordance with Article 8a to amend Parts A and C of Annex II and Annexes III and IV concerning guidelines for the establishment of threshold values by Member States, information to be provided by Member States with regard to the pollutants and indicators of pollution for which threshold values have been established, the assessment of groundwater chemical status and the identification and reversal of significant and sustained upward trends in order to adapt them to scientific and technical progress.

6. For the purpose of assisting the Commission with regard to the review of Annexes I and II, ECHA shall prepare scientific reports. Those reports shall take account of the following:

- (a) the opinions of the Committee for Risk Assessment (RAC) and the Committee for Socio-Economic Analysis (SEAC) of ECHA;
- (b) the results of the monitoring programmes established in accordance with Article 8 of Directive 2000/60/EC;

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- (c) the review of the monitoring results in accordance with Article 6a (8) of this Directive;
- (d) the outcome of the reviews of the Annexes to Directive 2008/105/EC and Directive (EU) 2020/2184;
- (e) information and requirements to address soil pollution;
- (f) Union research programmes and scientific publications, including the latest available information resulting from remote sensing technologies, earth observation, such as Copernicus services, *in situ* sensors and devices and citizen science data, leveraging the opportunities offered by new technologies, which could include artificial intelligence, advanced data analysis and processing;
- (g) comments and information from relevant stakeholders, including national regulatory authorities and other relevant bodies;
- (h) recommendations from the working groups established under the Common Implementation Strategy for Directive 2000/60/EC.

The scientific reports referred to in the first subparagraph shall include proposals for quality standards or threshold values for the respective pollutants or indicators of pollution as well as a suitable analytical method.

7. Every six years, ECHA shall prepare and make publicly available a report, summarising the findings of the scientific reports prepared under paragraph 6. The first report shall be submitted to the Commission by 11 May 2030.

8. When next conducting the review referred to in paragraph 1 of this Article, the Commission shall consider establishing a quality standard for PFAS Total in groundwater and aim to complement the guidance on monitoring PFAS Total in drinking water, developed in accordance with Article 13(7) of Directive (EU) 2020/2184, to make it applicable to monitoring PFAS Total in groundwater. Member States are encouraged to already apply that guidance to monitor PFAS Total in groundwater and to report the data in accordance with Article 8(4) of Directive 2000/60/EC. Considering the toxicity, persistence and prevalence of trifluoroacetic acid (TFA) in the environment, the Commission shall, at the next review, also consider establishing a quality standard for TFA separately, or as a part of a sum, in Annex I to this Directive.

9. When next conducting the review referred to in paragraph 1, the Commission shall consider whether to establish quality standards for the sum(s) of selected pharmaceuticals by mode of action and for the sum of bisphenols; for this reason “sum(s) of selected pharmaceuticals by mode of action” and “sum of bisphenols” are listed in Annex V to Directive 2006/118/EC. The Commission shall also consider whether a risk-based approach could be taken to establishing quality standards for total pharmaceuticals and total bisphenols in groundwater, supported by suitable monitoring methods.

▼ **M2**

10. When next conducting the review referred to in paragraph 1, the Commission shall consider whether to revise the quality standards in Annex I for individual pesticides, total pesticides and for non-relevant metabolites in groundwater.

*Article 8a***Exercise of the delegation**

1. The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.

2. The power to adopt delegated acts referred to in Article 8(5) shall be conferred on the Commission for a period of six years from 10 May 2026. The Commission shall draw up a report in respect of the delegation of power not later than nine months before the end of the six-year period. The delegation of power shall be tacitly extended for periods of an identical duration, unless the European Parliament or the Council opposes such extension not later than three months before the end of each period.

3. The delegation of power referred to in Article 8(5) may be revoked at any time by the European Parliament or by the Council. A decision to revoke shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the *Official Journal of the European Union* or at a later date specified therein. It shall not affect the validity of the delegated acts already in force.

4. Before adopting a delegated act, the Commission shall consult experts designated by each Member State in accordance with the principles laid down in the Interinstitutional Agreement of 13 April 2016 on Better Law-Making.

5. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.

6. A delegated act adopted pursuant to Article 8(5) shall enter into force only if no objection has been expressed either by the European Parliament or by the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or of the Council.

*Article 9***Committee procedure**

1. The Commission shall be assisted by a committee. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011 of the European Parliament and of the Council ⁽¹⁾.

