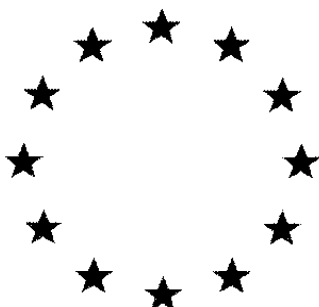


# European Union



**Draft Renewal Assessment Report prepared according to the Commission  
Regulation (EU) N° 1107/2009**

## **FLUFENACET**

**Volume 3 – Annex B.8 (PPP) – Flufenacet + Diflufenican 600 SC  
Environmental fate and behavior exposure assessment**

**RMS: Poland  
Co-RMS: France**

**Summary, evaluation and assessment of the data and information examined and the list  
of studies relied upon, annotated as to the period(s) for which the particular studies are  
to be protected**

*August 2016*

**Version History**

<b>When</b>	<b>What</b>
January 1998	Initial DAR
2000	Addendum fate
January 2003	Flufenacet Addendum fate
May 2016	DRAR

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## B.8. – ENVIRONMENTAL FATE AND BEHAVIOUR

### B.8.0. - Introduction

Flufenacet is a herbicide that was authorised for the use in the EU by its inclusion into the Annex I of the Council Directive 91/414/EEC (Commission Directive 2003/84/EC of 25 September 2003) in 2003 as entry No. 65 (at the time of inclusion as a new active substance). That authorisation entered into force from 1<sup>st</sup> January 2004 and was due to expire on the 31<sup>st</sup> December 2013. When the Directive 91/414/EEC was repealed by Council Regulation 1107/2009 of 21<sup>st</sup> October 2009, the authorisation of Flufenacet in the EU was granted by its listing, as entry No. 65, in the Part A of the Annex to the Commission Implementing Regulation (EC) 540/2011, expiring on 31<sup>st</sup> December 2013. That authorisation period was further extended to 31<sup>st</sup> October 2016 by means of the Commission Regulation (EC) No. 823/2012 of 14<sup>th</sup> September 2012.

The evaluation was based on the Draft Assessment Report prepared by the Rapporteur Member State – France, in August 1997 and Addenda to it on the basis of the documentation submitted by the Applicant – Bayer Crop Sciences, identified in course of the evaluation as a sole Applicant for Flufenacet. In support of the inclusion of Flufenacet into the Annex I of the Council Directive 91/414/EEC a Review report for the active substance Flufenacet (Flufenacet 7469/VI/98-final, 3 July 2003) was issued, summarising the results of the evaluation and providing the EU-agreed List of the EndPoints for this active substance.

For the first inclusion of Flufenacet into the Annex I the Applicant proposed the representative GAP comprising following uses:

- in Maize (Corn) to suppress annual grass weeds, pre-emergence, once per season in application rate 480 – 600 g/ha, in Northern and Southern European Countries;
- in Soybean and Sunflower, to suppress annual grass weeds, pre-emergence, once per season in application rate 480 – 600 g/ha, in Southern European Countries;
- in Winter Cereals (wheat, barley, rye and triticale), to suppress annual grass weeds, early post-emergence in autumn (at 2<sup>nd</sup> leaf stage of grass weeds), once per season in application rate 120 – 240 g/ha, in Northern and Southern European Countries; in Northern and Southern Europe.

The representative formulation was FOE 5043 WG 60, containing 60% of flufenacet.

For the present evaluation the Applicant proposed the revised representative GAP, limiting the intended uses to those suppressing annual weeds in cereals, pre-emergence and early post emergence (range of BBCH 00-22) in autumn and at early spring.

It shall be noted that, unlike for the previous assessment, the Applicant proposed the representative formulation codenamed DFF+FFA SC 600, containing 400 g/L Flufenacet and 200 g/L Diflufenican. The proposed tradenames are Herold SC (to be used in both Northern and Southern European countries), Fosburi (to be used only in NE climatic zone) and Firebird (to be used in SE climatic zone).

That new representative GAP, used in the evaluation in the area of environmental fate and behaviour, including the environmental exposure assessment, is presented below in the table B.8.0.\_CP-1. For clarity reasons the application rates for the second active substance of the EU-representative formulation – Diflufenican, were not reported in this table.

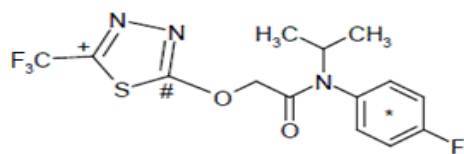
Table B.8.0.\_CP-1: The proposed updated representative GAP for Flufenacet.

Region	Crop	Product name	Data on application						
			Type of application	Number of Applic.	Interval between applications	Application time		Application rate - flufenacet [g/ha]	Spray volume [L/ha]
						Period	Crop's growth stage (BBCH)		
North EU	Cereals (winter wheat, winter barley, winter rye)	Herold SC (400 g/L flufenacet + 200 g/L diflufenican)	Foliar spraying	1	Not applicable – single application	Early post-emergence, Autumn only;	10-13	240	200 – 400
South EU	Cereals (wheat, winter barley)	Fosburi (400 g/L flufenacet + 200 g/L diflufenican)	Foliar spraying	1	Not applicable – single application	Early post-emergence	11-13	240	80 – 400
North EU	Cereals (winter wheat, winter barley, winter rye)	Firebird (400 g/L flufenacet + 200 g/L diflufenican)	Foliar spraying	1	Not applicable – single application	Pre-emergence and early post-emergence	00-22	120	200 – 400
South EU	Cereals (wheat, barley)	Herold SC (400 g/L flufenacet + 200 g/L diflufenican)	Foliar spraying	1	Not applicable – single application	Early post-emergence	11-13	160	200 – 400

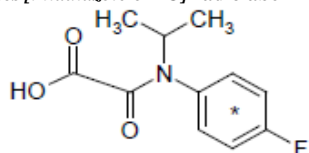
Fullfilling the data requirement set in the Article 8 point 5 of the Regulation (EC) 1107/2009, the Applicant submitted the report presenting the results of the search of the scientific peer-reviewed open literature. Its results, together with the results of the repeated literature search performed by the RMS are presented under the point B.8.6 – *Open literature review* of the Section B.8. for the active substance – the document “Volume 3 –Annex B.8. (AS)” of this Draft Renewal Assessment Report.

Also in the document “Volume 3 –Annex B.8. (AS)” is provided a summary of the findings of evaluation performed for the previous, first authorisation of flufenacet in the EU.

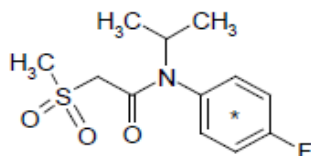
In this assessment the environmental fate and behaviour of the active substance – Flufenacet, was examined using a compound radiolabelled in either phenyl ring (one radiolabelling position) or in thiadiazole moiety (two different radiolabelling positions), as shown on figure B.8.0-1. The radioalbelled compounds were used also in examination of the fate and behaviour in the environment of the degradation products of Flufenacet. All radiolabelled structures used to examine the environmental fate and behaviour of Flufenacet are presented below on Fig. B.8.0.\_CP-1.



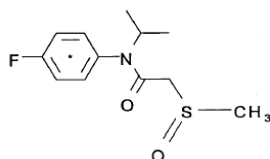
Flufenacet radiolabelled in phenyl and thiadiazole moieties;  
 \* denotes [phenyl-UL-<sup>14</sup>C] radiolabelling position,  
 # denotes [thiadiazole-2-<sup>14</sup>C] radiolabelling position;  
 + denotes [thiadiazole-5-<sup>14</sup>C] radiolabelling position;



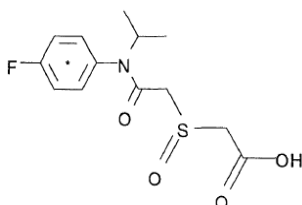
FOE Oxalate (M1);  
 \* denotes radiolabelling position



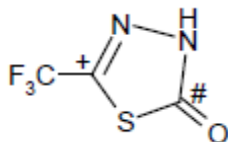
FOE Methylsulfone (M7; BCS-CO62475);  
 \* denotes radiolabelling position



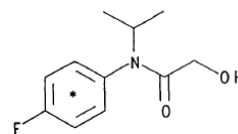
FOE Methylsulfoxide  
 \* denotes radiolabelling position



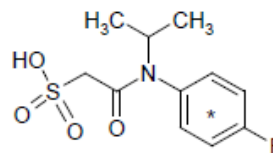
FOE Thioglycolate sulfoxide  
 \* denotes radiolabelling position



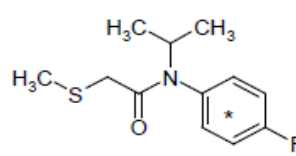
FOE-Thiadone (M9; Thiadone);  
 # denotes [thiadiazole-2-<sup>14</sup>C] radiolabelling position;  
 + denotes [thiadiazole-5-<sup>14</sup>C] radiolabelling position;



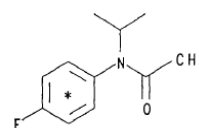
FOE Alcohol;  
 \* denotes radiolabelling position



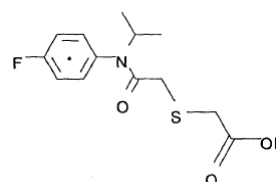
FOE Sulfonic acid (M2);  
 \* denotes radiolabelling position



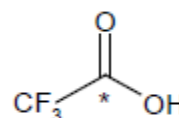
FOE Methylsulfide (M5);  
 \* denotes radiolabelling position



FOE Amine acetate  
 \* denotes radiolabelling position



FOE Thioglycolate sulfide  
 \* denotes radiolabelling position



Trifluoroacetic acid (M45, TFA, BCS-AZ6567);  
 \* denotes radiolabelling position

Figure B.8.0.\_CP-1: Radiolabelled forms of Flufenacet and its metabolites used in environmental fate and behaviour studies.

In the documentation submitted by the Applicant following code names and alternative names for Flufenacet: fluthiamid, fluthiamide and FOE 5043.

### B.8.1. – Fate and Behaviour in Soil

#### B.8.1.1. – Route and rate of degradation in soil

The route of degradation of the acetanilide herbicide Flufenacet in aerobic soil was extensively examined in eight agricultural soils – seven originating from the EU and one from US. The test compound – Flufenacet, was radiolabelled in one of the following three positions:

- uniformly in phenyl ring – compound tested on four soils,
- position C2 in thiadiazole moiety – test performed on one soil,
- position C5 in thiadiazole moiety – examined in four soils.

These data were presented in five unpublished studies submitted specifically for the purpose of this assessment. Additionally the data relevant for determining transformation pattern of Flufenacet in aerobic soil, relevant for regulatory purposes, were found in one scientific paper, examining the degradation of Flufenacet radiolabelled uniformly in phenyl ring in two US soils. That study was based on a non-GLP regulatory study, conceived as a bridging study for laboratory and field experiments on the degradation of Flufenacet in soil. That study was verified by RMS and found acceptable. Therefore the results of the literature study based on it were included into evaluation.

The key results of the examination of transformation of Flufenacet are presented in the tabularised form below (tables B.8.1.1.\_CP-1 – B.8.1.1.\_CP-4), separately for the compound radiolabelled in phenyl ring and in thiadiazole moiety.

