# Reporting at RBD/Sub-unit level for groundwater (schema GWMET)

## Overview of reporting of methodologies for groundwater bodies

Reporting of methodologies for groundwater bodies is done for each RBD. For the purpose of presentation in this guidance, the contents of reporting are structured according to the following sub-chapters:

* Methodologies characterisation
* Methodologies classification chemical status, upward trend assessment, trend reversal, quantitative status and transboundary co-ordination
* Definition of significant pressures and impacts
* Methodologies for exemptions

The following sections describe the contents of reporting. The UML diagram of the GWMET schema is found in Annex 10.6.

## Methodologies characterisation groundwater bodies

### Introduction

Article 5 of the WFD requires Member States to identify the location and boundaries of groundwater bodies that will be used for assessing progress with, and achievement of the WFDs Environmental Objectives.

Identifying the size of groundwater bodies was an important parameter that had implications on the design of the monitoring programmes and on the development of appropriate programmes of measures. For groundwater bodies, the WFD requires Member States to further characterise groundwater bodies at risk taking account of the relevant information listed in Annex II 2.2. Full identification should have been completed by 2010 for publication in the first RBMPs. The characterisation of groundwater bodies may have been reviewed and revised as part of the review and update (if necessary) of the Article 5 analysis, required by December 2013.

Article 5 of the WFD also requires Member States to analyse the characteristics of groundwater bodies and to provide a summary report on groundwater body characterisation.

### How will the European Commission and the EEA use the information reported?

The European Commission will use the information provided to check that Member States have established and applied methodologies in accordance with the WFD and GWD, and whether the methodologies are comparable between Member States and RBDs. Statistics and information will be provided to the European Parliament at EU level. Information will be provided to the public through WISE.

### Contents of the 2016 reporting

#### Schema sketch

See Annex 10.6.

#### Information and data to be reported using the schemas

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| **Schema: GWMET** |
| ***Class GWMethodologies***  ***Properties:*** *maxOccurs = 1 minOccurs = 1* |
| **Schema element**: gwCharacterisationReference  **Field type / facets / relationship**: ReferenceType (see Annex 9)  **Properties:** maxOccurs = unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. There are no standard methodologies for the delineation and characterisation of groundwater bodies, therefore no targeted questions have been developed. Member States should, however, provide information relating to the initial characterisation and further characterisation of groundwater bodies. See Section 8.2.3.3 for the detailed information that is required.  Provide references or hyperlinks to the relevant documents where specific information can be found. |

#### Guidance on contents of RBMPs/background documents

The following provides guidance on the aspects that the European Commission expects to find in the relevant chapters on characterisation in the RBMPs or in background documents. This guidance is not intended to be comprehensive in terms of what the Member States have to include in their RBMPs or background documents, rather to provide certain concrete elements of information that the European Commission expects to find.

In relation to the initial characterisation of groundwater bodies (WFD Annex II 2.1) the information provided in the RBMPs and background documents should include:

* How the uses of groundwater bodies and the degree to which they are at risk were assessed.
* The methodology for grouping groundwater bodies (if applicable).
* How significant flow has been identified in order to identify aquifers.
* How significant abstractions have been identified in order to identify aquifers.
* The specific criteria used for the delineation of groundwater bodies. The criteria may cover the following aspects:
  + Significant water flow.
  + Flow characteristics of geological strata.
  + Flow between strata within an aquifer.
  + Geological boundaries.
  + Other hydraulic boundaries.
  + Differences in status.
  + Connection to directly dependent surface water or terrestrial ecosystems.
  + Other.
* How the methodology for the initial characterisation of groundwater bodies has been refined in the second RBMPs.

In relation to the further characterisation of groundwater bodies at risk (WFD Annex II 2.2), information on how the following items have been addressed should be included in the RBMPs and background documents:

* Geological characteristics of the groundwater bodies including the extent and type of geological units.
* Hydrogeological characteristics of the groundwater bodies including hydraulic conductivity, porosity and confinement.
* Characteristics of the superficial deposits and soils in the catchment from which the groundwater bodies receive their recharge, including the thickness, porosity, hydraulic conductivity, and absorptive properties of the deposits and soils.
* Stratification characteristics of the groundwater within the groundwater bodies.
* Associated surface systems, including terrestrial ecosystems and bodies of surface water, with which the groundwater bodies are dynamically linked, including the direction and rates of exchange of water.
* The calculation of the long term annual average rate of overall recharge.
* The chemical composition of the groundwater.
* Any typologies for groundwater characterisation that have been developed.

## Methodologies classification chemical status, upward trend assessment, trend reversal, quantitative status and transboundary co-ordination

### Introduction

Annex V of the WFD specifies how Member States are to monitor groundwater, present chemical and quantitative status classification results and identify groundwater bodies with significant and sustained upward trends[[1]](#footnote-2) in pollutant concentrations. The detailed provisions and criteria for chemical status and trend assessments are laid down in the Groundwater Directive (GWD)[[2]](#footnote-3).