⁽¹⁾ Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers (OJ L 55, 28.2.2011, p. 13, ELI: <http://data.europa.eu/eli/reg/2011/182/oj>).

▼ M2

2. Where reference is made to this paragraph, Article 5 of Regulation (EU) No 182/2011 shall apply.

Where the committee delivers no opinion, the Commission shall not adopt the draft implementing act and Article 5(4), third subparagraph, of Regulation (EU) No 182/2011 shall apply.

▼ B

*Article 11***Evaluation**

The report by the Commission provided for under Article 18(1) of Directive 2000/60/EC shall for groundwater include an evaluation of the functioning of this Directive in relation to other relevant environmental legislation, including consistency therewith.

*Article 12***Implementation**

Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 16 January 2009. They shall forthwith inform the Commission thereof.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

*Article 13***Entry into force**

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

*Article 14***Addressees**

This Directive is addressed to the Member States.

QUALITY STANDARDS (QS) FOR GROUNDWATER POLLUTANTS AND INDICATORS OF POLLUTION

Where, for a given body of groundwater, it is considered that the groundwater quality standards could result in failure to achieve the environmental objectives specified in Article 4 of Directive 2000/60/EC for associated bodies of surface water, or in any significant deterioration of the ecological or chemical quality of such bodies, or in any significant damage to terrestrial ecosystems which depend directly on that body of groundwater, more stringent threshold values shall be established in accordance with Article 3 of and Annex II to this Directive. Provided that a reliable methodology is available to assess the presence of groundwater ecosystems, more stringent quality standards shall also be established for groundwater bodies where such ecosystems are present, unless the groundwater quality standards have been set to protect human health and are already sufficiently strict to protect those ecosystems.

(1)	(2)	(3)	(4)	(5)	(6)
Entry No	Name of substance	Category of substances	CAS number ⁽¹⁾	EU number ⁽²⁾	Quality Standard ⁽³⁾ [µg/l unless otherwise indicated]
1	Nitrates	Nutrients	not applicable	not applicable	50 mg/l
2	Active substances in pesticides, including their relevant metabolites, degradation and reaction products ⁽⁴⁾	Pesticides	not applicable	not applicable	0,1 (individual)
					0,5 (total) ⁽⁵⁾
3	PFAS				
3.1	Sum of PFAS	Industrial substances	See table note 6	See table note 6	The parametric value as defined in Part B of Annex I to Directive (EU) 2020/2184 ⁽⁶⁾
3.2	Sum of 4 PFAS ⁽⁷⁾	Industrial substances	See table note 7	See table note 7	0,0044 ⁽⁷⁾
4	Carbamazepine	Pharmaceuticals	298-46-4	not applicable	2,5 ⁽¹²⁾
5	Sulfamethoxazole	Pharmaceuticals	723-46-6	not applicable	0,1 ⁽¹²⁾
6	Primidone	Pharmaceuticals	125-33-7		2,5 ⁽¹²⁾

▼ M2

(1)	(2)	(3)	(4)	(5)	(6)
Entry No	Name of substance	Category of substances	CAS number ⁽¹⁾	EU number ⁽²⁾	Quality Standard ⁽³⁾ [µg/l unless otherwise indicated]
7	Non-relevant metabolites of pesticides (nrMs) ⁽⁴⁾	Pesticides	not applicable	not applicable	1 or up to 5 ⁽⁸⁾ (individual)
					5 ⁽⁹⁾ or 12,5 ⁽¹⁰⁾ (total) ⁽¹¹⁾
8	Trichloroethylene and Tetrachloroethylene (sum of two)	Industrial substances	79-01-6 and 127-18-4	201-167-4 and 204-825-9	10 (total) ⁽¹³⁾

⁽¹⁾ CAS: Chemical Abstracts Service.

⁽²⁾ EU number: European Inventory of Existing Commercial Substances (EINECS) or European List of Notified Chemical Substances (ELINCS).

⁽³⁾ This parameter is the QS expressed as an annual average value. Unless otherwise specified, it applies to the total concentration of all substances and isomers.

⁽⁴⁾ 'Pesticides' means plant protection products and biocidal products referred to in Article 2 of Regulation (EC) No 1107/2009 and in Article 3 of Regulation (EU) No 528/2012 respectively.