**Table B.8.1.1.\_CP-1:** The levels of mineralisation and NER fraction formed, and identified degradation products in experiments with [Phenyl-U-<sup>14</sup>C] Flufenacet.

Study	Soil		Level of mineralisation [% AR]:		Level of NER [% AR]:			Identified degradation products
	Name	Type (USDA)	After ~100 days	at the study's end	Max.	After ~100 days	at the study's end	
Kelley <i>et al.</i> ; 1995	BBA 2.2	Loamy sand	12.6 DAT 100	14.2 DAT 120	42.3 DAT 120	37.3 DAT 100	42.3 DAT 120	FOE Sulfonic acid; FOE Oxalate; FOE TGS; FOE Methylsulfoxide; FOE Methylsulfone
	Laacherhof	Silt loam	20.8 DAT 100	23.8 DAT 120	37.1 DAT 120	29.9 DAT 100	37.1 DAT 120	FOE Sulfonic acid; FOE Oxalate; FOE TGS; FOE Methylsulfoxide; FOE Methylsulfone
	Hofchen im Tal	Silt loam	10.2 DAT 100	12.0 DAT 120	58.0 DAT 120	56.2 DAT 100	58.0 DAT 120	FOE Sulfonic acid; FOE Oxalate; FOE TGS; FOE Methylsulfoxide; FOE Methylsulfone
Pangilinan & Smith; 1994	Howe	Sandy loam	2.7 DAT 91	5.9 DAT 365	17.7 DAT 271	16.3 DAT 91	16.5 DAT 365	FOE Sulfonic acid; FOE Oxalate; FOE Alcohol; FOE TGS; FOE Methylsulfoxide; FOE Chloroacetanilide;
Bloomberg <i>et al.</i> ; 2002	Fresno	Sandy loam	14.1 <sup>1)</sup> DAT 88	14.1 <sup>1)</sup> DAT 88	41.6 <sup>2)</sup> DAT 88	41.6 <sup>2)</sup> DAT 88	41.6 <sup>2)</sup> DAT 88	FOE Sulfonic acid; FOE Oxalate; FOE Alcohol;
	Chualar	Sandy loam	5.8 <sup>1)</sup> DAT 88	5.8 <sup>1)</sup> DAT 88	46.4 <sup>2)</sup> DAT 19	31.6 <sup>2)</sup> DAT 88	31.6 <sup>2)</sup> DAT 88	FOE Sulfonic acid; FOE Oxalate; FOE Alcohol;

**Footnotes to the table:**

1) Value estimated as a difference between the reported “total AR recovered” and the theoretical 100% AR;

2) The value is the sum of NER fraction in topsoil (0-3 cm) and subsoil (3-13 cm) for the given tie point; as in the subsoil the detected radioactivity was not further examined, but considered to represent NER fraction, in fact that value may be an overestimate;

**Table B.8.1.1.\_CP-2:** Concentrations and classification of soil degradation products identified in experiments with [Phenyl-U-<sup>14</sup>C] Flufenacet

Degradation product	Maximum [% AR] in soil, detected on:						Classification according to SANCO/221/2000	Justification <sup>1)</sup>
	BBA 2.2	Laacherhof	Hofchen im Tal	Howe	Fresno	Chualar		
<b>FOE Sulfonic acid</b>	25.4 DAT 100	26.3 DAT 100	13.5 DAT 100	7.7 DAT 180	2.4 DAT 88	1.3 DAT 88	major/relevant for GW assessment	> 10% AR
<b>FOE Oxalate</b>	6.6 DAT 28	15.6 DAT 28	10.0 DAT 28	26.5 DAT 365	13.0 DAT 46	7.6 DAT 88	major/relevant for GW assessment	>10% AR
<b>FOE Alcohol</b>	n. d.	n. d.	n. d.	2.1 DAT 44, DAT 65	8.1 DAT 88	21.2 DAT 88	major/relevant for GW assessment	>10% AR
<b>FOE TGS</b>	3.3 DAT 56	5.5 DAT 28	1.9 DAT 28	3.7 DAT 180	n. d. <sup>2)</sup>	n. d. <sup>2)</sup>	minor/not relevant for GW assessment	Not meeting any of the criteria
<b>FOE Methyl-sulfoxide</b>	1.1 DAT 28, DAT 56	3.5 DAT 56	1.5 DAT 56	0.6 DAT 28	n. d. <sup>2)</sup>	n. d. <sup>2)</sup>	minor/not relevant for GW assessment	Not meeting any of the criteria
<b>FOE Methyl-sulfone</b>	6.6 DAT 100	4.3 DAT 120	5.6 DAT 120	n. d.	n. d. <sup>2)</sup>	n. d. <sup>2)</sup>	major/relevant for GW assessment	>5% AR at study end, increasing
<b>FOE Chloroacet-anilide</b>	n. d. <sup>2)</sup>	n. d. <sup>2)</sup>	n. d. <sup>2)</sup>	5.1 DAT 44	n. d. <sup>2)</sup>	n. d. <sup>2)</sup>	minor/not relevant for GW assessment	Not meeting any of the criteria

**Footnotes to the table:**

- 1) Justification based on the criteria set by the Guideline SANCO/221/2000, listed under the point 4 on page 6:  
*“As a minimum, degradation products must be characterized and identified by the notifiers to the extent that it is technically feasible and their relevance must be assessed, if one of the following conditions applies:*  
a) *Metabolites, which account for more than 10% of the amount of active substance added in soil at any time during the studies; or*  
b) *which account for more than 5% of the amount of active substance added in soil in at least two sequential measurements during the studies; or*  
c) *for which at the end of soil degradation studies the maximum of formation is not yet reached.*
- 2) Compound not detected in that soil.

**Table B.8.1.1.\_CP-3:** The levels of mineralisation and NER fraction formed, and identified degradation products in experiments with [Thiadiazole-<sup>14</sup>C] Flufenacet.

Study/ radiolabelling position	Soil		Level of mineralisation [% AR]:		Level of NER [% AR]:			Identified degradation products
	Name	Type (USDA)	after ~100 days	at the study's end	Max.	after ~100 days	at the study's end	
Pangilinan & Smith; 1994a [Thiadiazole-2- <sup>14</sup> C]	Howe	Sandy loam	31.9 DAT 90	50.9 DAT 368	6.9 DAT 270	6.2 DAT 90	6.5 DAT 368	FOE Thiadone
Hein; 2012 [Thiadiazole-5- <sup>14</sup> C]	Hoefchen am Hohenseh 4a	Silt loam	5.7 DAT 120	5.7 DAT 120	13.5 DAT 60	12.5 DAT 120	12.5 DAT 120	FOE Thiadone; FOE 5043- Trifluoroethanesulfonic acid; Trifluoroacetic acid (TFA)
Hein; 2012a [Thiadiazole-5- <sup>14</sup> C]	Laacherhof AXXa	Loamy sand	5.6 DAT 121	5.6 DAT 121	18.6 DAT 63	17.2 DAT 121	17.2 DAT 121	FOE Thiadone; FOE 5043- Trifluoroethanesulfonic acid; Trifluoroacetic acid (TFA)
	Dollendorf II	Clay loam	6.5 DAT 121	6.5 DAT 121	11.5 DAT 63	10.6 DAT 121	10.6 DAT 121	FOE Thiadone; FOE 5043- Trifluoroethanesulfonic acid; Trifluoroacetic acid (TFA)
	Laacherhof Wurmwiess	Loam	4.6 DAT 121	4.6 DAT 121	18.6 DAT 35, DAT 63	17.2 DAT 121	17.2 DAT 121	FOE Thiadone; FOE 5043- Trifluoroethanesulfonic acid; Trifluoroacetic acid (TFA)

**Table B.8.1.1\_CP-4:** Concentrations and classification of soil degradation products identified in experiments with [Thiadiazole-<sup>14</sup>C] Flufenacet

Degradation product	Maximum [% AR] in soil, detected on:					Classification according to SANCO/221/2000	Justification <sup>1)</sup>
	Howe	Hoefchen am Hohenseh 4a	Laacherhof AXxa	Dollendorf II	Laacherhof Wurmweise		
FOE Thiadone	3.9 DAT 7	5.8 DAT 10	2.8 DAT 7	5.6 DAT 10	4.6 DAT	major/relevant for GW assessment	> 5% AR at two consecutive time points
FOE 5043-Trifluoroethanesulfonic acid	n. d. <sup>2)</sup>	6.0 DAT 14	4.4 DAT 10	3.4 DAT 10	1.9 DAT 10	major/relevant for GW assessment	> 5% AR at two consecutive time points
TFA (Trifluoroacetic acid)	n. d. <sup>2)</sup>	77.7 DAT 87	74.1 DAT 121	81.5 DAT 91	74.8 DAT 91	major/relevant for GW assessment	> 10% AR

**Footnotes to the table:**

1) Justification based on the criteria set by the Guideline SANCO/221/2000, listed under the point 4 on page 6:

*“As a minimum, degradation products must be characterized and identified by the notifiers to the extent that it is technically feasible and their relevance must be assessed, if one of the following conditions applies:*

- a) Metabolites, which account for more than 10% of the amount of active substance added in soil at any time during the studies; or*
- b) which account for more than 5% of the amount of active substance added in soil in at least two sequential measurements during the studies; or*
- c) for which at the end of soil degradation studies the maximum of formation is not yet reached.*

2) Compound not detected in that soil.

The transformation pattern of Flufenacet in soil was examined only on biologically viable soil. That was due to the fact that, on the basis of available results it was assumed that all transformation processes were predominantly or solely biologically-mediated. It was postulated that the initial step of the degradation was the cleavage of the test item on bridging oxygen of the thiadiazole heterocycle. The further sequence for the thiadiazole moiety is presented below:

- tautomerisation of keto-enol functional group, resulting in formation of FOE Thiadone,
- hydrolytical opening of thiadone ring and further oxidation resulting in formation of either FOE 5043-Trifluoroethanesulfonic acid or Trifluoroacetic acid (TFA), or else simple products of mineralisation and NER fraction – ultimate transformation products;
- further transformation of FOE 5043-Trifluoroethanesulfonic acid or Trifluoroacetic acid (TFA) to the simple products of mineralisation and NER fraction – ultimate transformation products.

In case of the moiety containing fluorophenyl ring next postulated step was the formation of the transient FOE Cysteine- or FOE Glutathione conjugates, undergoing subsequent quick transformation to FOE Methylsulfoxide, FOE Alcohol and FOE Chloroacetanilide. As possible side-processes were postulated direct formation of FOE Chloroacetanilide and FOE Alcohol. It shall be noted that FOE Chloroacetanilide may be not only a genuine degradation product, but also, and possibly to greater extent, analytical artefact. However, as the issue was not satisfactorily clarified, the RMS's proposal is to consider FOE Chloroacetanilide a genuine degradation product.

Additionally, as in course of evaluation FOE Alcohol was identified to be a potentially major degradation product, the additional assessment was performed to determine whether, in absence of data for that compound, the exposure assessment for FOE Alcohol may be considered to be covered by that for its immediate degradate – FOE Oxalate.

