WFD Project Fact Sheets on Pollutants,

Outcome and Evaluation

Executive Summary

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Article 5 of the European Water Framework Directive (WFD) requires that a review of the impact of human activity must be completed by December 2004 at the latest. This shall have to include an assessment of the likelihood that surface water bodies within the river basin district will fail to meet the 2015 environmental quality standards for priority substances and other pollutants that are set for these water bodies pursuant to the WFD. This amounts to conducting a risk analysis.

The WFD Project *Fact sheets on pollutants*, conducted by RIZA (Institute for Inland Water Management and Waste Water Treatment) and RIKZ (National Institute for Coastal and Marine Management), aims to provide a basis for the elaboration of the policy line for dealing with pollutants. The project entails the bundling of available 'stored' information (hence not necessarily exhaustive!) with which to assess an initial estimate of the nature and extent of possible (policy) problems. These fact sheets are intended to be utilized, not only by regional product teams for regional risk analyses, but also for the WFD implementation process at national and international levels, for instance to enable rapid assessment of the possible consequences of standards proposed for priority substances and of further selection of pollutants for international lists of pollutants. Based on a gross list, fact sheets have been compiled for a total number of 174 potentially significant pollutants. The fact sheets have now been made available via internet (www.kaderrichtlijnwater.nl). As an illustration, Annex 3 of the report (in Dutch) offers three fact sheets regarding the substances copper, diuron and di(2-ethylhexyl)phthalate (DEHP).

This report does not contain an extensive and detailed analysis of all findings per substance, but takes a more strategy-minded approach instead. It covers (i) the most relevant results as well as gaps in knowledge, (ii) the utilization and relevance of the data, and (iii) how the database was developed and should be optimised with a view to the future.

Results

In this report, overviews have been distilled from the fact sheets regarding heavy metals/metalloids, pesticides and other organic micropollutants; tables 1, 2 and 3. Within these three overviews, a distinction is made between priority hazardous substances, priority substances and other substances.

Heavy metals and metalloids (table 1)

Regarding heavy metals and metalloids, it is expected that the provisional Community WFD-standards for cadmium and nickel will not be achieved by 2015. Regarding copper and zinc, expectations are that the MAR (maximum allowable risk level) used for the non-priority substances as indication of the WFD-objectives will not be achieved by 2015. Due to a lack of reliable water quality data, it is not possible to pronounce upon the achievement of environmental quality standards for thallium, titanium, uranium and silver. No problems are envisaged for the remaining eleven metals and metalloids.

Pesticides (table 2)

Regarding pesticides, expectations are that the provisional Community WFD-standards for TBT, isoproturon and the drins will not be achieved by 2015. It appears that the MAR for dichlorvos will also not be achieved. There is too much uncertainty regarding the achievement of environmental quality standards for 21 pesticides, generally due to a lack of reliable water

quality data, to allow for any pronouncement of expectation here. No problems are envisaged for the remaining 46 pesticides.

Other organic micropollutants (table 3)
Regarding other organic micropollutants, it is not expected that the provisional Community WFD-standards for HCB and benzo(k)fluoranthene will be achieved. The MAR for phenantrene and the seven PCBs will also not be achieved. There is too much uncertainty regarding the achievement of environmental quality standards for 22 organic micropollutants, generally due to a lack of reliable water quality data, to allow for any pronouncement of expectation here. No problems are envisaged for the remaining 52 organic micropollutants.

Availability of information
The following table has been compiled on the basis of the three overviews, indicating the degree of availability of information.