In addition to the reporting requirements of the WFD, the GWD introduces several additional reporting requirements to ensure that status and trends relating to groundwater bodies have been defined according to the provisions of the GWD, and in a consistent and comparable way across the EU.

The reporting requirements include threshold values: groundwater quality standards set by Member States. These have to be reported along with a summary of the methodology used for identifying the pollutants (or their indicators of pollution) and deriving the threshold value(s). The criteria for establishing threshold values are included in Article 3 and Annex I and II of the GWD (reporting obligations in GWD Article 3.5 and Annex II Part C). This is linked to the pressures and impacts analysis required by Article 5 of the WFD, and Article 17 of the WFD relating to strategies to prevent and control pollution of groundwater.

According to Article 3.1(b) of the GWD, threshold values have to be established for pollutants, groups of pollutants and indicators of pollution – the relevant parameters – which have been identified as contributing to the characterisation of groundwater bodies as being at risk of not meeting the WFD Article 4 objectives, taking into account at least the list of the pollutants in GWD Part B Annex II.

The GWD requires that the methodology used to classify groundwater bodies in respect of chemical status is reported. The requirements are laid down in WFD Annex V, and GWD Article 4 and Annex III (reporting requirements in GWD Article 4.4 and Annex III point 5).

In addition, the GWD requires that the method used for trend assessment must be reported, including the way in which results from monitoring at individual monitoring sites have been used. The starting point for trend reversal and the reasons for selecting the starting point must also be reported. Requirements for the identification of upward trends and the definition of starting points for trend reversal are laid down in GWD Article 5 and Annex IV (reporting requirements in GWD Articles 5.4, 5.5 and Annex IV, Part A point 3).

### How will the European Commission and the EEA use the information reported?

Information provided by Member States will be used to ascertain whether they have established and applied methodologies, in accordance with the WFD and GWD, for: deriving threshold values; assessing status (chemical and quantitative); and identifying environmentally significant pollutant trends (and starting points for trend reversal).

The European Commission will check that the methods applied are comparable between Member States and RBDs. The comparison of assessment criteria and thresholds will make the results of the status assessment more transparent and will allow any differences to be identified. Information on threshold values and the substances for which such values have been established will be summarised and analysed.

Statistics and information will be provided to the European Parliament at EU level. Information will be provided to the public through WISE.

### Contents of the 2016 reporting

#### Schema sketch

See Annex 10.6.