For that parameter, Member States shall monitor the active substances present in pesticidal products currently or previously used in their territory and any found to be present as a result of transboundary pollution, and their relevant and non-relevant metabolites, degradation and reaction products, drawing, when available, on the list to be established in accordance with Article 4(2a) of this Directive. Member States may stop monitoring specific active substances and their metabolites if they are no longer being used in their territory, provided that past monitoring has consistently shown that those substances and metabolites do not occur in the groundwater body.

A pesticide metabolite shall be deemed relevant if there is reason to consider that it has intrinsic properties comparable to those of the parent active substance in terms of its toxicity for the target pest or that either itself or its transformation products generate a health risk for consumers or the environment.

⁽⁵⁾ 'Total' means the sum of all individual pesticides detected and quantified in the monitoring procedure, including their relevant metabolites, degradation and reaction products.

⁽⁶⁾ This refers to the PFAS listed in point 3 of Part B of Annex III to Directive (EU) 2020/2184. The parameter and the quality standard shall be updated according to amendments to that Directive.

⁽⁷⁾ This refers to the following compounds, listed with their CAS number and EU number: Perfluorohexane sulfonic acid (PFHxS), (CAS 355-46-4, EU 206-587-1); Perfluorooctanesulfonic acid (PFOS) (CAS 1763-23-1, EU 217-179-8); Perfluorooctanoic acid (PFOA) (CAS 335-67-1, EU 206-397-9); Perfluorononanoic acid (PFNA) (CAS 375-95-1, EU 206-801-3). For the sum of 4 PFAS, the CAS numbers listed refer only to the protonated form of the individual PFAS but the sum applies to the total concentration of the dissolved substances including protonated and deprotonated forms and their isomers linear and branched.

⁽⁸⁾ Member States shall apply a default quality standard of 1 µg/l unless they provide reliable evidence, including from tests of acute and chronic toxicity on the taxonomic group confidently predicted to be the most sensitive, that a more or less strict standard is justified, in which case they shall apply that standard, up to a maximum of 5 µg/l.

⁽⁹⁾ The total concentration of nrMs for which the default quality standard of 1 µg/l for individual nrMs applies, or a stricter standard, shall not exceed 5 µg/l.

⁽¹⁰⁾ The total concentration of nrMs for which standards above 1 and up to 5 µg/l for individual nrMs apply shall not exceed 12,5 µg/l.

⁽¹¹⁾ 'Total' means the sum of all individual nrMs in each individual quality-standard category detected and quantified in the monitoring procedure, which should cover at least the nrMs listed in accordance with Article 4(2a).

⁽¹²⁾ When a reliable methodology is available, Member States shall assess the presence of groundwater ecosystems in groundwater bodies whose characteristics could support their existence and set, if such ecosystems are present, and in line with Article 3(1)(b), a stricter threshold value for this substance that is adequate to protect those ecosystems.

⁽¹³⁾ 'Total' means the sum of concentrations of Trichloroethylene and Tetrachloroethylene.

▼ B*ANNEX II***THRESHOLD VALUES FOR GROUNDWATER POLLUTANTS AND INDICATORS OF POLLUTION***Part A***Guidelines for the establishment of threshold values by Member States in accordance with Article 3**

Member States will establish threshold values for all pollutants and indicators of pollution which, pursuant to the characterisation performed in accordance with Article 5 of Directive 2000/60/EC, characterise bodies or groups of bodies of groundwater as being at risk of failing to achieve good groundwater chemical status.

▼ M2

In accordance with Article 15 of Directive 2000/60/EC, Member States shall ensure that competent authorities inform the Commission of threshold values for pollutants and indicators of pollution.

▼ B

Threshold values will be established in such a way that, should the monitoring results at a representative monitoring point exceed the thresholds, this will indicate a risk that one or more of the conditions for good groundwater chemical status referred to in Article 4(2)(c)(ii), (iii) and (iv) are not being met.