Status	**Number of substances**	**Water quality assessment**	**Main inland pollution sources**	**Forecast 2015 load reduction**	**Problem in 2015?**
Heavy metals/ metalloids	*19*	*79%*	*63%*	*26%*	*79%*
EU priority hazardous	2	100%	100%	100%	100%
EU under evaluation	1	100%	100%	100%	100%
EU priority	1	100%	100%	100%	100%
Other substances	15	73%	53%	7%	73%
Pesticides	*71*	*83%*	*79%*	*45%*	*70%*
EU priority hazardous	3	100%	67%	67%	100%
EU under evaluation	8	100%	100%	63%	75%
EU priority	2	100%	100%	50%	100%
EU List I of 76/464	2	100%	100%	100%	100%
Other substances	56	79%	75%	39%	66%
Other organic micropollutants	*84*	*83%*	*68%*	*24%*	*74%*
EU priority hazardous	10	70%	90%	40%	60%
EU under evaluation	5	80%	100%	40%	60%
EU priority	5	100%	100%	60%	80%
EU List I of 76/464	3	100%	100%	100%	100%
Other substances	61	84%	57%	13%	75%

The table shows that relatively little information is available about inland pollution sources and the forecast for load reduction in 2015. On the basis of water quality assessment information, conclusions may nevertheless be drawn pertaining to the achievement of standards in 2015, particularly with regard to a number of the other substances.

Knowledge gaps and bottlenecks

When drawing conclusions, it is important to note that the environmental quality standards for many substances have not yet been adopted, or shall have to be adjusted within the foreseeable future using the WFD-method. This requires updating of the fact sheets in order to ensure the accuracy of the overall picture and of conclusions derived from the fact sheets. An important bottleneck in comparing measurements to environmental quality standards is that the environmental standard and method of monitoring do not always cohere. For example, the standard may refer to contents in water, while the measurement is directed at contents in suspended solids.

Furthermore, for 117 of the 174 pollutants no indication of the load reduction for 2015 can be offered due to a lack of emission data and/or of specific policy regarding the emission of the pollutants concerned. However, monitoring results generally indicate that there is no danger of exceeding standards. For 47 pollutants there is nevertheless too much uncertainty, including the brominated diphenylethers, the C10-13–chloroalkanes, hexachlorobutadiene, the nonylphenols, endosulfan, anthracene, trifluralin, the octylphenols en fluoranthene, which are on the WFD list of priority substances. For these 47 pollutants, essential information is still lacking.

Utilization and relevance of data

The data undoubtedly offers a helping hand towards the elaboration of national water policy. It is clear for which pollutants the objectives for 2015 will not be achieved, for which pollutants they roughly will be achieved, and for which substances no prediction can be made. The analysis not only sheds light on the essential bottlenecks, but the database also facilitates the identification of significant gaps in knowledge (standards/condition/pollution sources/policy). The results furthermore fortify the input of the Netherlands in international consultations, as proven already in EU-context with regard to the discussion on new, still informal proposals for environmental quality standards for priority substances.

Utilization of the dataset for regional risk analyses has thus far been limited. This is due in part to the limited pollutant range of regional analyses, which may in part be blamed on a lack of time. Much information is moreover directed primarily at national level and is hence less well adapted for regional use. In addition, the database was initially intended for the one-off reporting of available information on priority substances, so that the compilation thereof did not reckon with long-term use, management and maintenance. Only at a later stage was the database expanded to cover 174 pollutants, in an effort to support regional risk analyses, resulting in substantial deficiencies in terms of management and maintenance.

The database: useful for the future?

In the further course of the implementation of the WFD, the clear and up-to-date information of the database may well prove its worth. Concretely, one could think of the preparation of the monitoring programme, the river basin management plans, the programmes of measures and progress reports, as well as the further elaboration of the line for dealing with pollutants within the national and international WFD policy. Possibilities to optimise the utilization of the database could be explored, including increasing its suitability for regional WFD activities and the inclusion of a dataset regarding costs and effects of measures. This would require a further professionalisation of database management.