#### Information and data to be reported using the schemas

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| **Schema: GWMET (continued)** |
| ***Class GWMethodologies (continued)***  ***Properties:*** *maxOccurs = 1 minOccurs = 1* |
| **Schema element**:diminutionDamage  **Field type / facets:** YesNoNotApplicable\_Union\_Enum: Yes, No, Not applicable  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether diminution of surface water chemistry and ecology and damage to groundwater dependent terrestrial ecosystems due to transfer of pollutants from the groundwater body has been considered in the assessment of the chemical status.  Report ‘Not applicable’ if there are no groundwater dependent surface water or terrestrial ecosystems. |
| **Schema element**:methodCriterionExtentExceedance  **Field type / facets:** MethodCriteriumExtentExeedence\_Enum:  Method 1: Proportion (%) of the number of monitoring sites exceeding a groundwater quality standard or threshold value compared to the total number of monitoring sites in the whole groundwater body  Method 2: Proportion (%) of the total area of the groundwater body represented by monitoring sites exceeding a groundwater quality standard or threshold value compared to the total area of the whole groundwater body.  Method 3: Proportion (%) of the total volume of the groundwater body represented by monitoring sites exceeding a groundwater quality standard or threshold value compared to the total volume of the whole groundwater body.  Other  None  Not relevant as no monitoring site exceeds any groundwater quality standard or threshold value for any pollutant  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Report which method or criterion has been applied to estimate the extent of the groundwater body that exceeds groundwater quality standards or threshold values, and what extent of the groundwater body exceeding groundwater quality standard or threshold value is considered acceptable for confirming good groundwater chemical status. |
| **Schema element**:proportionExceedanceAllowed  **Field type / facets:** NumberDecimal0100Type  **Properties:** maxOccurs =1 minOccurs = 0  **Guidance on completion of schema element**: Conditional. If Method 1, Method 2 or Method 3 has been used to estimate the extent of the groundwater body that exceeds groundwater quality standards or threshold values, state the proportion (%) of monitoring sites, area or volume (as appropriate) where exceedance is considered acceptable for confirming good groundwater chemical status.  **Quality checks**:  Conditional check: Report if MethodCriterionExtentExceedance is ‘Method 1…’, ‘Method 2…’ or ‘Method 3…’. |
| **Schema element**:impactsGWAbstractionBalance  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs = 1 minOccurs = 1  **Guidance on completion of schema element**: Required. Has whether the available groundwater resource is not exceeded by the long term annual average rate of abstraction been considered when assessing groundwater quantitative status?  For further information regarding abstraction, refer to CIS Guidance Document No. 18 on groundwater status and trend assessment[[3]](#footnote-4). |
| **Schema element**:impactsGWAbstractionSWObjective  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs = 1 minOccurs = 1  **Guidance on completion of schema element**: Required. Has failure to achieve the Environmental Objectives specified under WFD Article 4 for associated surface water bodies resulting from anthropogenic water level alteration or change in flow conditions been considered when assessing groundwater quantitative status?  For further information regarding abstraction, refer to CIS Guidance Document No. 18 on groundwater status and trend assessment97. |
| **Schema element**:impactsGWAbstractionSWDiminutionStatus  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs = 1 minOccurs = 1  **Guidance on completion of schema element**: Required. Has significant diminution in the status of surface waters resulting from anthropogenic water level alteration or change in flow conditions been considered when assessing groundwater quantitative status?  For further information regarding abstraction, refer to CIS Guidance Document No. 18 on groundwater status and trend assessment97. |
| **Schema element**:impactsGWAbstractionDamageGWDE  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs = 1 minOccurs = 1  **Guidance on completion of schema element**: Required. Has significant damage to groundwater dependent terrestrial ecosystems resulting from an anthropogenic water level alteration been considered when assessing groundwater quantitative status?  For further information regarding abstraction, refer to CIS Guidance Document No. 18 on groundwater status and trend assessment97. |
| **Schema element**:impactsGWAbstractionSalineIntrusion  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs = 1 minOccurs = 1  **Guidance on completion of schema element**: Required. Has regional saline or other intrusions resulting from anthropogenically induced sustained changes in flow direction been considered when assessing groundwater quantitative status?  For further information regarding abstraction, refer to CIS Guidance Document No. 18 on groundwater status and trend assessment.97 |
| **Schema element**:availableGroundwaterResource  **Field type / facets:** YesNoPartially\_Union\_Enum: Yes, No, Partially  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether the criterion of ‘available groundwater resource’ has been applied in accordance with WFD Article 2(27). |
| **Schema element**:needsTerrestrialEcosystems  **Field type / facets:**YesNoNotApplicable\_Union\_Enum: Yes, No, Not applicable  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether the needs of the terrestrial ecosystems associated to groundwater bodies have been assessed. Report ‘Not applicable’ if there are no terrestrial ecosystems associated to groundwater bodies. |
| **Schema element**:balanceRechargeAbstraction  **Field type / facets:** BalanceRechargeAbstraction\_Enum:  Method 1: A comparison of annual average groundwater abstraction against ‘available groundwater resource’ was calculated for every groundwater body  Method 2: A comparison of annual average groundwater abstractions against ‘available groundwater resource’ in the groundwater body was calculated for a subset of all groundwater bodies  Method 3: Where reliable information on groundwater levels across the groundwater body is available, data can be used to identify the presence of a sustained long-term decline in water levels caused by long-term groundwater abstraction. Where such a decline is present it will indicate that the conditions for good status are not being met and the body will be of poor status.  Not considered  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Report the approach used to assess the balance between recharge and abstraction of groundwater.  For further information regarding abstraction, refer to CIS Guidance Document No. 18 on groundwater status and trend assessment.[[4]](#footnote-5) |
| **Schema element**:trendAssessmentPerformed  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether trend assessment in groundwater pollutants been performed. |
| **Schema element**:trendAssessmentMethodology  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 0  **Guidance on completion of schema element**: Conditional. If trend assessment in groundwater pollutants was performed, indicate whether a methodology for identifying significant and upward trends in any pollutant’s concentration has been applied.  **Quality checks**: Conditional check: Report if trendAssessmentPerformed is ‘Yes’. |
| **Schema element**:timeSeries  **Field type / facets:** YearRangeType  **Properties:** maxOccurs =1 minOccurs = 0  **Guidance on completion of schema element**: Conditional. If trend assessment in groundwater pollutants was performed, state the starting and finishing year for the assessment in the format YYYY--YYYY.  **Quality checks**: Conditional check: Report if trendAssessmentPerformed is ‘Yes’. |
| **Schema element**:statisticalElements  **Field type / facets:** StatisticalElements\_Enum:  Statistical significance  Confidence intervals  None  **Properties:** maxOccurs =1 minOccurs = 0  **Guidance on completion of schema element**: Conditional. If trend assessment in groundwater pollutants was performed, select which statistical element was used from the enumeration list.  **Quality checks**: Conditional check: Report if trendAssessmentPerformed is ‘Yes’. |
| **Schema element**:additionalTrendAssessment  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether additional trend assessments were applied in order to assess the impacts of existing plumes of pollution (according to GWD Article 5(5). |
| **Schema element**:startingPointTrendReversal  **Field type / facets:** StartingPointTrendReversal\_Enum:  All starting points for trend reversal start from 75 % of the groundwater quality standards and threshold values.  Some or all starting points for trend reversal start at a value that is not 75 % of the groundwater quality standards and threshold values.  Starting points for trend reversal have not been established  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Report the starting points for trend reversal, at which level, and whether there is already a methodology available for the assessment of trend reversal. |
| **Schema element**:percentageStartingPoint  **Field type / facets:** NumberDecimal0100Type  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. If the starting points for trend reversal are not 75 % of the groundwater quality standards and threshold values, provide the percentage starting point. |
| **Schema element**:trendReversalMethodology  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether a methodology for assessing trend reversal has been established. |
| **Schema element**:thresholdValueElementProtectionEcosystem  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs = 1 minOccurs = 1  **Guidance on completion of schema element**: Required. Has the protection of aquatic ecosystems (surface waters) been considered during the establishment of the groundwater threshold values? |
| **Schema element**:thresholdValueElementProtectionGWDE  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs = 1 minOccurs = 1  **Guidance on completion of schema element**: Required. Has the protection of groundwater dependent terrestrial ecosystems (e.g. wetlands) been considered during the establishment of the groundwater threshold values? |
| **Schema element**:thresholdValueElementProtectionUses  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs = 1 minOccurs = 1  **Guidance on completion of schema element**: Required. Has the actual and potential legitimate uses and functions of groundwater (e.g. drinking water, irrigation, industrial use) been considered during the establishment of the groundwater threshold values? |
| **Schema element**:thresholdValueElementSalineIntrusion  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs = 1 minOccurs = 1  **Guidance on completion of schema element**: Required. Have saline or other intrusions been considered during the establishment of the groundwater threshold values? |
| **Schema element**:thresholdValuesBackgroundLevels  **Field type / facets:** ThresholdValuesBackgroundLevels\_Enum:  Background levels have been considered in the threshold value establishment  Background levels have been considered in the status assessment but not in the threshold value establishment  Background levels are considered in a different way  Background levels have not been considered  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Report whether background levels of naturally occurring substances have been considered within the establishment of threshold values. |
| **Schema element**:transboundaryGWBPresent  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element:** Required. Indicate whether there are any transboundary groundwater bodies in the RBD. |
| **Schema element**:transboundaryThresholdValues  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 0  **Guidance on completion of schema element**: Conditional. If transboundary groundwater bodies are identified, indicate whether the establishment of threshold values has been co-ordinated with the neighbouring countries concerned.  **Quality checks**: Conditional check: Report if transboundaryGWBPresent is ‘Yes’. |
| **Schema element**: gwMethodologiesChemicalClassificationReference  **Field type / facets:** ReferenceType (see Annex 9)  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Provide references or hyperlinks to the documents and sections where relevant information relating to methodologies for the classification of chemical status of groundwater, upward trend assessment and trend reversal can be found. Guidance on what should be included in this document is provided in Section 8.3.3.3. |
| **Schema element**: gwMethodologiesQuantitativeClassificationReference  **Field type / facets:** ReferenceType (see Annex 9)  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Provide references or hyperlinks to the documents and sections where relevant information relating to methodologies for the classification of quantitative status of groundwater can be found. Guidance on what should be included in this document is provided in Section 8.3.3.3. |
| **Schema element**: gwMethodologiesTransboundaryReference  **Field type / facets:** ReferenceType (see Annex 9)  **Properties:** maxOccurs =unbounded minOccurs = 0  **Guidance on completion of schema element**: Conditional. Provide references or hyperlinks to the documents and sections where relevant information relating to transboundary co-ordination of threshold value setting can be found. Guidance on what should be included in this document is provided in Section 8.3.3.3.  **Quality checks:** report if 'transboundaryGWBPresent' is 'Yes'. |