When establishing threshold values, Member States will consider the following guidelines:

- 1) the determination of threshold values should be based on:
 - (a) the extent of interactions between groundwater and associated aquatic and dependent terrestrial ecosystems;
 - (b) the interference with actual or potential legitimate uses or functions of groundwater;
 - (c) all pollutants which characterise bodies of groundwater as being at risk, taking into account the minimum list set out in part B;
 - (d) hydro-geological characteristics including information on background levels and water balance;
- 2) the determination of threshold values should also take account of the origins of the pollutants, their possible natural occurrence, their toxicology and dispersion tendency, their persistence and their bioaccumulation potential;

▼ M1

- 3) wherever elevated background levels of substances or ions or their indicators occur due to natural hydro-geological reasons, those background levels in the relevant body of groundwater shall be taken into account when establishing threshold values. When determining background levels, the following principles should be taken into account:
 - (a) The determination of background levels should be based on the characterisation of groundwater bodies in accordance with Annex II to Directive 2000/60/EC and on the results of groundwater monitoring in accordance with Annex V to that Directive. The monitoring strategy and interpretation of the data should take account of the fact that flow conditions and groundwater chemistry vary laterally and vertically;
 - (b) Where only limited groundwater monitoring data are available, more data should be gathered and in the meantime background levels should be determined based on those limited monitoring data, where appropriate by a simplified approach using a subset of samples for which indicators show no influence of human activity. Information on geochemical transfers and processes should also be taken account of, where available;

▼ M1

- (c) Where insufficient groundwater monitoring data are available and the information on geochemical transfers and processes is poor, more data and information should be gathered and in the meantime background levels should be estimated, where appropriate based on statistical reference results for the same type of aquifers in other areas having sufficient monitoring data.

▼ B

- 4) the determination of threshold values should be supported by a control mechanism for the data collected, based on an evaluation of data quality, analytical considerations, and background levels for substances which may occur both naturally and as a result of human activities.

*Part B***Minimum list of pollutants and their indicators for which Member States have to consider establishing threshold values in accordance with Article 3**

1. Substances or ions or indicators which may occur both naturally and/or as a result of human activities

Arsenic

Cadmium

Lead

Mercury

Ammonium

Chloride

Sulphate

▼ M1

Nitrites

Phosphorus (total)/Phosphates ⁽¹⁾

▼ M2

2. Man-made synthetic substances ⁽²⁾

Trichloroethylene

Tetrachloroethylene

▼ B

3. Parameters indicative of saline or other intrusions ⁽³⁾

Conductivity

▼ M1*Part C***▼ M2****Information to be provided by Member States with regard to the pollutants and indicators of pollution for which threshold values have been established by the Member States****▼ M1**

Member States shall include in the river basin management plans to be submitted in accordance with Article 13 of Directive 2000/60/EC information on the way the procedure set out in Part A of this Annex has been followed.

⁽¹⁾ Member States may decide to establish threshold values either for phosphorus (total) or for phosphates.

⁽²⁾ including synthetic substances with identical natural counterparts which may occur in groundwater, but where any natural background level is, at most, low.

⁽³⁾ With regard to saline concentrations resulting from human activities, Member States may decide to establish threshold values either for sulphate and chloride or for conductivity.

▼ M1

In particular, Member States shall provide:

- (a) information on each of the bodies or groups of bodies of groundwater characterised as being at risk, including the following:
 - (i) the size of the bodies;
 - (ii) each pollutant or indicator of pollution which characterises bodies of groundwater as being at risk;
 - (iii) the environmental quality objectives to which the risk is related, including the actual or potential legitimate uses or functions of the groundwater body, and the relationship between the bodies of groundwater and the associated surface waters and directly dependent terrestrial ecosystems;
 - (iv) in the case of naturally-occurring substances, the natural background levels in the bodies of groundwater;
 - (v) information on the exceedances where threshold values are exceeded;
- (b) the threshold values, whether they apply at the national level, at the level of the river basin district or the part of the international river basin district falling within the territory of the Member State, or at the level of a body or a group of bodies of groundwater;
- (c) the relationship between the threshold values and each of the following:
 - (i) in the case of naturally-occurring substances, the background levels;
 - (ii) associated surface waters and directly dependent terrestrial ecosystems;
 - (iii) the environmental quality objectives and other standards for water protection that exist at national, Union or international level;
 - (iv) any relevant information concerning the toxicology, eco-toxicology, persistence, bioaccumulation potential, and dispersion tendency of the pollutants;
- (d) the methodology for determining background levels based on the principles set out in point 3 of Part A;
- (e) the reasons for not having established threshold values for any of the pollutants and indicators identified in Part B;
- (f) key elements of the groundwater chemical status assessment, including the level, method and period of aggregation of monitoring results, the definition of the acceptable extent of exceedance, and the method for calculating it, in accordance with Article 4(2)(c)(i) and point 3 of Annex III.

Where any of the data referred to in points (a) to (f) are not included in the river basin management plans, Member States shall provide the reasons for this in those plans.