Recommendations

- Review the current MARs for non-priority substances in the light of prescribed WFD methods, starting with the river basin relevant substances.
- Update the fact sheets, as soon as the WFD standards for priority substances have been adopted.
- Regarding the comparison of measuring results of non-priority substances to the MAR, create clarity with regard to employing either the current 90-percentile or the annual average that is applied for priority substances in line with the WFD approach.
- Ensure that the environmental quality standard and the method of monitoring cohere, and in this context ensure that, for pollutants measured in suspended solids, there are relevant standards available.
- When converting pollutant contents of sediments to pollutant contents of suspended solids, use for priority substances the factors of the Fraunhofer Institute, and use for non-priority substances factors 2 and 1.5 respectively for organic micropollutants and metals.
- In the annual Emission Inventory, include the 14 as yet absent priority substances (see table 5 of the report, in Dutch).
- In the annual Emission Inventory, improve the quality of the information on diffuse sources in particular, and include information on the reliability of the concerned emission data in the fact sheets.
- In the fact sheets, keep the information on current policy and its implications for the load discharged into surface waters up-to-date.
- Develop a central plan for tackling the knowledge gaps, taking into account the national and international activities for the implementation of the WFD.
- Optimise the utilization of the database over the coming years, including increasing its suitability for regional WFD activities and the inclusion of a dataset regarding costs and effects of measures taken.
- Within this context, involve more closely the regional and other potential users of the database and have them indicate which information they need, in what form and at what level of aggregation.
- Subject the database management to further professionalisation.

Table 1 Survey on heavy metals and metalloids

Heavy metals/metalloids	WFD		Fresh&transitional w.		Coastal w.		Main inland	Forecast 2015	
Name of substance	No	Status	EC/MAR	EC_MAC	EC/TV	Comments	pollution sources	Load reduction	Problem in 2015?
Cadmium and its compounds	6	PH	EC-AA	EC_MAC	EC-coastal	Exceed. regional waters	Agriculture/UWWTPs	<5%	Yes
Mercury and its compounds	21	PH	NA	EC_MAC	NA		UWWTPs	<5%	No
Lead and its compunds	20	UE	EC-AA	EC_MAC	EC-coastal	Exceed. regional waters	Agriculture/UWWTPs	5-20%	No
Nickel and its compounds	23	P	EC-AA	EC_MAC	EC-coastal	Exceed. regional waters	UWWTPs/agriculture	<5%	Yes
Arsenic			MAR		TV		Trade&services	?	No
Chromium			MAR		TV		UWWTPs	?	No
Copper			MAR		TV	Exceed. state&regional waters	Agriculture/navigation/UWWTPs	?	Yes
Zinc			MAR		TV	Exceed. state&regional waters	Agriculture/UWWTPs	<5%	Yes
Antimonium			MAR		TV	Measurem. state waters	UWWTPs	?	No
Barium			MAR		TV	Exceed. SS&sediments?	Consumers	?	No
Beryllium			MAR		TV	Measurem. Rhine&Meuse	?		No
Borium			MAR		TV	Measurem. Rhine&Meuse	?		No
Cobalt			MAR		TV	Exceed. SS&sediments?	?		No
Molybdenum			MAR		TV	Measurem. Rhine&Meuse	?		No
Selenium			MAR		TV	Measurem. Rhine&Meuse	Traffic&transport	?	No
Silver			MAR		TV	Measurem. Eijsden(Meuse)	Waste processing	?	?
Thallium			MAR		TV	Measurem. Eijsden(Meuse)	?		?
Titanium			MAR ad hoc		NA	Standard dissolved/meas. total	?		?
Uranium			MAR		TV	Standard dissolved/meas. total	?		?

PH = priority hazardous substance
UE = under evaluation as potential priority hazardous substance
P = priority substance
L1 = List I substance (76/464/EEG)

AA = annual average
MAC= maximum allowable concentration
NA = not available

MAR= maximum allowable risk (national standard)
TV = target value (national standard)