The following class is used to report the pollutants or indicators of pollution for which threshold values have been established.

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| **Schema: GWMET (continued)** |
| ***Class ThresholdValue***  ***Properties;*** *maxOccurs = unbounded minOccurs = 1* |
| **Schema element**: pollutantIndicatorCode  **Field type / facets:** ChemicalSubstances\_Union\_Enum (see Annex 8e)  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Select each pollutant or indicator of pollution in turn from the enumeration list for which threshold values have been established. |
| **Schema element:** pollutantIndicatorCodeOther  **Field type / facets**: string250Type  **Properties**: maxOccurs = 1 minOccurs = 0  **Guidance on completion of schema element**: Conditional. If ‘pollutantIndicatorCode’ is ‘EEA\_00-00-0 Other chemical parameter’ please indicate in this field the CAS number (if relevant) and the name of the pollutant or indicator.  **Quality check**: Conditional check: report if ‘pollutantIndicatorCode’ is ‘EEA\_00-00-0 Other chemical parameter’. |
| **Schema element**: thresholdValue  **Field type / facets:** String25Type  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element:** Required.Report the threshold value(s) established for the selected pollutant or indicator of pollution.  The threshold values established for nitrates and pesticides need only be reported if they are more stringent than the groundwater quality standards identified in GWD Annex.  If different threshold values are applied at groundwater body level within the RBD, indicate the range of the threshold values applied. |
| **Schema element**: thresholdValueUnit  **Field type / facets:**  UnitOfMeasure\_Enum (see Annex 8f)  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**:Required. Report the unit of measurement of the threshold value or range of threshold values. |
| **Schema element**: thresholdValueScale  **Field type / facets:** GeographicalScale\_Enum (see Annex 8l)  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**:Required. For each pollutant or indicator of pollution and threshold value or range of threshold values, report the level at which the threshold value is established. |
| **Schema element**: startingPointTrendReversal  **Field type / facets:** String25Type  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**:Required. Report the percentage starting point for trend reversal.  The default value is ‘75’, i.e. 75 % of the threshold value.  If different starting points for trend reversal are applied at groundwater body level within the RBD, indicate the range of the starting points applied. |