The Applicant in course of the discussion on the nature of FOE Alcohol made a following statement (the text is copied directly from the Applicant's e-mail; the “outdoor soil metabolism study” refers to the cited study by Shadrack and Kasper [1995]):

*We cannot reconstruct what the reason for the accumulation or artificial formation of FOE alcohol (aka FOE hydroxy) was in that outdoor soil metabolism study, but we have several other laboratory studies, as well as EU and US field studies, which demonstrate, that FOE alcohol is a minor, transient metabolite, not accumulating at all, but rather being further oxidized quickly to FOE oxalate.*

RMS having analysed the results provided by the study by Shadrack and Kasper [1995], reproduced in the publication by Bloomberg et al. [2002], noted that the compound was formed in greater amounts in Chualar soil, having lower OC content and slightly lower microbial activity of the two soils used in the experiment. Taking into account the fact that FOE Alcohol was also detected only in the study by Pangilinan and Smith [1994], performed on another soil having low OC content and microbial activity, but not in the study by Kelley et al [1995], all that may indicate that FOE Alcohol is indeed a transient, fast degrading compound, that would appear in higher amounts and for longer only in weak soils.

To further demonstrate that it was possible to cover the exposure assessment for FOE Alcohol with that for its immediate degradate – FOE Oxalate, RMS performed the comparative analysis by means of QSAR calculations, carried out with EPI Suite ver. 4.10 (September 2010) tool. The results of that assessment indicate that the properties of both compounds relevant for their environmental fate and behaviour are comparable. Therefore the exposure assessment performed for FOE Oxalate may be considered as covering that for FOE Alcohol.

The route of degradation of the acetanilide herbicide Flufenacet in anaerobic soil was examined in three soils – one from the US and two European. The test compound – Flufenacet, was radiolabelled in one of the following two positions:

- uniformly in phenyl ring – compound tested on one US soil,
- in position C5 of Thiadiazole moiety – examined in two EU soils.

The experiments performed to determine the transformation pattern of Flufenacet in soil under anaerobic conditions consisted of two phases – aerobic preincubation phase and anaerobic incubation phase. RMS decided to present the key results of the experiments taking into account both phases. In case of aerobic preincubation phase the results are given for the terminal time point of that phase.

The key results for the examination of transformation of Flufenacet in anaerobic soils in the area of formation of terminal degradation products – mineralisation expressed as CO<sub>2</sub> and NER fraction, are presented below in the table B.8.1.1.\_CP-5. To differentiate the results obtained for aerobic phase from those for anaerobic phase the former were shaded light grey. It shall be noted that under anaerobic conditions mineralisation, if occurred at all, was minimal. No other volatile compounds were identified during either aerobic or anaerobic phases. The level of NER formed under anaerobic conditions (net formation) was comparable to that observed in aerobic soils.

**Table B.8.1.1.\_CP-5:** The levels of the terminal degradation products – CO<sub>2</sub> and NER fraction formed in soil during examination of the transformation pattern of Flufenacet in soil under anaerobic conditions.

Study/ radiolabelling position	Soil		Results obtained for aerobic phase		Results obtained for anaerobic phase <sup>1)</sup>					
	Name	Type (USDA)	CO <sub>2</sub> [%AR] – end of phase	NER [%AR] – end of phase	Mineralisation level – CO <sub>2</sub> formed [% AR]			NER level [% AR]		
					Beginning of phase	Max.	Net anaero- bic <sup>2)</sup>	Beginning of phase	Max.	Net anaero- bic <sup>3)</sup>
Pangilinan & Smith [1994]/ <sup>14</sup> C-phenyl	Howe	Sandy loam	1.4 (DAT 30)	8.4 (DAT 30)	1.4 (DAT 30 DAF 0)	1.8 (DAT 210 DAF 180)	0.4	8.4 (DAT 30 DAF 0)	32.6 (DAT 210 DAF 180)	24.2 (DAT 210 DAF 180)
Heinemann [2012]/ <sup>14</sup> C-5- Thiadiazole	HH <sup>4)</sup>	Silt loam	1.6 (DAT 15)	16.9 (DAT 15)	1.6 (DAT 15 DAF 0)	1.7 (DAT 105 DAF 90)	0.1	10.2 (DAT 15 DAF 0)	24.5 (DAT 135 DAF 120)	14.3 (DAT 135 DAF 120)
	DD <sup>5)</sup>	Loam	1.9 (DAT 15)	10.1 (DAT 15)	1.8 (DAT 15 DAF 0)	1.9 (DAT 105 DAF 90)	<0.1 <sup>6)</sup>	8.6 (DAT 15 DAF 0)	31.6 (DAT 135 DAF 120)	23.0 (DAT 135 DAF 120)

**Footnotes to the table:**

- 1) In case of Howe soil the results for the beginning of anaerobic phase are the same as those for the end of aerobic phase; in case of soils HH and DD they are different, because were available the results obtained immediately after generating the anaerobic conditions;
- 2) Net anaerobic is a difference between the total amount of CO<sub>2</sub> formed and that determined in aerobic traps for volatiles;
- 3) Net anaerobic is a difference between maximum determined level of NER and that measured at the beginning of anaerobic phase;
- 4) HH stands for *Hoefchen am Hohenseh 4a* soil;
- 5) DD stands for *Dollendorf II* soil;
- 6) At the time point where maximum CO<sub>2</sub> level of 2.0% AR was recorded, the amount recovered for aerobic volatile traps was 1.9% AR and from anaerobic volatile traps <0.1 AR; the slightly higher total amount may be due to either rounding or losses during extraction; in that soil the level of mineralization, expressed as recovered CO<sub>2</sub> in anaerobic phase was <0.1% AR;

The examination of the extracted fraction enabled the identification of one new degradate, not identified in aerobic soils – FOE Thioglycolate. All other identified degradation products were those already found in aerobic soils. On that basis it can be stated that the transformation pattern of Flufenacet in soil under anaerobic conditions would not differ significantly from that determined in aerobic soils. The key results of the profiling of degradation products in anaerobic soils are presented below in table B.8.1.1.\_CP-6. To differentiate the results obtained for aerobic phase from those for anaerobic phase the former were shaded light grey.

Table B.8.1.1.\_CP-6: The results of the profiling of Flufenacet and its degradation products.

Study/ radiolabelling position	Soil		Results obtained for aerobic phase		Results obtained for anaerobic phase <sup>1)</sup>				
	Name	Type (USDA)	Identified compound	Amount [% AR] at the end of phase	Identified compound	Amount [% AR] measured at:			Anaerobic metabolite (yes/no)
						Beginning of phase	Max.	Net anaerobic <sup>2)</sup>	
Pangilinan & Smith [1994]/ <sup>14</sup> C-phenyl	Howe	Sandy loam	Flufenacet	69.0 (DAT 30)	Flufenacet	69.0 (DAT 30/ DAF 0)	39.0 <sup>6)</sup> (DAT 210/ DAF 180)	N/A <sup>8)</sup>	N/A <sup>8)</sup>
			FOE Oxalate	11.2 (DAT 30)	FOE Oxalate	11.2 (DAT 30/ DAF 0)	14.5 (DAT 60/ DAF 30)	3.3 (DAT 60/ DAF 30)	Yes
			FOE Sulfonic acid	6.6 (DAT 30)	FOE Sulfonic acid	6.6 (DAT 30/ DAF 0)	6.6 (DAT 30/ DAF 0)	0.0	No
			FOE Alcohol	0.0 (DAT 30)	FOE Alcohol	0.0 (DAT 30/ DAF 0)	1.4 (DAT 153/ DAF 123)	1.4 (DAT 153/ DAF 123)	Yes
			FOE TGS <sup>3)</sup>	2.6 (DAT 30)	FOE TGS <sup>3)</sup>	2.6 (DAT 30/ DAF 0)	2.6 (DAT 30/ DAF 0)	0.0	No
					FOE Thioglycolate	0.0 (DAT 30/ DAF 0)	1.7 (DAT 60/ DAF 30)	1.7 (DAT 60/ DAF 30)	Yes
Heinemann [2012]/ <sup>14</sup> C-5- Thiadiazole	HH <sup>4)</sup>	Silt loam	Flufenacet	30.8 (DAT 15)	Flufenacet	42.8 (DAT 15/ DASF 0)	6.4 <sup>6)</sup> (DAT 135/ DASF 120)	N/A <sup>8)</sup>	N/A <sup>8)</sup>
			FOE Thiadone	5.9 (DAT 15)	FOE Thiadone	4.8 (DAT 15/ DASF 0)	13.6 (DAT 77/ DASF 62)	8.8 (DAT 77/ DASF 62)	Yes
			FOE Tri- fluoroethane sulfonic acid	2.5 (DAT 15)	FOE Tri- fluoroethane sulfonic acid	5.1 (DAT 15/ DASF 0)	4.2 <sup>7)</sup> (DAT 48/ DASF 33)	4.2 <sup>7)</sup> (DAT 48/ DASF 33)	Yes
			Trifluoroacetic acid	37.5 (DAT 15)	Trifluoroacetic acid	31.4 (DAT 15/ DASF 0)	47.9 (DAT 135/ DASF 120)	16.5 (DAT 135/ DASF 120)	Yes
	DD <sup>5)</sup>	Loam	Flufenacet	44.2 (DAT 15)	Flufenacet	35.4 (DAT 15/ DASF 0)	3.1 <sup>6)</sup> (DAT 135/ DASF 120)	N/A <sup>8)</sup>	N/A <sup>8)</sup>
			FOE Thiadone	4.3 (DAT 15)	FOE Thiadone	7.1 (DAT 15/ DASF 0)	12.4 (DAT 21/ DASF 6)	5.3 (DAT 21/ DASF 6)	Yes
			FOE Tri- fluoroethane sulfonic acid	6.0 (DAT 15)	FOE Tri- fluoroethane sulfonic acid	3.2 (DAT 15/ DASF 0)	3.2 (DAT 15/ DASF 0)	0.0	No
			Trifluoroacetic acid	28.0 (DAT 15)	Trifluoroacetic acid	40.4 (DAT 15/ DASF 0)	53.2 (DAT 105/ DASF 90)	12.8 (DAT 105/ DASF 90)	Yes

**Footnotes to the table:**

- 1) In case of Howe soil the results for the beginning of anaerobic phase are the same as those for the end of aerobic phase; in case of soils HH and DD they are different, because were available the results obtained immediately after generating the anaerobic conditions;
- 2) Net anaerobic is a difference between the maximum amount determined in anaerobic phase and that at its beginning;
- 3) FOE TGS – FOE Thioglycolate sulfoxide;
- 4) HH stands for *Hoefchen am Hohenseh 4a* soil;
- 5) DD stands for *Dollendorf II* soil;
- 6) Flufenacet is the active substance, therefore not forming in soil; as a result its concentration at the end of incubation period is given to show the level of decline;
- 7) In that soil the concentrations of FOE Trifluoroethane sulfonic acid initially decreased, to increase afterwards reaching maximum on the indicated time point; it was assumed that this maximum can be attributed totally to the amount of that compound formed under anaerobic conditions;
- 8) N/A – not applicable (parent compound);

The results of the determination of transformation pathway of Flufenacet in anaerobic soil demonstrated that it would not significantly differ, qualitatively and quantitatively, from that observed in aerobic soil.