Table 2 Survey on pesticides

Pesticides	WFD		Fresh&transitional w.		Coastal w.		Main inland	Forecast 2015	
Name of substance	No	Status	EC/MAR	EC-MAC	EC/TV	Comments	pollution sources	Load reduction	Problem in 2015?
Hexachlorocyclohexane (HCH) incl. lindane	18	PH	EC-AA	EC-MAC	EC-coastal	Exceed. regional waters	?		No
Pentachlorobenzene	26	PH	EC-AA	EC-MAC	EC-coastal	Exceed. Rhine (Maassluis)	Agriculture, diffuse sources	<5%	No
Tributyltin compounds (TBT)	30	PH	EC-AA	EC-MAC	EC-coastal	Exceed. state&regional waters	Navigation	>50%	Yes
Endosulfan	14	UE	EC-AA	EC-MAC	EC-coastal	Exceed. state&regional waters	Agriculture	?	?
Atrazine	3	UE	EC-AA	EC-MAC	EC-coastal	Incident. exceed. reg. waters	Agriculture	>50%	No
Chlorpyrifos	9	UE	EC-AA	EC-MAC	EC-coastal	Exceed. regional waters	Agriculture	>50%	No
Diuron	13	UE	EC-AA	EC-MAC	EC-coastal	Exceed. state&regional waters	Agriculture	5-20%	No
Isoproturon	19	UE	EC-AA	EC-MAC	EC-coastal	Exceed. regional waters	Agriculture	?	Yes
Pentachlorophenol (PCP)	27	UE	EC-AA	EC-MAC	EC-coastal	Tidal w.: no measurements	UWWTPs	<5%	No
Simazine	29	UE	EC-AA	EC-MAC	EC-coastal		Agriculture	>50%	No
Trifluralin	33	UE	EC-AA	EC-MAC	EC-coastal	Reg.&coast. w.: no measurem.	Atm. deposition	?	?
Alachlor	1	P	EC-AA	EC-MAC	EC-coastal	Coast. w.: no measurements	Agriculture	?	No
Chlorfenvinphos	8	P	EC-AA	EC-MAC	EC-coastal	Coast. w.: no measurements	Agriculture	>50%	No
DDT (and metabolites DDD en DDE)		L1	76/464-AA	NA	76/464-AA	Tidal w.: no measurements	Agriculture	<5%	No
DRINS		L1	76/464-AA	NA	76/464-AA	Exceed. regional waters	Chemical industry	<5%	Yes
1,2-dibromoethane			MAR ad hoc		NA	Reg.&coast. w.: no measurem.	?		No
1,3-dichlorobenzene			MAR		TV	Reg.&coast. w.: no measurem.	UWWTPs	?	No
1,3-dichloropropene			MAR		TV	Reg.&tidal w.: no measurem.	?		No
1,4-dichlorobenzene			MAR		TV	Reg.&coast. w.: no measurem.	UWWTPs	?	No
2,3-dichloropropene			MAR		TV	No measurements	?		?
2,4,5-trichlorophenoxyacetic acid			MAR		TV	Coast. w.: no measurements	Agriculture	>50%	No
2,4-dichlorophenol			MAR		TV	Reg.&coast. w.: no measurem.	UWWTPs	?	No
2,4-dichlorophenoxyacetic acid (salts, esters)			MAR		TV	Tidal w.: no measurements	Agriculture	20-50%	No
3-chloroaniline			MAR		TV<det.lm.	Measurements (W')Scheldt	?		?
4-chloro-2-methylphenol			NA		NA	Measurements (W')Scheldt	?		?
4-chlorophenol			MAR		TV<det.lm.	Reg.&coast. w.: no measurem.	?		No
Aldicarb			MAR		TV	State w.: no measurements	Agriculture	?	?
Azinphos-ethyl			MAR<det.lm.		TV	Esp exceed. regional waters	Agriculture	?	No
Azinphos-methyl			MAR		TV<det.lm.	Esp exceed. regional waters	Agriculture	?	No
Bentazon			MAR		TV	Coast. w.: no measurements	Agriculture	?	No
Biphenyl			MAR ad hoc		NA	Reg.&tidal w.: no measurem.	UWWTPs	>50%	No
Carbendazim			MAR		TV	Exceed.reg. w.; state waters?	Agriculture	?	?
Chloralhydrate			MAR ad hoc		NA	Measurements (W')Scheldt	?	<5%	No
Chlordane			MAR<det.lm.		TV<det.lm.	Measurements (W')Scheldt	?		No