#### Guidance on contents of RBMPs/background documents

The following provides guidance on the aspects that the European Commission expects to find in the relevant chapters on trend reversal and the establishment of threshold values in the RBMPs or in background documents. This guidance is not intended to be comprehensive in terms of what the Member States have to include in their RBMPs or background documents, rather to provide certain concrete elements of information that the European Commission expects to find.

* Details on whether diminution of surface water chemistry and ecology and damage to groundwater dependent terrestrial ecosystems due to transfer of pollutants from the groundwater body has been considered in the assessment of the chemical status.
* The method or criterion applied to estimate the extent of the groundwater body that exceeds groundwater quality standards or threshold values.
* The conditions or impacts of groundwater abstractions which have been considered when assessing groundwater quantitative status.
* How the criterion of ‘available groundwater resource’ has been applied in accordance with WFD Article 2(27).
* How the needs of the terrestrial ecosystems associated to groundwater bodies have been assessed.
* The approach used to assess the balance between recharge and abstraction of groundwater.
* Details on the time series of the trend assessment in groundwater pollutants.
* Details on the statistical element of the trend assessment in groundwater pollutants.
* Details on whether additional trend assessments were applied in order to assess the impacts of existing plumes of pollution (according to GWD Article 5(5)).
* Starting points for trend reversal which are different from 75 % of the groundwater quality standards or threshold values.
* The methodology used in the RBD for assessing trend reversal.
* Elements and Environmental Quality Objectives considered in the establishment of groundwater threshold values.
* Consideration of background levels in the establishment of threshold values.
* Co-ordination of establishment of threshold values for transboundary groundwater bodies.

## Definition of significant pressures and impacts

### Introduction

A key part of the characterisation of groundwater bodies is the assessment of the risk that a groundwater body may fail (in 2015) the objectives of the WFD unless appropriate measures are taken. The results of the risk assessment inform the monitoring of groundwater bodies and the subsequent classification of status. It is crucial that methodologies used in risk assessment are fit for purpose in the sense of being able to identify and quantify all significant pressures within the RBD and their potential impact on status of groundwater bodies (CIS Guidance Document 3[[5]](#footnote-6)). If not, (expensive) measures may be incorrectly targeted and objectives may (unexpectedly) not be met.

### How will the European Commission and the EEA use the information reported?

The information will be used by the European Commission to ensure that the analysis of pressures and measures has been carried out in accordance with the provisions of the WFD, and in a consistent and comparable way throughout the EU.

In addition to the compliance assessment, a series of outputs will be produced identifying the most common tools used for the assessment of pressures and impacts, in order to promote best practice.

Statistics and information will be provided to the European Parliament at EU level. Information will be provided to the public through WISE.

### Contents of the 2016 reporting

#### Schema sketch

See Annex 10.6.

#### Information and data to be reported using the Schemas

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| **Schema: GWMET (continued)** |
| ***Class GWPressures***  ***Properties:*** *maxOccurs = 1 minOccurs = 1* |
| **Schema element**: gwPressuresNotAssessed  **Field type / facets:** SignificantPressureType\_Enum (see Annex 1a)  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Select any pressure types from the enumeration list that have not been assessed (i.e. pressure types that have not been considered because they were not deemed to be important in the RBD, no information was available, or any other reason). If all pressures have been assessed report ‘Not applicable’. The option ‘No significant pressure’ is not valid. |
| **Schema element**:gwSignificantPressurePointSourceTools  **Field type / facets:** SignificantPressureTools\_Enum:  Numerical tools  Expert judgment  Combination of both  Not assessed  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Report the tools that have been used to define significant pressures from point sources. ‘Numerical tools’ includes modelling tools. |
| **Schema element**:gwSignificantPressureDiffuseSourceTools  **Field type / facets:** SignificantPressureTools\_Enum:  Numerical tools  Expert judgment  Combination of both  Not assessed  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Report the tools that have been used to define significant pressures from diffuse sources. ‘Numerical tools’ includes modelling tools. |
| **Schema element**:gwSignificantPressureWaterAbstractionTools  **Field type / facets:** SignificantPressureTools\_Enum:  Numerical tools  Expert judgment  Combination of both  Not assessed  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Report the tools that have been used to define significant pressures from water abstractions. ‘Numerical tools’ includes modelling tools. |
| **Schema element**:gwSignificantPressureArtificialRecharge  **Field type / facets:** SignificantPressureTools\_Enum:  Numerical tools  Expert judgment  Combination of both  Not assessed  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Report the tools that have been used to define significant pressures from artificial recharge. ‘Numerical tools’ includes modelling tools. |
| **Schema element**:gwSignificantPressureOtherSourceTools  **Field type / facets:** SignificantPressureTools\_Enum  Numerical tools  Expert judgment  Combination of both  Not assessed  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Report the tools that have been used to define significant pressures from other sources. ‘Numerical tools’ includes modelling tools. |
| **Schema element**:gwSignificanceDefinition  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether significance has been defined in terms of thresholds. |
| **Schema element**:gwSignificanceLinkFailure  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether the definition of significance is linked to the potential failure of good status. |
| **Schema element**:gwPressuresReference  **Field type / facets:** ReferenceType (see Annex 9)  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Provide references or hyperlinks to the documents and sections where any relevant information relating to pressure types can be found. Guidance on what should be included in this document is provided in Section 8.4.3.3. |