The degradation products that may require further consideration for the risk assessment are the same as identified during examination of the degradation pattern of Flufenacet in aerobic soil: FOE Oxalate, FOE Thiadone and Trifluoroacetic acid.

The soil photolysis of Flufenacet was examined in one soil – US Sandy loam, using the test compound radiolabelled in one position – uniformly at phenyl ring. The experiment was performed using soil that was demonstrated to be biologically viable throughout the whole irradiation/incubation period. Samples were irradiated with artificial light (Xenon lamp) continuously for 10.25 days, corresponding to 30 days of natural

summer sunlight (conditions relevant for Phoenix, Arizona, USA). The key results of the examination are presented below in the table B.8.1.1.\_CP-7.

**Table B.8.1.1.\_CP-7:** The key results obtained for Flufenacet in soil photolysis study

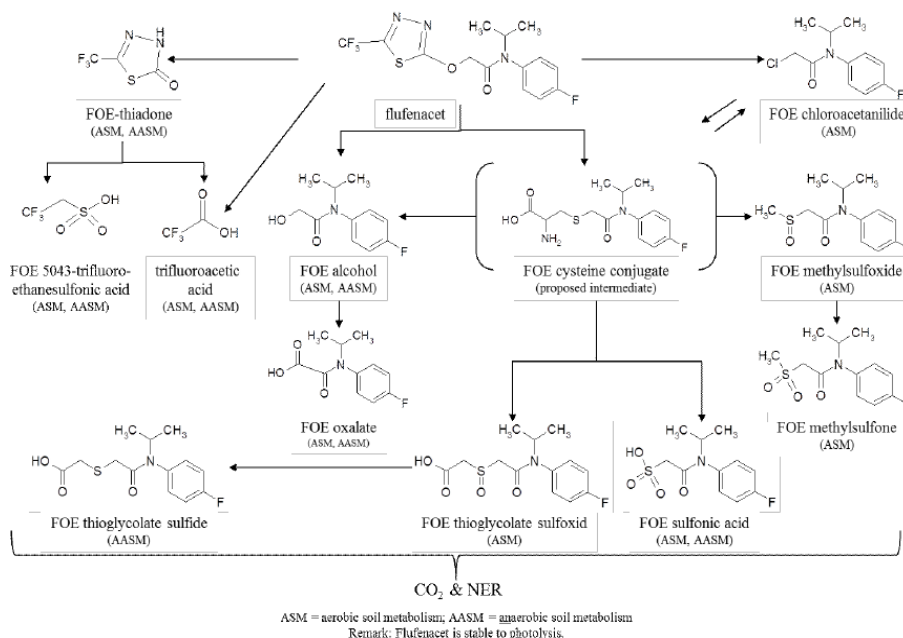
Parameter		Results obtained for:	
		Irradiated sample	Dark control
Terminal transformation products	Mineralisation (CO <sub>2</sub> ) at the end of the study	0.2% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>	0.1% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>
	Max. NER level	3.2% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>	4.4% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>
Identified compounds	Flufenacet – amount at study's end	91.2 AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>	87.2 AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>
	FOE Oxalate – max. amount	0.6% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>	4.6% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>
	FOE Sulfonic acid – max. amount	0.4% AR; DAT <sup>2)</sup> 5.13; 15 <sup>th</sup> DNS <sup>3)</sup>	2.2% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>
	FOE Methylsulfoxide – max. amount	0.7% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>	0.6% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>
	FOE Alcohol – max. amount	1.0% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>	0.4% AR; DAT <sup>2)</sup> 10.25; 30 <sup>th</sup> DNS <sup>3)</sup>
	FOE N-isomer <sup>1)</sup> – max. amount	1.8% AR; DAT <sup>2)</sup> 5.13; 15 <sup>th</sup> DNS <sup>3)</sup>	0.3% AR; DAT <sup>2)</sup> 2.75; 8 <sup>th</sup> DNS <sup>3)</sup>
Kinetics of the process	rate constant <i>k</i> [days <sup>-1</sup> ]	0.0076	0.0124
	DT <sub>50</sub> [ days]	90.72	55.90

**Footnotes to the table:**

- 1) N-isomer of Flufenacet (for the structural formula, please refer to the table in Appendix 1 - List of Evaluated Compounds in the Vol. 3 B.8\_CA);
- 2) DAT stands for Days After Treatment, the real sampling point in the experiment;
- 3) DNS – Days of Natural Sunlight, the sampling point related to the natural summer day sunlight conditions in Tucson Arizona, USA

On the basis of these results it was stated that Flufenacet is not prone to photolytical degradation on the soil surface, therefore soil photolysis will not be a relevant degradation mechanism of Flufenacet in soil. Additionally the potential of photodegradation of FOE Thiadone on soil surface was examined. Although it was demonstrated that the process might contribute to transformation of FOE Thiadone in soil, its relevance is estimated to be minimal, also because FOE Thiadone is not expected to occur on the soil surface in significant, if any, amounts.

On the basis of the results of the studies examining route of degradation of Flufenacet in soil under various conditions a following overall transformation scheme was proposed (figure B.8.1.1.\_CP-1):



**Figure B.8.1.1.\_CP-1:** A postulated transformation scheme for Flufenacet in soil, as proposed by the Applicant, verified and approved by the RMS (scheme copied from the Applicant's documentation).

The degradation kinetics of Flufenacet in aerobic soil under laboratory conditions was extensively examined by the Applicant and its results presented in 26 study reports, of which 24 were found by the RMS acceptable and relevant for the current assessment. Additionally two literature studies were identified by the RMS which also provided the data on the degradation kinetics of Flufenacet in aerobic soils. These reports were found by the RMS relevant as supplementary source of data, however not suitable for deriving the regulatory endpoints.

The key results for each of the evaluated compounds are presented below, in tabularised form, individually for each of the test compounds.

a) Kinetic endpoints determined for Flufenacet:

The degradation kinetics of Flufenacet in aerobic soil was examined in ten trials using nine soils. One of the test soils – Howe, Indiana, Sandy loam soil, was used in two trials in which was used Flufenacet differently radiolabelled (either in phenyl ring or in C2 position of thiadiazole moiety), but the resulting kinetic endpoints cannot be averaged prior to calculating the overall geomean because they were derived in two separate studies, significantly differing in sample processing method.

The persistence (best-fit) kinetic endpoints obtained for Flufenacet are presented below in the table B.8.1.1.\_CP-8. The modelling endpoints are given in the table B.8.1.1.\_CP-9.

**Table B.8.1.1.\_CP-8:** The persistence kinetic endpoints determined for Flufenacet in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints	
Soil name	Soil type (USDA)	OC	pH			$\chi^2$ error	Visual fit <sup>1)</sup> /R <sup>2</sup>	Param.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]
<b>BBA 2.2;</b> [Phenyl-U- <sup>14</sup> C] label	Loamy sand	2.58	6.2 <sup>2)</sup>	20°C; 40% MWHC	SFO	8.53	A/ 0.974	k	0.0217	31.9	106.1
<b>Laacherhof;</b> [Phenyl-U- <sup>14</sup> C] label	Silt loam	0.9	6.2 <sup>2)</sup>	20°C; 40% MWHC	SFO	11.0	G/0.978	k	0.0411	16.9	56
<b>Höfchen im Tal;</b> [Phenyl-U- <sup>14</sup> C] label	Silt loam	2.40	6.2 <sup>2)</sup>	20°C; 40% MWHC	SFO	5.47	G/ 0.990	k	0.0339	20.4	67.9
<b>Howe, Indiana;</b> [Phenyl-U- <sup>14</sup> C] label	Sandy loam	0.35	6.2 <sup>3)</sup>	21°C; 75% of 1/3 bar	SFO	2.36	G/ 0.981	k	0.0215	32.2	107.0
<b>Laacherhof AXXa;</b> [Phenyl-U- <sup>14</sup> C] label	Sandy loam	1.41	6.1 <sup>4)</sup>	20°C; 50% MWHC	SFO	11.23	A/ 0.975	k	0.0943	7.35	24.4
<b>Hoefchen Am Hohenseh 4a;</b> [Thiadiazole-5- <sup>14</sup> C] label	Silt loam	2.5	6.7 <sup>4)</sup>	19.1°C; 55% MWHC	SFO	4.88	G/ 0.995	k	0.0438	15.8	52.6
<b>Laacherhof AXXa;</b> [Thiadiazole-5- <sup>14</sup> C] label	Loamy sand	2.4	6.1 <sup>4)</sup>	19.9°C; 55% MWHC	SFO	3.03	G/ 0.997	k	0.0349	19.85	65.9
<b>Dollendorf II;</b> [Thiadiazole-5- <sup>14</sup> C] label	Clay loam	5.3	7.2 <sup>4)</sup>	19.9°C; 55% MWHC	SFO	4.67	G/ 0.994	k	0.0425	16.3	54.2
<b>Laacherhof Wurmweise;</b> [Thiadiazole-5- <sup>14</sup> C] label	Loam	2.2	5.4 <sup>4)</sup>	19.9°C; 55% MWHC	SFO	4.27	G/ 0.994	k	0.0465	14.9	49.5
<b>Howe, Indiana;</b> [Thiadiazole-2- <sup>14</sup> C] label	Sandy loam	0.35	6.2 <sup>3)</sup>	21°C; 75% of 1/3 bar	SFO	2.80	A/ 0.940	k	0.0120	<b>57.6</b>	191.42

**Footnotes to the table:**

- 1) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 2) Declared to be measured in CaCl<sub>2</sub>/Water;
- 3) Measured in distilled water;
- 4) Measured in CaCl<sub>2</sub>

The DT<sub>50</sub> = **57.6 days** value, determined in Howe, Indiana Sandy loam soil treated with [Thiadiazole-2-<sup>14</sup>C] Flufenacet was identified as appropriate input parameter for soil exposure assessment.