Pesticides	WFD		Fresh&transitional w.		Coastal w.		Main inland	Forecast 2015	
Name of substance	No	Status	EC/MAR	EC-MAC	EC/TV	Comments	pollution sources	Load reduction	Problem in 2015?
Chlorotoluene			MAR		TV	Reg.&tidal w.: no measurem.	?		No
Chlorotoluron			MAR ad hoc		NA	Reg.&tidal w.: no measurem.	No main inl. poll. sources	<5%	No
Coumaphos			MAR<det.lm.		TV<det.lm.	Exceed. reg.&fresh state w.	?		?
Demeton (-S-methyl and -S-methyl sulphone)			MAR		TV<det.lm.	Rhine: no measurements	?		No
Dibutyltinoxide			MAR ad hoc		NA	No measurem. Meuse&reg.w.	Navigation (metabol. TBT)	?	No
Dibutyltin salts			MAR ad hoc		NA	No measurem. Meuse&reg.w.	Chemical industry		No
Dichloroanilines (all isomers)			MAR		TV<det.lm.	Measurements (W')Scheldt	?		?
Dichlorprop			MAR		TV	Meuse: no measurements	Agriculture	?	No
Dichlorvos			MAR<det.lm.		TV<det.lm.	Reg. waters: exceed. det.lm.	Agriculture	<5%	Yes
Dimethoate			MAR		TV	Coast. w.: no measurements	Agriculture	?	No
Disulphoton			MAR		TV	Exceed. regional waters	No main inl. poll. sources	>50%	No
Fenitrothion			MAR<det.lm.		TV<det.lm.	Reg. waters: exceed. det.lm.	No main inl. poll. sources		?
Fenthion			MAR<det.lm.		TV<det.lm.	Reg. waters: exceed. det.lm.	No main inl. poll. sources	>50%	No
Heptachlor incl. heptachlorepoxide			MAR<det.lm.		TV<det.lm.	Exceed. reg.&fresh state w.	No main inl. poll. sources		?
Linuron			MAR		TV<det.lm.	Coast. w.: no measurements	Agriculture	5-20%	?
Malathion			MAR		TV<det.lm.	Exceed. regional waters	Agriculture	5-20%	?
Maneb			MAR		TV	No appropriate anal. method	UWWTPs	?	?
MCPA			MAR		TV	Coast. w.: no measurements	Agriculture	5-20%	No
MCPP			MAR		TV ad hoc	Coast. w.: no measurements	Agriculture	20-50%	No
Methamidophos			MAR ad hoc		NA	State w.: no measurements	Florist's businesses	?	?
Metolachlor			MAR		TV	Exceed. regional waters	No main inl. poll. sources		No
Metribuzin			MAR ad hoc		NA	No 90-percentile values	Agriculture	?	?
Mevinphos			MAR<det.lm.		TV<det.lm.	Reg. waters: exceed. det.lm.	Agriculture	>50%	?
Monolinuron			<det.lm.		NA	MAR ad hoc< det.lm.	UWWTPs	>50%	No
Omethoate			NA		NA	Measurem. (W')Scheldt<det.lm.	No main inl. poll. sources	>50%	No
Oxydemeton-methyl			MAR<det.lm.		TV<det.lm.	Measurements (W')Scheldt	Agriculture	20-50%	No
Parathion and parathion-methyl			MAR<det.lm.		TV<det.lm.	Reg. waters: exceed. det.lm.	No main inl. poll. sources	>50%	No
Phoxim			MAR		TV	No measurements	?		No
Propanil			MAR ad hoc		NA	Measurem. (W')Scheldt<det.lm.	No main inl. poll. sources	<5%	No
Pyrazon			MAR		TV	Coast. w.: no measurements	Agriculture	5-20%	No
Tetrabutyltin			MAR		TV	Measurem. Rhine&Meuse	Chemical industry?	?	No
Thiram			MAR		TV	No appropriate anal. method	Agriculture	?	?
Triazophos			MAR		TV	Coast. w.: no measurements	Agriculture	>50%	No
Trichlorophenols (all isomers)			MAR		TV	Measurem. Rhine&Scheldt	Consumers	?	No
Trichlorfon			MAR<det.lm.		TV<det.lm.	Measurements (W')Scheldt	?	<5%	?
Triphenyltin compounds			MAR		TV<det.lm.	Exceed. regional waters	Agriculture	>50%	?
Zineb			MAR		NA	No appropriate anal. method	Navigation?	?	?