#### Guidance on contents of RBMPs/background documents

The following provides guidance on the aspects that the European Commission expects to find in the relevant chapters on pressures and impacts in the RBMPs or in background documents. This guidance is not intended to be comprehensive in terms of what the Member States have to include in their RBMPs or background documents, rather to provide certain concrete elements of information that the European Commission expects to find.

* A description of the tools used to define significant pressures from all sources including an assessment of their accuracy and reliability.
* Provide the reasons why certain pressures have been excluded from the pressures and impacts analysis (if appropriate).
* The definition of significance in terms of thresholds.
* How significance is linked to the failure of good status.

## Methodologies exemptions

### Introduction

The WFD defines its Environmental Objectives in Article 4 and sets the aim for long-term sustainable water management. Article 4(1) defines the general objective of good status to be achieved in all groundwater bodies by 2015, and introduces the principle of preventing any further deterioration of status.

A number of exemptions to the general objective are possible under certain conditions. Article 4(4) allows for an extension of the deadline beyond 2015, Article 4(5) allows for the achievement of less stringent objectives, Article 4(6) allows a temporary deterioration in the status of water bodies and Article 4(7) sets out conditions in which deterioration of status or failure to achieve certain of the WFD Environmental Objectives may be permitted for new modifications to the physical characteristics of surface water bodies, and deterioration from high to good status may be possible as a result of new sustainable human development activities.

The WFD provides the general framework on exemptions but there is scope for differences in understanding and implementation. From the outset of implementation it was clear that the use of exemptions needed to be explained further and the rules for application had to be made clearer. These clarifications can be found in the CIS Guidance Document No 20 on exemptions[[6]](#footnote-7), which was developed over several years.

In addition, Article 6(3) of Directive 2006/118/EC[[7]](#footnote-8) on the protection of groundwater against pollution and deterioration allows Member States to exempt inputs of pollutants to groundwaters from the programme of measures under certain specified circumstances.

### How will the European Commission and the EEA use the information reported?

The European Commission will use the information provided to determine whether the methodology used to justify exemptions is robust and complies with the requirements of the WFD.

Statistics and information will be provided to the European Parliament at EU level. Information will be provided to the public through WISE.

### Contents of the 2016 reporting

#### Schema sketch

See Annex 10.6.