**Table B.8.1.1\_CP-9:** The modelling kinetic endpoints determined for Flufenacet in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints	
Soil name	Soil type (USDA)	OC	pH			$\chi^2$ error	Visual fit <sup>1)</sup> /R <sup>2</sup>	Param.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]
<b>BBA 2,2;</b> [Phenyl-U- <sup>14</sup> C] label	Loamy sand	2.58	6.2 <sup>2)</sup>	20°C; 40% MWHC	SFO	8.53	A/ 0.974	k	0.0217	31.9	106.1
<b>Laacherhof;</b> [Phenyl-U- <sup>14</sup> C] label	Silt loam	0.9	6.2 <sup>2)</sup>	20°C; 40% MWHC	SFO	11.0	G/0.978	k	0.0500	13.86	45.92
<b>Höfchen im Tal;</b> [Phenyl-U- <sup>14</sup> C] label	Silt loam	2.40	6.2 <sup>2)</sup>	20°C; 40% MWHC	SFO	5.47	G/ 0.990	k	0.0339	20.44	67.9
<b>Howe, Indiana;</b> [Phenyl-U- <sup>14</sup> C] label	Sandy loam	0.35	6.2 <sup>3)</sup>	21°C; 75% of 1/3 bar	SFO	2.36	G/ 0.981	k	0.0332	20.90	69.44
<b>Laacherhof AXXa;</b> [Phenyl-U- <sup>14</sup> C] label	Sandy loam	1.41	6.1 <sup>4)</sup>	20°C; 50% MWHC	SFO	11.23	A/ 0.975	k	0.0985	7.04	23.37
<b>Hoefchen Am Hohenseh 4a;</b> [Thiadiazole-5- <sup>14</sup> C] label	Silt loam	2.5	6.7 <sup>4)</sup>	19.1°C; 55% MWHC	SFO	4.88	G/ 0.995	k	0.0451	15.36	51.02
<b>Laacherhof AXXa;</b> [Thiadiazole-5- <sup>14</sup> C] label	Loamy sand	2.4	6.1 <sup>4)</sup>	19.9°C; 55% MWHC	SFO	3.03	G/ 0.997	k	0.0356	19.45	64.58
<b>Dollendorf II;</b> [Thiadiazole-5- <sup>14</sup> C] label	Clay loam	5.3	7.2 <sup>4)</sup>	19.9°C; 55% MWHC	SFO	4.67	G/ 0.994	k	0.0447	15.49	51.52
<b>Laacherhof Wurmweise;</b> [Thiadiazole-5- <sup>14</sup> C] label	Loam	2.2	5.4 <sup>4)</sup>	19.9°C; 55% MWHC	SFO	4.27	G/ 0.994	k	0.0474	14.61	48.51
<b>Howe, Indiana;</b> [Thiadiazole-2- <sup>14</sup> C] label	Sandy loam	0.35	6.2 <sup>3)</sup>	21°C; 75% of 1/3 bar	SFO	2.80	A/ 0.940	k	0.0185	37.40	124.23
<b>Geometric mean (n = 10)</b>									<b>0.0387</b>	<b>17.89</b>	<b>59.42</b>
<b>Median (n = 10)</b>									<b>0.0402</b>	<b>17.47</b>	<b>58.05</b>

**Footnotes to the table:**

- 1) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 2) Declared to be measured in CaCl<sub>2</sub>/Water;
- 3) Measured in distilled water;
- 4) Measured in CaCl<sub>2</sub>

For GW and SW model exposure assessment the **geomean DT<sub>50</sub> = 17.89 days** and **geomean k = 0.0387 [days<sup>-1</sup>]** are the kinetic endpoints recommended as input parameters.

b) Kinetic endpoints determined for FOE Sulfonic acid:

The degradation kinetics of FOE Sulfonic acid in aerobic soil was examined in seventeen trials on the same number of the test soils. The experiments were performed in two variants – four trials with soils treated with Flufenacet (active substance) and the remaining thirteen trials with soils treated with FOE Sulfonic acid.

The performed kinetic analysis resulted in a data base consisting of twelve reliable kinetic endpoints, all determined in trials in which the test soils were treated with FOE Sulfonic acid. In case of the experiments on soils treated with Flufenacet it was not possible to obtain reliable kinetic endpoints characterising degradation of FOE Sulfonic acid in soil because decline of that compound was not observed. As a result, the default values – DT<sub>50</sub> = 1000 days and DT<sub>90</sub> > 1000 days, were proposed for these trials. These values, due to their nature and uncertainty related to them, were not used either as input parameters in soil exposure assessment or to calculate normalised mean values used subsequently in GW/SW exposure assessment. They are however provided in the table presenting the persistence endpoints, as with them are associated reliable kinetic formation fractions for FOE Sulfonic acid, recommended to be used in GW exposure assessment. RMS however decided not to provide them in the table presenting the kinetic endpoints recommended for modelling.

In case of the kinetic analysis of the data obtained in Laacherhof IIIA Silt loam soil in the study by [Hellpointner; 1996], it was not possible to obtain a reliable kinetic fit and hence kinetic endpoints. For that reason the trial was removed from both summary table presenting persistence and modelling endpoints.

The persistence (best-fit) kinetic endpoints obtained for FOE Sulfonic acid are presented below in the table B.8.1.1.\_CP-10. The modelling endpoints are given in the table B.8.1.1.\_CP-11.

**Table B.8.1.1.\_CP-10:** The persistence kinetic endpoints determined for FOE Sulfonic acid in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>2)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction ff
BBA 2.2	Loamy sand	2.58	6.2 <sup>a)</sup>	20°C; 40% MWHC	SFO	15.4	G	k	n. d. <sup>3)</sup>	1000	>1000	0.257
Laacherhof	Silt loam	0.9	7.3 <sup>a)</sup>	20°C; 40% MWHC	SFO	8.42	G	k	n. d. <sup>3)</sup>	1000	>1000	0.272
Höfchen im Tal	Silt loam	2.40	5.8 <sup>a)</sup>	20°C; 40% MWHC	SFO	6.56	G	k	n. d. <sup>3)</sup>	1000	>1000	0.143
Howe, Indiana;	Sandy loam	0.35	6.2 <sup>b)</sup>	21°C; 75% of 1/3 bar	SFO	6.28	G	k	n. d. <sup>3)</sup>	1000	>1000	0.108
BBA 2.1	Sand	0.57	5.3 <sup>c)</sup>	20 ± 2°C; 75% of 1/3 bar	SFO	1.78	G	k	2.18 E-3	318	1060	n. a. <sup>4)</sup>
BBA 2.2	Loamy sand	2.48	6.3 <sup>c)</sup>	20 ± 2°C; 75% of 1/3 bar	SFO	1.88	G	k	3.28 E-3	211	701	n. a. <sup>4)</sup>
Laacherhof AXxa	Sandy loam	1.47	6.3 <sup>c)</sup>	20 ± 2°C; 40% MWHC	SFO	3.05	G	k	0.0111	62.31	206.99	n. a. <sup>4)</sup>
Laacherhof AIII	Silt loam	0.88	6.8 <sup>c)</sup>	20 ± 2°C; 40% MWHC	SFO	3.03	G	k	0.0115	60.26	200.18	n. a. <sup>4)</sup>
Laacherhof AXxa	Loamy sand	1.7	6.2 <sup>c)</sup>	19.6°C; 55% MWHC	SFO	1.28	G	k	9.45 E-3	73.38	243.77	n. a. <sup>4)</sup>
Dollendorf II	Loam	4.6	7.0 <sup>c)</sup>	19.6°C; 55% MWHC	SFO	5.59	G	k	0.1033	6.71	22.30	n. a. <sup>4)</sup>
Hoefchen Am Hohenseh 4a;	Silt loam	2.0	6.1 <sup>c)</sup>	19.6°C; 55% MWHC	SFO	7.68	G	k	0.0242	28.58	94.95	n. a. <sup>4)</sup>
Wurm-wiese	Sandy loam	1.8	5.0 <sup>c)</sup>	19.6°C; 55% MWHC	SFO	3.66	G	k	0.0139	49.77	165.32	n. a. <sup>4)</sup>
Hanscheider Hof	Loam	2.8	5.6 <sup>c)</sup>	19.9°C; 55% MWHC	SFO	3.25	G	k	0.02539	27.30	90.70	n. a. <sup>4)</sup>
Frankenforst	Silt loam	1.8	6.8 <sup>c)</sup>	19.9°C; 55% MWHC	SFO	6.41	G	k	0.03181	21.79	72.39	n. a. <sup>4)</sup>
LUFA 2.3	Sandy loam	1.1	6.8 <sup>c)</sup>	19.9°C; 55% MWHC	SFO	1.45	G	k	0.0108	63.87	212.16	n. a. <sup>4)</sup>
LUFA 6S	Clay	1.9	7.0 <sup>c)</sup>	19.9°C; 55% MWHC	SFO	6.49	G	k	0.01838	37.71	125.28	n. a. <sup>4)</sup>
Arithmetic mean for ff (n = 4)												0.195

**Footnotes to the table:**

- 1) Measured in:  
- CaCl<sub>2</sub>/water for values marked a);  
- distilled water for results marked b);  
- 0.01M CaCl<sub>2</sub> for results marked c);
- 2) The abbreviations used to describe the visual fit: G – good, A – acceptable, P – poor;
- 3) Value not determined – the decline phase not reached;
- 4) Value not available – the test compound applied as parent.

The DT<sub>50</sub> = **318 days** value, determined in BBA 2.1 Sand soil treated with FOE Sulfonic acid was identified as appropriate input parameter for soil exposure assessment.

**Table B.8.1.1.\_CP-11:** The modelling kinetic endpoints determined for FOE Sulfonic acid in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>2)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction <i>ff</i>
BBA 2.2	Loamy sand	2.58	6.2 <sup>a)</sup>	20 <sup>0</sup> C; 40% MWHC	SFO	15.4	G	<i>k</i>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	0.257
Laacherhof	Silt loam	0.9	7.3 <sup>a)</sup>	20 <sup>0</sup> C; 40% MWHC	SFO	8.42	G	<i>k</i>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	0.272
Höfchen im Tal	Silt loam	2.40	5.8 <sup>a)</sup>	20 <sup>0</sup> C; 40% MWHC	SFO	6.56	G	<i>k</i>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	0.143
Howe, Indiana;	Sandy loam	0.35	6.2 <sup>b)</sup>	21 <sup>0</sup> C; 75% of 1/3 bar	SFO	6.28	G	<i>k</i>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	0.108
BBA 2.1	Sand	0.57	5.3 <sup>c)</sup>	20 ± 2 <sup>0</sup> C; 75% of 1/3 bar	SFO	1.78	G	<i>k</i>	2.66 E-3	260.76	869.2	n. a. <sup>4)</sup>
BBA 2.2	Loamy sand	2.48	6.3 <sup>c)</sup>	20 ± 2 <sup>0</sup> C; 75% of 1/3 bar	SFO	1.88	G	<i>k</i>	3.28 E-3	211.00	701	n. a. <sup>4)</sup>
Laacherhof AXXa	Sandy loam	1.47	6.3 <sup>c)</sup>	20 ± 2 <sup>0</sup> C; 40% MWHC	SFO	3.05	G	<i>k</i>	0.0139	49.85	165.59	n. a. <sup>4)</sup>
Laacherhof AIII	Silt loam	0.88	6.8 <sup>c)</sup>	20 ± 2 <sup>0</sup> C; 40% MWHC	SFO	3.03	G	<i>k</i>	0.0172	40.37	134.12	n. a. <sup>4)</sup>
Laacherhof AXXa	Loamy sand	1.7	6.2 <sup>c)</sup>	19.6 <sup>0</sup> C; 55% MWHC	SFO	1.28	G	<i>k</i>	9.84 E-3	70.44	234.02	n. a. <sup>4)</sup>
Dollendorf II	Loam	4.6	7.0 <sup>c)</sup>	19.6 <sup>0</sup> C; 55% MWHC	SFO	5.59	G	<i>k</i>	0.1109	6.25	20.77	n. a. <sup>4)</sup>
Hoefchen Am Hohenseh 4a;	Silt loam	2.0	6.1 <sup>c)</sup>	19.6 <sup>0</sup> C; 55% MWHC	SFO	7.68	G	<i>k</i>	0.0269	25.79	85.68	n. a. <sup>4)</sup>
Wurm-wiese	Sandy loam	1.8	5.0 <sup>c)</sup>	19.6 <sup>0</sup> C; 55% MWHC	SFO	3.66	G	<i>k</i>	0.0145	47.78	158.71	n. a. <sup>4)</sup>
Hanscheider Hof	Loam	2.8	5.6 <sup>c)</sup>	19.9 <sup>0</sup> C; 55% MWHC	SFO	3.25	G	<i>k</i>	0.0256	27.03	89.79	n. a. <sup>4)</sup>
Frankenforst	Silt loam	1.8	6.8 <sup>c)</sup>	19.9 <sup>0</sup> C; 55% MWHC	SFO	6.41	G	<i>k</i>	0.0321	21.57	70.68	n. a. <sup>4)</sup>
LUFA 2.3	Sandy loam	1.1	6.8 <sup>c)</sup>	19.9 <sup>0</sup> C; 55% MWHC	SFO	1.45	G	<i>k</i>	0.0110	63.23	210.04	n. a. <sup>4)</sup>
LUFA 6S	Clay	1.9	7.0 <sup>c)</sup>	19.9 <sup>0</sup> C; 55% MWHC	SFO	6.49	G	<i>k</i>	0.02158	32.11	106.60	n. a. <sup>4)</sup>
Geometric mean (n = 12)									0.0154	45.11	149.74	----
Median (n = 12)									0.0159	44.08	146.42	----
Arithmetic mean for <i>ff</i> (n = 4)												0.195