Table 3 Survey on other organic micropollutants

Other organic micropollutants	WFD		Fresh&transitional w.		Coastal w.		Main inland	Forecast 2015	
Name of substance	No	Status	EC/MAR	EC-MAC	EC/TV	Comments	pollution sources	Load reduction	Problem in 2015?
Brominated diphenylethers	5	PH	EC-AA	EC-MAC	EC-coastal	No measurements	Consumers/UWWTPs	> 50%	?
C10-13 - chloroalkanes	7	PH	EC-AA	EC-MAC	EC-coastal	No appropriate anal. method	Industry?	?	?
Hexachlorobenzene	16	PH	EC-AA	EC-MAC	EC-coastal	Exceed. state&regional waters	Chemical industry	< 5%	Yes
Hexachlorobutadiene	17	PH	EC-AA	EC-MAC	EC-coastal	Exceed. Rhine&Meuse	Chemical industry	< 5%	?
Nonylphenols	24	PH	EC-AA	EC-MAC	EC-coastal	Only SS measurem. state w.	Consumers	> 50%	?
Benzo(a)pyrene	28	PH	EC-AA	EC-MAC	EC-coastal	Exceed. state&regional waters	Traffic&transport/atm. dep.	?	No
Benzo(b)fluoranthene	28	PH	EC-AA	NA	EC-coastal	Exceed. fresh state waters	?		No
Benzo(k)fluoranthene	28	PH	EC-AA	NA	EC-coastal	Exceed. Meuse	Atm. dep./traffic&transport	?	Yes
Benzo(g,h,i)perylene	28	PH	EC-AA	NA	EC-coastal	State w.: SS measurements	Traffic&transport	?	No
Indeno(1,2,3-cd)pyrene	28	PH	EC-AA	NA	EC-coastal	Exceed. Meuse	Traffic&transport	?	No
Anthracene	2	UE	EC-AA	EC-MAC	EC-coastal	Exceed. state w. (fresh&tidal)	Traffic&transport	?	?
Trichlorobenzenes	31	UE	EC-AA	EC-MAC	EC-coastal	Exceed. Rhine (Maassluis)	UWWTPs	< 5%	No
Di(2-ethylhexyl)phthalate (DEHP)	12	UE	EC-AA	NA	EC-coastal	Exceed. Meuse (Eijsden)	UWWTPs/consumers	< 5%	No
Naphfthalene	22	UE	EC-AA	EC-MAC	EC-coastal	Exceed. Meuse	Traffic&transport	?	No
Octylphenols	25	UE	EC-AA	EC-MAC	EC-coastal	No measurements	UWWTPs	?	?
1,2-dichloroethane	10	P	EC-AA	EC-MAC	EC-coastal	Reg.&tidal w.: no measurements	Chemical industry	< 5%	No
Benzene	4	P	EC-AA	EC-MAC	EC-coastal	Reg.&tidal w.: no measurements	Traffic&transport	?	No
Dichloromethane	11	P	EC-AA	EC-MAC	EC-coastal	Reg.&tidal w.: no measurements	Chemical industry	?	No
Fluoranthene	15	P	EC-AA	EC-MAC	EC-coastal	Exceed. state&regional waters	Atmospheric deposition	< 5%	?
Trichloromethane	32	P	EC-AA	EC-MAC	EC-coastal	Reg.&tidal w.: no measurements	UWWTPs	<5%	No
Tetrachloroethene		L1	76/464-AA	NA	76/464-AA	Reg.&tidal w.: no measurements	Chemical industry	< 5%	No
Tetrachloromethane (carbon tetrachloride)		L1	76/464-AA	NA	76/464-AA	Reg.&tidal w.: no measurements	Chem.ind./UWWTPs/consum.	< 5%	No
Trichloroethene		L1	76/464-AA	NA	76/464-AA	Reg.&tidal w.: no measurements	Chemical industry	< 5%	No
1,1,1-trichloroethane			MAR		TV	Reg.&tidal w.: no measurements	Chemical industry	?	No
1,1,2,2-tetrachloroethane			MAR		TV	Measurements (W')Scheldt	?		No
1,1,2-trichloroethane			MAR		TV	Reg.&tidal w.: no measurem.	?		No
1,1,2-trichlorotrifluorethane			MAR ad hoc		NA	Measurements (W')Scheldt	?		No
1,1-dichloroethane			MAR		TV	Reg.&tidal w.: no measurements	Industry	?	No
1,1-dichloroethene			MAR		TV	Reg.&tidal w.: no measurements	?		No
1,2,4,5-tetrachlorobenzene			MAR		TV	Reg.&tidal w.: no measurements	?		No
1,2-dichlorobenzene			MAR		TV	Reg.&tidal w.: no measurements	UWWTPs	?	No
1,2-dichloroethene			MAR		TV	Reg.&tidal w.: no measurements	Chemical industry	?	No
1,2-dichloropropane			MAR		TV	Reg.&tidal w.: no measurements	?		No