#### Information and data to be reported using the schemas

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| **Schema: GWMET (continued)** |
| ***Class GWExemptions***  ***Properties:*** *maxOccurs = 1 minOccurs = 1* |
| **Schema element:** gwExemption44Impact  **Field type / facets:** SignificantImpactType\_Enum (see Annex 1b)  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Select the impacts from the enumeration list that are causing the application of exemptions under Article 4(4). More than one impact may be selected. If Article 4(4) exemption has not been applied report ‘NOTA - Not applicable.  The option 'NOSI - No significant impact' is not valid. |
| **Schema element:** gwExemption44Driver  **Field type / facets:** Driver\_Enum (see Annex 1c)  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Select the drivers from the enumeration list that are causing the application of exemptions under Article 4(4). More than one driver may be selected. If Article 4(4) exemption has not been applied report ‘Exemption not applied’. |
| **Schema element:** gwExemption45Impact  **Field type / facets:** SignificantImpactType\_Enum (see Annex 1b)  **Properties:**  maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Select the impacts from the enumeration list that are causing the application of exemptions under Article 4(5). More than one impact may be selected. If Article 4(5) exemption has not been applied report ‘NOTA - Not applicable.  The option 'NOSI - No significant impact' is not valid. |
| **Schema element:** gwExemption45Driver  **Field type / facets:** Driver\_Enum (see Annex 1c)  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Select the drivers from the enumeration list that are causing the application of exemptions under Article 4(5). More than one driver may be selected. If Article 4(5) exemption has not been applied report ‘Exemption not applied’. |
| **Schema element**:gwDisproportionateCost  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate if disproportionate costs have been used as a reason for applying exemptions under Article 4(4) or 4(5) for groundwater bodies. |
| **Schema element:** gwDisproportionateCostScale  **Field type / facets:** GeographicalScale\_Enum (see Annex 8l)  **Properties:** maxOccurs =unbounded minOccurs = 0  **Guidance on completion of schema element**: Conditional. Select the scale at which the calculation of costs was carried out in order to assess disproportionality from the enumeration list.  **Quality checks**: Conditional check: report if gwDisproportionateCost is ‘Yes’. |
| **Schema element:** gwDisproportionateCostAnalysis  **Field type / facets:** DisproportionateCostAnalysis\_Enum:  Cost-benefit analysis  Benefits assessment  Assessment of the consequences of non-action  Distribution of costs  Social and sectoral impacts  Affordability  Cost-effectiveness analysis  Other  **Properties:** maxOccurs =unbounded minOccurs = 0  **Guidance on completion of schema element**: Conditional. Select the analysis tools from the enumeration list that were used in assessing disproportionate cost. More than one analysis tool may be selected.  **Quality checks**: Conditional check: report if gwDisproportionateCost is ‘Yes’ |
| **Schema element:** gwDisproportionateCostAlternativeFinancing  **Field type / facets:** DisproportionateCostAlternativeFinancing\_Enum:  Distribution of costs among polluters and users  Use of public budget (national level)  Use of public budget (regional level)  Use of public budget (local level)  Private investment  EU funds  International funds  Other  **Properties:** maxOccurs =unbounded minOccurs = 0  **Guidance on completion of schema element**: Conditional. Select the alternative financing options from the enumeration list that have been considered to overcome the costs being disproportionate. More than one financing option may be selected.  **Quality checks**: Conditional check: report if gwDisproportionateCost is ‘Yes’. |
| **Schema element:** gwDisproportionateCostOtherEULegislation  **Field type / facets:** YesNoCode\_Enum: Yes, No  **Properties:** maxOccurs =1 minOccurs = 0  **Guidance on completion of schema element**: Conditional. Indicate whether the costs of basic measures listed in Article 11(3)(a) of the WFD have been explicitly excluded from the assessment of disproportionate cost.  **Quality checks**: Conditional check: report if gwDisproportionateCost is ‘Yes’. |
| **Schema element:** gwTechnicalInfeasibility  **Field type / facets:** TechnicalInfeasibility\_Enum:  No technical solution is available  It takes longer to fix the problem than there is time available  There is no information on the cause of the problem so the solution cannot be identified  Other  Technical infeasibility has not been used as a reason for exemption  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Report how ‘technical infeasibility’ has been interpreted in the context of application of exemptions for groundwater bodies.  **Quality checks**: Within-schema check: the option ‘Technical infeasibility has not been used as a reason for exemption’ is not compatible with any other. |
| **Schema element:** gwNaturalConditions  **Field type / facets:** GWNaturalConditions\_Enum:  Natural hydrogeological conditions  Other  Natural condition has not been used as a reason for exemption for groundwater bodies  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Report the elements considered when determining that natural conditions require an exemption under Article 4(4) or 4(5).  **Quality checks**: Within-schema check: the option ‘Natural condition has not been used as a reason for exemption for groundwater bodies’ is not compatible with any other |
| **Schema element:** gwExemption46  **Field type / facets:** Exemption46\_Enum:  Yes (accidents)  Yes (extreme floods)  Yes (prolonged droughts)  Article 4(6) has not been applied  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether Article 4(6) has been applied and, if so, for what reason.  **Quality checks**: Within-schema check: the option ‘Article 4(6) has not been applied’ is not compatible with any other. |
| **Schema element:** gwExemption47  **Field type / facets:** Exemption47\_Enum:  Hydropower plant  Flood protection schemes  Navigation projects  Impoundment for drinking water supply  Mining project  Other  Article 4(7) has not been applied  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Select the modifications from the enumeration list that have led to the application of the exemption under Article 4(7). More than one modification may be selected.  **Quality checks**: Within-schema check: the option ‘Article 4(7) has not been applied’ is not compatible with any other. |
| **Schema element:** gwExemptionsTransboundary  **Field type / facets:** YesNoNotApplicable \_Enum: Yes, No, Not applicable  **Properties:** maxOccurs =1 minOccurs = 1  **Guidance on completion of schema element**: Required. Indicate whether the application of exemptions has been co-ordinated in a transboundary context. Report ‘Not applicable’ if there are no transboundary groundwater bodies. |
| **Schema element**: gwExemptionsReference  **Field type / facets:** ReferenceType (see Annex 9)  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Provide references or hyperlinks to the relevant documents and sections where specific information on the application of exemptions to groundwater bodies can be found. Guidance on what should be included in this document is provided in Section 8.5.3.3. |
| **Schema element**: driversGWExemptionsReference  **Field type / facets:** ReferenceType (see Annex 9)  **Properties:** maxOccurs =unbounded minOccurs = 1  **Guidance on completion of schema element**: Required. Provide references or hyperlinks to the relevant documents and sections where information on the drivers behind exemptions for groundwater bodies can be found. Guidance on what should be included in this document is provided in Section 8.5.3.3. |

#### Guidance on contents of RBMPs/background documents

The following provides guidance on the aspects that the European Commission expects to find in the relevant chapters on exemptions in the RBMPs or in background documents. This guidance is not intended to be comprehensive in terms of what the Member States have to include in their RBMPs or background documents, rather to provide certain concrete elements of information that the European Commission expects to find.