**Footnotes to the table:**

- 1) Measured in:
  - CaCl<sub>2</sub>/water for values marked a);
  - distilled water for results marked b);
  - (0.01M) CaCl<sub>2</sub> for results marked c);
- 2) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 3) Value not determined – the decline phase not reached;
- 4) Value not available – the test compound applied as parent.

For GW and SW model exposure assessment the **geomean DT<sub>50</sub> = 45.11 days** and **geomean *k* = 0.0154 [days<sup>-1</sup>]** are the kinetic endpoints recommended as input parameters. The corresponding recommended *ff* value is ***ff* = 0.195** (arithmetic mean) for Flufenacet as a precursor.

c) Kinetic endpoints determined for FOE Oxalate:

The degradation kinetics of FOE Oxalate in aerobic soil was examined in four trials on the same number of the test soils. The experiments were performed with soils treated with Flufenacet (active substance).

The performed kinetic analysis resulted in a data base consisting of three reliable kinetic endpoints. In case of the experiment in Howe, Indiana, Sandy loam soil it was not possible to obtain reliable kinetic endpoints characterising degradation of FOE Oxalate because the decline of that compound was not observed. As a result, the default values – DT<sub>50</sub> = 1000 days and DT<sub>90</sub> > 1000 days, were proposed for that trial. These values, due to

their nature and uncertainty related to them, were not used either as input parameters in soil exposure assessment or to calculate normalised mean values used subsequently in GW/SW exposure assessment. They are however provided in the table presenting the persistence endpoints, as with them are associated reliable kinetic formation fraction for FOE Oxalate, recommended to be used in GW exposure assessment. RMS however decided not to provide them in the table presenting the kinetic endpoints recommended for modelling.

The persistence (best-fit) kinetic endpoints obtained for FOE Oxalate are presented below in the table B.8.1.1.\_CP-12. The modelling endpoints are given in the table B.8.1.1.\_CP-13.

**Table B.8.1.1.\_CP-12:** The persistence kinetic endpoints determined for FOE Oxalate in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>2)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction ff
BBA 2.2	Loamy sand	2.58	6.2 <sup>a)</sup>	20°C; 40% MWHC	SFO	25.2	A	k	0.1011	6.9	22.8	0.448
Laacherhof	Silt loam	0.9	7.3 <sup>a)</sup>	20°C; 40% MWHC	SFO	12.7	G	k	0.0366	<b>18.9</b>	62.9	0.422
Höfchen im Tal	Silt loam	2.40	5.8 <sup>a)</sup>	20°C; 40% MWHC	SFO	10.5	G	k	0.0530	13.09	43.48	0.350
Howe, Indiana;	Sandy loam	0.35	6.2 <sup>b)</sup>	21°C; 75% of 1/3 bar	SFO	3.99	G	k	n. d. <sup>3)</sup>	1000	>1000	0.484
Arithmetic mean for ff (n = 4)												<b>0.426</b>

**Footnotes to the table:**

- 1) Measured in:  
- CaCl<sub>2</sub>/water for values marked a);  
- distilled water for results marked b);
- 2) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 3) Value not determined – the decline phase not reached;

The DT<sub>50</sub> = **18.9 days** value, determined in Laacherhof Silt loam soil was identified as appropriate input parameter for soil exposure assessment.

**Table B.8.1.1.\_CP-13:** The modelling kinetic endpoints determined for FOE Oxalate in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>2)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction ff
BBA 2.2	Loamy sand	2.58	6.2 <sup>a)</sup>	20°C; 40% MWHC	SFO	25.2	A	k	0.1011	6.7	22.8	0.448
Laacherhof	Silt loam	0.9	7.3 <sup>a)</sup>	20°C; 40% MWHC	SFO	12.7	G	k	0.0447	15.5	51.58	0.422
Höfchen im Tal	Silt loam	2.40	5.8 <sup>a)</sup>	20°C; 40% MWHC	SFO	10.5	G	k	0.0530	13.09	43.48	0.350
Howe, Indiana;	Sandy loam	0.35	6.2 <sup>b)</sup>	21°C; 75% of 1/3 bar	SFO	3.99	G	k	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	0.484
Geometric mean (n = 3)									<b>0.0639</b>	<b>11.08</b>	<b>37.12</b>	----
Arithmetic mean for ff (n = 4)												<b>0.426</b>

**Footnotes to the table:**

- 1) Measured in:  
- CaCl<sub>2</sub>/water for values marked a);  
- distilled water for results marked b);
- 2) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 3) Value not determined – the decline phase not reached;

For GW and SW model exposure assessment the **geomean DT<sub>50</sub> = 11.08 days** and **geomean k = 0.0639 [days<sup>-1</sup>]** are the kinetic endpoints recommended as input parameters. The corresponding recommended ff value is **ff = 0.426** (arithmetic mean) for Flufenacet as a precursor.

## d) Kinetic endpoints determined for FOE Methylsulfone:

The degradation kinetics of FOE Methylsulfone in aerobic soil was examined in eleven trials using the same number of the test soils. The experiments were performed in two variants – three trials with soils treated with Flufenacet (active substance) and the remaining eight trials with soils treated with FOE Methylsulfone.

The performed kinetic analysis resulted in a data base consisting of nine reliable kinetic endpoints, one with soil treated with Flufenacet as a precursor of FOE Methylsulfone and remaining eight with soils treated with FOE Methylsulfone. In case of two trials on soils treated with Flufenacet – BBA 2.2 Loamy sand soil and Hoefchen im Tal Silt loam soil, it was not possible to obtain reliable kinetic endpoints characterising degradation of FOE Methylsulfone in soil, because decline of that compound was not observed. As a result, the default values –  $DT_{50} = 1000$  days and  $DT_{90} > 1000$  days, were proposed for these trials. These values, due to their nature and uncertainty related to them, were not used either as input parameters in soil exposure assessment or to calculate normalised mean values used subsequently in GW/SW exposure assessment. They are however provided in the table presenting the persistence endpoints, as with them are associated reliable kinetic formation fractions for FOE Methylsulfone, recommended to be used in GW exposure assessment. RMS however decided not to provide them in the table presenting the kinetic endpoints recommended for modelling.

The persistence (best-fit) kinetic endpoints obtained for FOE Methylsulfone are presented below in the table B.8.1.1\_CP-14. The modelling endpoints are given in the table B.8.1.1\_CP-15.

**Table B.8.1.1\_CP-14:** The persistence kinetic endpoints determined for FOE Methylsulfone in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>2)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction ff
BBA 2.2	Loamy sand	2.58	6.2 <sup>a)</sup>	20°C; 40% MWHC	SFO	28.5	G	k	n. d. <sup>3)</sup>	1000	>1000	0.061
Laacherhof	Silt loam	0.9	7.3 <sup>a)</sup>	20°C; 40% MWHC	SFO	14.4	G	k	3.99 E-3	174	576	0.096
Hoefchen im Tal	Silt loam	2.40	5.8 <sup>a)</sup>	20°C; 40% MWHC	SFO	17.3	G	k	n. d. <sup>3)</sup>	1000	>1000	0.052
Laacherhof AXXa	Loamy sand	1.7	6.2 <sup>b)</sup>	19.6°C; 55% MWHC	SFO	3.37	G	k	1.61 E-2	43.14	143.32	n. a. <sup>4)</sup>
Dollendorf II	Loam	4.6	7.0 <sup>b)</sup>	19.6°C; 55% MWHC	SFO	3.04	G	k	2.98 E-2	23.30	77.41	n. a. <sup>4)</sup>
Hoefchen Am Hohenseh 4a;	Silt loam	2.0	6.1 <sup>b)</sup>	19.6°C; 55% MWHC	SFO	3.58	G	k	1.58 E-2	43.84	145.64	n. a. <sup>4)</sup>
Wurm-wiese	Sandy loam	1.8	5.0 <sup>b)</sup>	19.6°C; 55% MWHC	SFO	3.32	G	k	7.21 E-3	96.13	319.32	n. a. <sup>4)</sup>
Hanscheider Hof	Loam	2.8	5.6 <sup>b)</sup>	19.9°C; 55% MWHC	SFO	2.11	G	k	8.40 E-3	82.53	274.14	n. a. <sup>4)</sup>
Frankenforst	Silt loam	1.8	6.8 <sup>b)</sup>	19.9°C; 55% MWHC	SFO	2.88	G	k	0.01083	63.98	212.53	n. a. <sup>4)</sup>
LUFA 2.3	Sandy loam	1.1	6.8 <sup>b)</sup>	19.9°C; 55% MWHC	SFO	2.10	G	k	4.72 E-3	146.78	487.60	n. a. <sup>4)</sup>
LUFA 6S	Clay	1.9	7.0 <sup>b)</sup>	19.9°C; 55% MWHC	SFO	1.70	G	k	4.25 E-3	163.06	541.68	n. a. <sup>4)</sup>
Arithmetic mean for ff (n = 3)												0.070

**Footnotes to the table:**

- 1) Measured in:  
- CaCl<sub>2</sub>/water for values marked a);  
- (0.01M) CaCl<sub>2</sub> for results marked b);
- 2) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 3) Value not determined – the decline phase not reached;
- 4) Value not available – the test compound applied as parent.

The **DT<sub>50</sub> = 174 days** value, determined in Laacherhof Silt loam soil was identified as appropriate input parameter for soil exposure assessment.