▼ **M2**

Part D

Repository of harmonised threshold values for man-made synthetic substances ⁽¹⁾ in groundwater of national, regional or local concern

(1)	(2)	(3)	(4)	(5)	(6)
Entry No	Name of substance	Category of substances	CAS number ⁽¹⁾	EU number ⁽²⁾	Threshold value [µg/l unless otherwise indicated]
	Individual pharmaceutical active substances ⁽³⁾	Pharmaceuticals			2,5 ⁽⁴⁾

⁽¹⁾ CAS: Chemical Abstracts Service.

⁽²⁾ EU number: European Inventory of Existing Commercial Substances (EINECS) or European List of Notified Chemical Substances (ELINCS).

⁽³⁾ Pharmaceutical active substances as defined in Directive 2001/83/EC and Regulation (EU) 2019/6.

⁽⁴⁾ Member States shall apply this threshold value unless a standard or threshold value has been specifically set for the substance concerned at Union or national level for either surface or groundwater. When a reliable methodology is available, Member States shall assess the presence of groundwater ecosystems in groundwater bodies whose characteristics could support their existence and set, if such ecosystems are present, and in accordance with Article 3(1)(b), a stricter threshold value if necessary to protect those ecosystems.

⁽¹⁾ including synthetic substances with identical natural counterparts which may occur in groundwater, but where any natural background level is, at most, low.

▼B*ANNEX III***ASSESSMENT OF GROUNDWATER CHEMICAL STATUS**

1. The assessment procedure for determining the chemical status of a body or a group of bodies of groundwater will be carried out in relation to all bodies or groups of bodies of groundwater characterised as being at risk and in relation to each of the pollutants which contribute to the body or group of bodies of groundwater being so characterised.
2. In undertaking any investigations referred to in Article 4(2)(c), Member States will take into account:
 - (a) the information collected as part of the characterisation to be carried out in accordance with Article 5 of Directive 2000/60/EC and with Sections 2.1, 2.2 and 2.3 of Annex II thereto;
 - (b) the results of the groundwater monitoring network obtained in accordance with Section 2.4 of Annex V to Directive 2000/60/EC; and

▼M2

- (c) any other relevant information including a comparison of the annual arithmetic mean concentration of the relevant pollutants at a monitoring point with the groundwater quality standards set out in Annex I and with the threshold values referred to in Article 3(1)(b) and (c).

▼B

3. For the purposes of investigating whether the conditions for good groundwater chemical status referred to in Article 4(2)(c)(i) and (iv) are met, Member States will, where relevant and necessary, and on the basis of appropriate aggregations of the monitoring results, supported where necessary by concentration estimations based on a conceptual model of the body or group of bodies of groundwater, estimate the extent of the body of groundwater having an annual arithmetic mean concentration of a pollutant higher than a groundwater quality standard or a threshold value.
4. For the purposes of investigating whether the conditions for good groundwater chemical status referred to in Article 4(2)(c)(ii) and (iii) are met, Member States will, where relevant and necessary, and on the basis of relevant monitoring results and of a suitable conceptual model of the body of groundwater, assess:
 - (a) the impact of the pollutants in the body of groundwater;
 - (b) the amounts and the concentrations of the pollutants being, or likely to be, transferred from the body of groundwater to the associated surface waters or directly dependent terrestrial ecosystems;
 - (c) the likely impact of the amounts and concentrations of the pollutants transferred to the associated surface waters and directly dependent terrestrial ecosystems;
 - (d) the extent of any saline or other intrusions into the body of groundwater; and
 - (e) the risk from pollutants in the body of groundwater to the quality of water abstracted, or intended to be abstracted, from the body of groundwater for human consumption.
5. Member States will present the groundwater chemical status of a body or a group of bodies of groundwater on maps in accordance with Sections 2.4.5 and 2.5 of Annex V to Directive 2000/60/EC. In addition, Member States will indicate on these maps all monitoring points where groundwater quality standards and/or threshold values are exceeded, where relevant and feasible.