* Analysis tools that were used in assessing disproportionate cost.
* Alternative financing options considered to overcome disproportionate cost and reasons for any options not taken further.
* Whether the costs of basic measures have been excluded from the assessment of disproportionate cost.
* The definition of technical infeasibility.
* The elements considered when determining that natural conditions require an exemption under Articles 4(4) and 4(5).
* If Article 4(6) is applied:
  + Description of the conditions under which circumstances that are exceptional or that could not reasonably have been foreseen may be declared, including the indicators used.
  + Description of the instances where Article 4(6) has been applied, the reasons, the levels of the indicators which make the circumstances exceptional, the groundwater bodies affected and the extent of impacts, the measures taken to restore groundwater bodies affected, and the effects of such measures.
* For each application of Article 4(7), justification and explanation of the reasons for the project and the fulfilment of the conditions under Article 4(7), including:
  + Details on how the project has been assessed for deterioration of the status or failure to achieve WFD environmental objectives, based on a QE level.
  + How the assessment of cumulative effects has been considered in the application of Article 4(7).
  + The mitigation measures that are in place in relation to the application of Article 4(7).
  + The methodology for assessing over-riding public interest in the application of Article 4(7).
  + The methodology for assessing the benefits in the application of Article 4(7).
  + Details of the better environmental options that have been considered in the application of Article 4(7).
* The methodology used for determining exemptions under Article 6(3) of the Groundwater Directive.
* Details of transboundary co-ordination that has taken place in the application of exemptions.

**Drivers and impacts behind exemptions**

* Include the following table in the RBMP or background document on the drivers and impacts behind exemptions to good status. The cells should contain the number of groundwater bodies in which an exemption of any kind is applied relevant to each driver and impact. Groundwater bodies may be exempted due to more than one combination of drivers and impacts and, therefore, the reported values when summed are not expected to equate to the total number of exempted groundwater bodies.

| **Impact / Driver** | Agri-culture | Climate change | Energy hydro-power | Energy non-hydro-power | Fisheries and aqua-culture | Flood protection | Forestry | Industry | Tourism and recreation | Transport | Urban development | Unknown/ Other |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| N pollution |  |  |  |  |  |  |  |  |  |  |  |  |
| P pollution |  |  |  |  |  |  |  |  |  |  |  |  |
| Organic pollution |  |  |  |  |  |  |  |  |  |  |  |  |
| Chemical pollution |  |  |  |  |  |  |  |  |  |  |  |  |
| Saline pollution |  |  |  |  |  |  |  |  |  |  |  |  |
| Acidification |  |  |  |  |  |  |  |  |  |  |  |  |
| Elevated temperatures |  |  |  |  |  |  |  |  |  |  |  |  |
| Altered habitats due to hydrological changes |  |  |  |  |  |  |  |  |  |  |  |  |
| Altered habitats due to morphological changes |  |  |  |  |  |  |  |  |  |  |  |  |
| Microbiological pollution |  |  |  |  |  |  |  |  |  |  |  |  |
| Other significant impacts |  |  |  |  |  |  |  |  |  |  |  |  |

There will be cases where data and information are not available to produce this kind of table. This may be particularly the case for certain pressures which are more difficult to quantify and/or in complex RBD subject to many pressures, where it is difficult to disaggregate the pressure-measure relationships.

On this basis, the Member States are requested to report data and information to the best extent possible and for the pressures where this information is available or can be derived on the basis of reasonable efforts. In this regard, lack of reporting of this information does not imply a failure to comply with the WFD obligations.

1. In this reporting sheet the term 'significant and sustained upward trends' refers to the definition in Article 2.3 of GWD. [↑](#footnote-ref-2)
2. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006L0118&from=EN [↑](#footnote-ref-3)
3. https://circabc.europa.eu/sd/a/ff303ad4-8783-43d3-989a-55b65ca03afc/Guidance\_document\_N%C2%B018.pdf [↑](#footnote-ref-4)
4. https://circabc.europa.eu/sd/a/ff303ad4-8783-43d3-989a-55b65ca03afc/Guidance\_document\_N%C2%B018.pdf [↑](#footnote-ref-5)
5. https://circabc.europa.eu/sd/a/7e01a7e0-9ccb-4f3d-8cec-aeef1335c2f7/Guidance%20No%203%20-%20pressures%20and%20impacts%20-%20IMPRESS%20(WG%202.1).pdf [↑](#footnote-ref-6)
6. https://circabc.europa.eu/sd/a/2a3ec00a-d0e6-405f-bf66-60e212555db1/Guidance\_documentN%C2%B020\_Mars09.pdf [↑](#footnote-ref-7)
7. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006L0118&from=EN [↑](#footnote-ref-8)