**Table B.8.1.1.\_CP-15:** The modelling kinetic endpoints determined for FOE Methylsulfone in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>2)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction <i>ff</i>
BBA 2.2	Loamy sand	2.58	6.2 <sup>a)</sup>	20°C; 40% MWHC	SFO	28.5	G	<i>k</i>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	0.061
Laacherhof	Silt loam	0.9	7.3 <sup>a)</sup>	20°C; 40% MWHC	SFO	14.4	G	<i>k</i>	4.86 E-3	142.68	472.32	0.096
Höfchen im Tal	Silt loam	2.40	5.8 <sup>a)</sup>	20°C; 40% MWHC	SFO	17.3	G	<i>k</i>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	n. d. <sup>3)</sup>	0.052
Laacherhof AXXa	Loamy sand	1.7	6.2 <sup>b)</sup>	19.6°C; 55% MWHC	SFO	3.37	G	<i>k</i>	1.66 E-2	41.85	139.00	n. a. <sup>4)</sup>
Dollendorf II	Loam	4.6	7.0 <sup>b)</sup>	19.6°C; 55% MWHC	SFO	3.04	G	<i>k</i>	3.07 E-2	22.60	75.09	n. a. <sup>4)</sup>
Hoefchen Am Hohensch 4a;	Silt loam	2.0	6.1 <sup>b)</sup>	19.6°C; 55% MWHC	SFO	3.58	G	<i>k</i>	1.63 E-2	42.52	141.23	n. a. <sup>4)</sup>
Wurm-wiese	Sandy loam	1.8	5.0 <sup>b)</sup>	19.6°C; 55% MWHC	SFO	3.32	G	<i>k</i>	7.43 E-3	93.25	309.74	n. a. <sup>4)</sup>
Hanscheider Hof	Loam	2.8	5.6 <sup>b)</sup>	19.9°C; 55% MWHC	SFO	2.11	G	<i>k</i>	8.48 E-3	81.70	271.40	n. a. <sup>4)</sup>
Frankenforst	Silt loam	1.8	6.8 <sup>b)</sup>	19.9°C; 55% MWHC	SFO	2.88	G	<i>k</i>	1.09 E-2	63.34	210.40	n. a. <sup>4)</sup>
LUFA 2.3	Sandy loam	1.1	6.8 <sup>b)</sup>	19.9°C; 55% MWHC	SFO	2.10	G	<i>k</i>	4.77 E-3	145.31	482.72	n. a. <sup>4)</sup>
LUFA 6S	Clay	1.9	7.0 <sup>b)</sup>	19.9°C; 55% MWHC	SFO	1.70	G	<i>k</i>	4.99 E-3	138.83	461.19	n. a. <sup>4)</sup>
Geometric mean (n = 9)									9.55 E-3	72.57	240.99	----
Median (n = 9)									8.48 E-3	81.70	271.40	----
Arithmetic mean for <i>ff</i> (n = 3)												0.070

**Footnotes to the table:**

- 1) Measured in:  
- CaCl<sub>2</sub>/water for values marked a);  
- (0.01M) CaCl<sub>2</sub> for results marked b);
- 2) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 3) Value not determined – the decline phase not reached;
- 4) Value not available – the test compound applied as parent.

For GW and SW model exposure assessment the **median DT<sub>50</sub> = 81.70 days** and **median *k* = 0.00848 [days<sup>-1</sup>]** are the kinetic endpoints recommended as input parameters. The corresponding recommended *ff* value is ***ff* = 0.070** (arithmetic mean) for Flufenacet as a precursor.

e) Kinetic endpoints determined for FOE Thiadone:

The degradation kinetics of FOE Thiadone in aerobic soil was examined in eight trials using the equal number of the test soils. The experiments were performed in two variants – five trials with soils treated with Flufenacet (active substance) and the remaining eight trials with soils treated with FOE Methylsulfone.

The performed kinetic analysis resulted in a data base consisting of eight reliable kinetic endpoints, four with soil treated with Flufenacet as a precursor of FOE Thiadone and three with soils treated with FOE Thiadone. In case of one trial on soil treated with Flufenacet – Howe, Indiana Sandy loam soil, it was not possible to obtain reliable fit for FOE Thiadone in combination with the parent compound. Such fit however was obtained when the data were kinetically analysed for FOE Thiadone alone using the top-down approach. That solution however implied that no reliable value for kinetic formation fraction in that trial could be obtained and reported. RMS decided not to report the default value *ff* = 1.00, proposed by the Applicant. The persistence (best-fit) kinetic endpoints obtained for FOE Thiadone are presented below in the table B.8.1.1.\_CP-16. The modelling endpoints are given in the table B.8.1.1.\_CP-17.

**Table B.8.1.1.\_CP-16:** The persistence kinetic endpoints determined for FOE Thiadone in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH			$\chi^2$ error	Vis. fit <sup>1)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction ff
Hoefchen Am Hohenseh 4a;	Silt loam	2.5	6.7 <sup>2)</sup>	19.1°C; 55% MWHC	SFO	16.42	G	k	0.6110	1.13	3.77	0.913
Laacherhof AXXa;	Loamy sand	2.4	6.1 <sup>2)</sup>	19.9°C; 55% MWHC	SFO	15.65	G	k	0.5087	1.36	4.53	0.524
Dollendorf II;	Clay loam	5.3	7.2 <sup>2)</sup>	19.9°C; 55% MWHC	SFO	16.36	G	k	0.2438	2.84	9.45	0.438
Laacherhof Wurm-wiese;	Loam	2.2	5.4 <sup>2)</sup>	19.9°C; 55% MWHC	SFO	14.73	G	k	0.3490	1.99	6.60	0.404
Howe, Indiana;	Sandy loam	0.35	6.2 <sup>3)</sup>	21°C; 75% of 1/3 bar	SFO	4.95	G	k	0.0435	<b>15.9</b>	52.9	n. d. <sup>5)</sup>
Iowa	Loamy sand	1.91	7.2 <sup>4)</sup>	20°C; 75% of 1/3 bar	SFO	6.72	A	k	0.3494	1.98	6.59	n. d. <sup>6)</sup>
Indiana	Sandy loam	1.28	6.5 <sup>4)</sup>	20°C; 75% of 1/3 bar	SFO	5.67	A	k	0.4945	1.40	4.66	n. d. <sup>6)</sup>
Nebraska	Silt loam	1.66	7.7 <sup>4)</sup>	20°C; 75% of 1/3 bar	SFO	3.71	A	k	0.2363	2.93	9.74	n. d. <sup>6)</sup>
Arithmetic mean for ff (n = 3)												<b>0.570</b>

**Footnotes to the table:**

- 1) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 2) Measured in 0.01M CaCl<sub>2</sub>;
- 3) Measured in distilled water;
- 4) Medium for measuring pH not given;
- 5) Value not available – kinetic endpoints determined using the top-down approach;
- 6) Value not available – the test compound applied as parent.

The DT<sub>50</sub> = **15.9 days** value, determined in Howe, Indiana Sandy loam soil was identified as appropriate input parameter for soil exposure assessment.

**Table 2.8.1.-17:** The modelling kinetic endpoints determined for FOE Thiadone in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH			$\chi^2$ error	Vis. fit <sup>1)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction ff
Hoefchen Am Hohenseh 4a;	Silt loam	2.5	6.7 <sup>2)</sup>	19.1°C; 55% MWHC	SFO	16.42	G	k	0.6301	1.10	3.66	0.913
Laacherhof AXXa;	Loamy sand	2.4	6.1 <sup>2)</sup>	19.9°C; 55% MWHC	SFO	15.65	G	k	0.5212	1.33	4.44	0.524
Dollendorf II;	Clay loam	5.3	7.2 <sup>2)</sup>	19.9°C; 55% MWHC	SFO	16.36	G	k	0.2567	2.70	8.98	0.438
Laacherhof Wurm-wiese;	Loam	2.2	5.4 <sup>2)</sup>	19.9°C; 55% MWHC	SFO	14.73	G	k	0.3555	1.95	6.47	0.404
Howe, Indiana;	Sandy loam	0.35	6.2 <sup>3)</sup>	21°C; 75% of 1/3 bar	SFO	4.95	G	k	0.0672	10.32	34.33	n. d. <sup>5)</sup>
Iowa	Loamy sand	1.91	7.2 <sup>4)</sup>	20°C; 75% of 1/3 bar	SFO	6.72	A	k	0.5458	1.27	4.22	n. d. <sup>6)</sup>
Indiana	Sandy loam	1.28	6.5 <sup>4)</sup>	20°C; 75% of 1/3 bar	SFO	5.67	A	k	0.7702	0.90	2.98	n. d. <sup>6)</sup>
Nebraska	Silt loam	1.66	7.7 <sup>4)</sup>	20°C; 75% of 1/3 bar	SFO	3.71	A	k	0.3027	2.29	7.60	n. d. <sup>6)</sup>
Geometric mean (n = 8)									<b>0.3557</b>	<b>1.95</b>	<b>6.48</b>	----
Median (n = 8)									<b>0.4384</b>	<b>1.64</b>	<b>5.46</b>	----
Arithmetic mean for ff (n = 3)												<b>0.570</b>

**Footnotes to the table:**

- 1) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 2) Measured in 0.01M CaCl<sub>2</sub>;
- 3) Measured in distilled water;
- 4) Medium for measuring pH not given;
- 5) Value not available – kinetic endpoints determined using the top-down approach;
- 6) Value not available – the test compound applied as parent.

For GW and SW model exposure assessment the **geomean DT<sub>50</sub> = 1.95 days** and **geomean k = 0.3557 [days<sup>-1</sup>]** are the kinetic endpoints recommended as input parameters. The corresponding recommended *ff* value is ***ff* = 0.570** (arithmetic mean) for Flufenacet as a precursor.

f) Kinetic endpoints determined for FOE 5043-Trifluoroethanesulfonic acid (TFESA):

The degradation kinetics of FOE 5043-Trifluoroethanesulfonic acid (TFESA) in aerobic soil was examined in four trials using the equal number of the test soils. The experiments were performed with soils treated with Flufenacet (active substance).

The performed kinetic analysis resulted in a data base consisting of four reliable kinetic endpoints. In case of two trials – on the Dollendorf II Clay loam soil and Laacherhof Wurmwielse Loam soil it was not possible to obtain reliable kinetic fits for the whole transformation scheme, therefore the top-down approach was used. RMS however decided to keep the determined values of kinetic formation fraction *ff*. The persistence (best-fit) kinetic endpoints obtained for FOE 5043-Trifluoroethanesulfonic acid (TFESA) are presented below in the table B.8.1.1.\_CP-18. The modelling endpoints are given in the table B.8.1.1.\_CP-19.

**Table B.8.1.1.\_CP-18:** The persistence kinetic endpoints determined for FOE 5043-Trifluoroethanesulfonic acid in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>2)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction <i>ff</i>
Hoefchen Am Hohenseh 4a;	Silt loam	2.5	6.7	19.1°C; 55% MWHC	SFO	5.85	G	k	0.0761	9.10	30.23	0.264
Laacherhof AXXa;	Loamy sand	2.4	6.1	19.9°C; 55% MWHC	SFO	18.25	G	k	0.1548	4.48	14.87	0.534
Dollendorf II;	Clay loam	5.3	7.2	19.9°C; 55% MWHC	SFO	4.31	G	k	0.0331	<b>20.9</b>	69.5	0.422
Laacherhof Wurm-wiese;	Loam	2.2	5.4	19.9°C; 55% MWHC	SFO	12.3	G	k	0.3090	2.24	7.45	0.655
Arithmetic mean for <i>ff</i> (n = 3)												<b>0.469</b>

**Footnotes to the table:**

- 1) Measured in 0.01M CaCl<sub>2</sub>;
- 2) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;

The **DT<sub>50</sub> = 20.9 days** value, determined in Dollendorf II Clay loam soil was identified as appropriate input parameter for soil exposure assessment.