ANNEX IV

IDENTIFICATION AND REVERSAL OF SIGNIFICANT AND SUSTAINED UPWARD TRENDS

Part A

Identification of significant and sustained upward trends

Member States will identify significant and sustained upward trends in all bodies or groups of bodies of groundwater that are characterised as being at risk in accordance with Annex II to Directive 2000/60/EC, taking into account the following requirements:

- 1) in accordance with Section 2.4 of Annex V to Directive 2000/60/EC, the monitoring programme will be so designed as to detect significant and sustained upward trends in concentrations of the pollutants identified pursuant to Article 3 of this Directive;
- 2) the procedure for the identification of significant and sustained upward trends will be based on the following elements:
 - (a) monitoring frequencies and monitoring locations will be selected such as are sufficient to:
 - (i) provide the information necessary to ensure that such upward trends can be distinguished from natural variation with an adequate level of confidence and precision;
 - (ii) enable such upward trends to be identified in sufficient time to allow measures to be implemented in order to prevent, or at least mitigate as far as practicable, environmentally significant detrimental changes in groundwater quality. This identification will be carried out for the first time by 2009, if possible, and will take into account existing data, in the context of the report on trend identification within the first river basin management plan referred to in Article 13 of Directive 2000/60/EC, and at least every six years thereafter;
 - (iii) take into account the physical and chemical temporal characteristics of the body of groundwater, including groundwater flow conditions and recharge rates and percolation time through soil or subsoil;
 - (b) the methods of monitoring and analysis used will conform to international quality control principles, including, if relevant, CEN or national standardised methods, to ensure equivalent scientific quality and comparability of the data provided;
 - (c) the assessment will be based on a statistical method, such as regression analysis, for trend analysis in time series of individual monitoring points;
 - (d) in order to avoid bias in trend identification, all measurements below the quantification limit will be set to half of the value of the highest quantification limit occurring in time series, except for total pesticides;
- 3) the identification of significant and sustained upward trends in the concentrations of substances which occur both naturally and as a result of human activities will consider the baseline levels and, where such data are available, the data collected before the start of the monitoring programme in order to report on trend identification within the first river basin management plan referred to in Article 13 of Directive 2000/60/EC.

▼B*Part B***Starting points for trend reversals**

Member States will reverse identified significant and sustained upward trends, in accordance with Article 5, taking into account the following requirements:

▼M2

- 1) the starting point for implementing measures to reverse significant and sustained upward trends will be when the concentration of the pollutant reaches 75 % of the parametric values of the groundwater quality standards set out in Annex I and of the threshold values referred to in Article 3(1)(b) and (c), unless:

▼B

- (a) an earlier starting point is required to enable trend reversal measures to prevent most cost-effectively, or at least mitigate as far as possible, any environmentally significant detrimental changes in groundwater quality;
- (b) a different starting point is justified where the detection limit does not allow for establishing the presence of a trend at 75 % of the parametric values; or
- (c) the rate of increase and the reversibility of the trend are such that a later starting point for trend reversal measures would still enable such measures to prevent most cost-effectively, or at least mitigate as far as possible, any environmentally significant detrimental changes in groundwater quality. Such later starting point may not lead to any delay in achieving the deadline for the environmental objectives.

For activities falling within the scope of Directive 91/676/EEC, the starting point for implementing measures to reverse significant and sustained upward trends will be established in accordance with that Directive and with Directive 2000/60/EC and, in particular, adhering to environmental objectives for water protection as set out in Article 4 of Directive 2000/60/EC;

- 2) once a starting point has been established for a body of groundwater characterised as being at risk in accordance with Section 2.4.4 of Annex V to Directive 2000/60/EC and pursuant to point 1 above, it will not be changed during the six-year cycle of the river basin management plan required in accordance with Article 13 of Directive 2000/60/EC;
- 3) trend reversals will be demonstrated, taking into account relevant monitoring provisions contained in Part A, point 2.

▼ **M2***ANNEX V***SUBSTANCES SUBJECT TO REVIEW FOR POSSIBLE INCLUSION IN ANNEX I WITH A UNION-WIDE GROUNDWATER QUALITY STANDARD**

(1)	(2)	(3)	(4)	(5)	(6)
Entry No	Name of substance	Category of substances	CAS number ⁽¹⁾	EU number ⁽²⁾	Threshold value [µg/l unless otherwise indicated]
	Sum(s) of selected pharmaceuticals by mode of action	Pharmaceuticals			
	Sum of bisphenols	Industrial substances			

⁽¹⁾ CAS: Chemical Abstracts Service.

⁽²⁾ EU number: European Inventory of Existing Commercial Substances (EINECS) or European List of Notified Chemical Substances (ELINCS).