Other organic micropollutants	WFD		Fresh&transitional w.		Coastal w.		Main inland	Forecast 2015	
Name of substance	No	Status	EC/MAR	EC-MAC	EC/TV	Comments	pollution sources	Load reduction	Problem in 2015?
1,3-dichloro-2-propanol			MAR ad hoc		NA	No appropriate anal. method	Industry	< 5%	?
1-chloro-2-4-dinitrobenzene			MAR ad hoc		NA	Measurements (W')Scheldt	Chemical industry?	?	No
1-chloro-2-nitrobenzene			MAR ad hoc		NA	Standard dissolved/meas. SS	?		No
1-chloro-3-nitrobenzene			MAR ad hoc		NA	Conv. SS → water	?		?
1-chloro-4-nitrobenzene			MAR ad hoc		NA	Conv. SS → water	?		No
2,4,6-trichloro-1,3,5-triazine			NA		NA	No MTR; no anal. method	?		?
2-amino-4-chlorophenol			MAR ad hoc		NA	No appropriate anal. method	?		?
2-chloroaniline			MAR		TV<det.lm.	Measurements (W')Scheldt	Industry		No
2-chloro-butadiene-1,3			NA		NA	Measurements (W')Scheldt	Industry	< 5%	?
2-chloroethanol			MAR ad hoc		NA	No appropriate anal. method	Industry	< 5%	?
2-chlorophenol			MAR		TV	Exceed. R&M (Lobith&Eijsden)	?		?
2-chloro-p-toluidine			MAR ad hoc		NA	Measurements (W')Scheldt	Industry	< 5%	No
Chlorotoluïdines (remaining isomers)			MAR ad hoc		NA	Meuse & (W')Scheldt	Industry	< 5%	No
2-chlorotoluene			MAR		TV	Reg.&tidal w.: no measurements	Industry?	?	No
3-chlorophenol			MAR		TV<det.lm.	Reg.&tidal w.: no measurements	Industry	?	No
3-chloropropene			MAR		TV<det.lm.	Measurements (W')Scheldt	?		No
3-chlorotoluene			MAR		TV	Measurements (W')Scheldt	?		No
4,4-diaminodiphenyl			MAR ad hoc		NA	Measurements (W')Scheldt	Industry/UWWTPs	> 50%	No
4-chloro-2-nitroaniline			MAR		TV<det.lm.	Measurements (W')Scheldt	Chemical industry?	?	No
4-chloro-2-nitrotoluene			MAR ad hoc		NA	Measurements (W')Scheldt	?		No
Chloronitrotoluenes (remaining isomers)			MAR ad hoc		NA	Measurements (W')Scheldt	?		No
4-chloroaniline			MAR		TV<det.lm.	Measurements (W')Scheldt	?		No
4-chlorotoluene			MAR		TV	Measurements (W')Scheldt	?		No
Chloroacetic acid			MAR ad hoc		NA	No appropriate anal. method	?		?
Chlorobenzene			MAR		TV	Reg.&tidal w.: no measurements	UWWTPs	?	No
Chloroethene (vinylchloride)			MAR ad hoc		NA	Measurements (W')Scheldt	Chemical industry	?	No
Chloronaphthalenes (all isomers)			MAR		NA	Measurements (W')Scheldt	?		?
Chrysene			MAR		TV	Exceed. reg.&coastal waters	Traffic&transport	?	?
Dichlorobenzidines			MAR ad hoc		NA	Meuse & (W')Scheldt	Industry?	?	No
Dichlorodiisopropylether			NA		NA	Meuse & (W')Scheldt	?		?
Dichloronitrobenzenes (all isomers)			MAR ad hoc		NA	Standard dissolved/meas. SS	?		?
1,2-dichloro-4-nitrobenzene			MAR ad hoc		NA	Measurements Westernscheldt	?		?
Dichlorotoluene			NA		NA	Measurements (W')Scheldt	?		?
Diethylamine			MAR ad hoc		NA	Meuse & (W')Scheldt	Industry	< 5%	No

Other organic micropollutants	WFD		Fresh&transitional w.		Coastal w.		Main inland	Forecast 2015	
Name of substance	No	Status	EC/MAR	EC-MAC	EC/TV	Comments	pollution sources	Load reduction	Problem in 2015?
Dimethylamine			MAR ad hoc		NA	Reg.&tidal w.: no measurements	?		No
Epichlorohydrine			MAR ad hoc		NA	Measurements (W')Scheldt	Chemical industry	?	No
Ethylbenzene			MAR		TV	Reg.&tidal w.: no measurements	UWWTPs	?	No
Hexachlororethane			MAR		TV	Reg.&tidal w.: no measurements	?		No
Isopropylbenzene			MAR ad hoc		NA	Measurements (W')Scheldt	Trade&services	?	No
Phenanthrene			MAR		TV	Exceed. state&regional waters	UWWTPs	?	Yes
PCB-28			MAR		TV	Exceed. Rhine&tidal w.; reg.w.?	UWWTPs	?	Yes
PCB-52			MAR		TV	Exceed. fresh state&coastal w.	UWWTPs	?	Yes
PCB-101			MAR		TV	Exceed. fresh state w.; reg. w.?	UWWTPs	?	Yes
PCB-118			MAR		TV	Exceed. fresh state w.; reg. w.?	UWWTPs	?	Yes
PCB-138			MAR		TV	Exceed. fresh state w.; reg. w.?	UWWTPs	?	Yes
PCB-153			MAR		TV	Exceed. fresh state w.; reg. w.?	UWWTPs	?	Yes
PCB-180			MAR		TV	Exceed. fresh state w.; reg. w.?	UWWTPs	?	Yes
PCDD, PCDF			NA		NA	Measurements Rhine	Chemical industry	?	?
Toluene			MAR		TV	Reg.&tidal w.: no measurements	Traffic&transport	?	No
Tributylphosphate			MAR ad hoc		NA	Measurements Westernscheldt	UWWTPs	?	No
Xylenes (all isomers)			MAR		TV	Reg.&tidal w.: no measurements	Traffic&transport	5-20%	No

PH = priority hazardous substance
UE = under evaluation as potential priority hazardous substance
P = priority substance
L1= List I substance (76/464/EEG)

AA annual average
MAC maximum allowable concentration
NA not available

MAR maximum allowable risk (national standard)
TV target value (national standard)