**Table B.8.1.1.\_CP-19:** The modelling kinetic endpoints determined for FOE 5043-Trifluoroethanesulfonic acid in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>2)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction ff
Hoefchen Am Hohenseh 4a;	Silt loam	2.5	6.7	19.1°C; 55% MWHC	SFO	5.85	G	k	0.0785	8.83	29.32	0.264
Laacherhof AXXa;	Loamy sand	2.4	6.1	19.9°C; 55% MWHC	SFO	18.25	G	k	0.1579	4.39	14.57	0.534
Dollendorf II;	Clay loam	5.3	7.2	19.9°C; 55% MWHC	SFO	4.31	G	k	0.0349	19.87	66.01	0.422
Laacherhof Wurm-wiese;	Loam	2.2	5.4	19.9°C; 55% MWHC	SFO	12.3	G	k	0.3165	2.19	7.30	0.655
Geometric mean (n = 4)									0.1082	6.41	21.30	----
									Arithmetic mean for ff (n = 3)		0.469	

**Footnotes to the table:**

- 1) Measured in 0.01M CaCl<sub>2</sub>;  
 2) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;

For GW and SW model exposure assessment the **geomean DT<sub>50</sub> = 6.41 days** and **geomean k = 0.1082 [days<sup>-1</sup>]** are the kinetic endpoints recommended as input parameters. The corresponding recommended **ff** value is **ff = 0.469** (arithmetic mean) for FOE Thiadone as a precursor.

g) Kinetic endpoints determined for Trifluoroacetic acid (TFA):

The degradation kinetics of Trifluoroacetic acid (TFA) in aerobic soil was examined in eight trials using the equal number of the test soils. The experiments were performed in two variants – four trials with soils treated with Flufenacet (active substance) and the remaining four trials with soils treated with TFA.

Due to the high persistence of the test compound – TFA, in none of the test soils it was possible to obtain the reliable kinetic endpoints. For that reason the default values were proposed.

Due to the difference between the modelling tools, for the persistence endpoints two sets of the default values were provided. For trials on test soils treated with Flufenacet as precursor of TFA, where the analysis performed by the Applicant was accepted, the default kinetic endpoints were: **DT<sub>50</sub> = 1000 days** and **DT<sub>90</sub> > 1000 days**. In case however of the trials with TFA applied as parent compound, for which RMS had to repeat the kinetic analysis, the kinetic endpoints were: **DT<sub>50</sub> = 10000 days** and **DT<sub>90</sub> > 10000 days** – the values returned by the applied tool. RMS considers these defaults to be representative for the persistence of TFA in soil, as that indicated the results of the examination of the fate of TFA in environment presented in the open-source literature.

However for modelling the recommended input value is **DT<sub>50</sub> = 1000 days**, because of the constraints of the current modelling tools. It shall be noted that due to the nature of the determined endpoint – a default value, its normalisation was not performed as not necessary.

For TFA a set for two kinetic formation fraction values were determined – one for formation of TFA from Flufenacet and the second for its formation from FOE Thiadone.

The persistence (best-fit) kinetic endpoints obtained for TFA are presented below in the table B.8.1.1.\_CP-20. The modelling endpoints are given in the table B.8.1.1.\_CP-21.

**Table B.8.1.1.\_CP-20:** The persistence kinetic endpoints determined for Trifluoroacetic acid (TFA) in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>1)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction $ff^{2)}$
<i>Hoefchen Am Hohenseh 4a;</i>	Silt loam	2.5	6.7	19.1°C; 55% MWHC	SFO	10.49	G	<i>k</i>	n. d. <sup>3)</sup>	1000	>1000	$ff_1 = 0.087$ $ff_2 = 0.736$
<i>Laacherhof AXx;</i>	Loamy sand	2.4	6.1	19.9°C; 55% MWHC	SFO	10.34	G	<i>k</i>	n. d. <sup>3)</sup>	1000	>1000	$ff_1 = 0.476$ $ff_2 = 0.466$
<i>Dollendorf II;</i>	Clay loam	5.3	7.2	19.9°C; 55% MWHC	SFO	9.45	G	<i>k</i>	n. d. <sup>3)</sup>	1000	>1000	$ff_1 = 0.562$ $ff_2 = 0.578$
<i>Laacherhof Wurm-wiese;</i>	Loam	2.2	5.4	19.9°C; 55% MWHC	SFO	9.44	G	<i>k</i>	n. d. <sup>3)</sup>	1000	>1000	$ff_1 = 0.596$ $ff_2 = 0.345$
<i>Hanscheider Hof</i>	Loam	2.8	5.6	19.9°C; 55% MWHC	SFO	4.95	G	<i>k</i>	n. d. <sup>3)</sup>	10000	>10000	n. d. <sup>3)</sup>
<i>Frankenforst</i>	Silt loam	1.8	6.8	19.9°C; 55% MWHC	SFO	6.72	A	<i>k</i>	n. d. <sup>3)</sup>	10000	>10000	n. d. <sup>3)</sup>
<i>LUFA 2.3</i>	Sandy loam	1.1	6.8	19.9°C; 55% MWHC	SFO	5.67	A	<i>k</i>	n. d. <sup>3)</sup>	10000	>10000	n. d. <sup>3)</sup>
<i>LUFA 6S</i>	Clay	1.9	7.0	19.9°C; 55% MWHC	SFO	3.71	A	<i>k</i>	n. d. <sup>3)</sup>	10000	>10000	n. d. <sup>3)</sup>
Arithmetic mean for $ff$ (n = 4)												$ff_1 = 0.430$ $ff_2 = 0.531$

**Footnotes to the table:**

- 1) Measured in 0.01M CaCl<sub>2</sub>;
- 2) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 3) n. d. – not determined
- 4)  $ff_1$  – kinetic formation fraction for formation of TFA from Flufenacet;  $ff_2$  – kinetic formation fraction for formation of TFA from FOE Thiadone.

The default **DT<sub>50</sub> = 10000 days** value was identified as appropriate input parameter for soil exposure assessment.

**Table B.8.1.1\_CP-21:** The modelling kinetic endpoints determined for Trifluoroacetic acid (TFA) in aerobic soil.

Soil		Soil properties		Incubation conditions	Kinetic model	Evaluation of the fit		Kinetic parameters		Kinetic endpoints		
Soil name	Soil type (USDA)	OC	pH <sup>1)</sup>			$\chi^2$ error	Vis. fit <sup>1)</sup>	Par.	Value	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]	Kinetic formation fraction $ff^{2)}$
Hoefchen Am Hohenseh 4a;	Silt loam	2.5	6.7	19.1°C; 55% MWHC	SFO	10.49	G	k	n. d. <sup>3)</sup>	1000	>1000	$ff_1 = 0.087$ $ff_2 = 0.736$
Laacherhof AXXa;	Loamy sand	2.4	6.1	19.9°C; 55% MWHC	SFO	10.34	G	k	n. d. <sup>3)</sup>	1000	>1000	$ff_1 = 0.476$ $ff_2 = 0.466$
Dollendorf II;	Clay loam	5.3	7.2	19.9°C; 55% MWHC	SFO	9.45	G	k	n. d. <sup>3)</sup>	1000	>1000	$ff_1 = 0.562$ $ff_2 = 0.578$
Laacherhof Wurm-wiese;	Loam	2.2	5.4	19.9°C; 55% MWHC	SFO	9.44	G	k	n. d. <sup>3)</sup>	1000	>1000	$ff_1 = 0.596$ $ff_2 = 0.345$
Hanscheider Hof	Loam	2.8	5.6	19.9°C; 55% MWHC	SFO	4.95	G	k	n. d. <sup>3)</sup>	1000	>1000	n. d. <sup>3)</sup>
Frankenforst	Silt loam	1.8	6.8	19.9°C; 55% MWHC	SFO	6.72	A	k	n. d. <sup>3)</sup>	1000	>1000	n. d. <sup>3)</sup>
LUFA 2.3	Sandy loam	1.1	6.8	19.9°C; 55% MWHC	SFO	5.67	A	k	n. d. <sup>3)</sup>	1000	>1000	n. d. <sup>3)</sup>
LUFA 6S	Clay	1.9	7.0	19.9°C; 55% MWHC	SFO	3.71	A	k	n. d. <sup>3)</sup>	1000	>1000	n. d. <sup>3)</sup>
Geometric mean (n = 8)										1000	>1000	----
Arithmetic mean for $ff$ (n = 4)												$ff_1 = 0.430$ $ff_2 = 0.531$

**Footnotes to the table:**

- 1) Measured in 0.01M CaCl<sub>2</sub>;
- 2) The abbreviations used to describe the visual fit: G. – good, A. – acceptable, P. – poor;
- 3) n. d. – not determined
- 4)  $ff_1$  – kinetic formation fraction for formation of TFA from Flufenacet;  $ff_2$  – kinetic formation fraction for formation of TFA from FOE Thiadone.

For GW and SW model exposure assessment the default **DT<sub>50</sub> = 1000 days** is a kinetic endpoint recommended as input parameter. The corresponding recommended  $ff$  values are  $ff_1 = 0.430$  (arithmetic mean) for Flufenacet as a precursor and  $ff_2 = 0.531$  (arithmetic mean) for FOE Thiadone as a precursor.

The kinetic endpoints identified by RMS as appropriate to be used in model exposure assessment for soil, groundwater and surface water compartments are summarised below in the table B.8.1.1\_CP-22. For completeness also the maximum concentrations observed in soils are provided.

**Table B.8.1.1\_CP-22:** The kinetic endpoints determined in laboratory studies on aerobic soils, recommended to be used in model exposure assessment for soil, groundwater and surface water compartments.

Compound	Compartment	Recommended endpoints					
		Maximum observed in soil		Kinetic formation fraction - ff		Persistence in soil – DT <sub>50</sub> value	
		Observed soil maximum [%]	Remark	ff	Remark	DT <sub>50</sub> [days]	Remark
Flufenacet	Soil	Not applicable	Not applicable – parent compound	----	Not applicable – parent compound	57.6	Longest not normalised lab value
	Groundwater			----		17.89	Normalised lab geomean value
	Surface Water			----		17.89	Normalised lab geomean value
FOE Sulfonic acid	Soil	26.5	Recommended for simple modelling <sup>1)</sup>	0.195	Precursor: flufenacet; to be used in complex modelling <sup>2)</sup>	318	Longest not normalised lab value
	Groundwater	----	Not applicable	0.195	Precursor: flufenacet;	45.11	Normalised lab geomean value
	Surface Water	26.5	To be used in calculations at Steps 1 and 2	0.195	Precursor: flufenacet; to be used in Step 3-4 assessment	45.11	Normalised lab geomean value
FOE Oxalate	Soil	26.3	Recommended for simple modelling <sup>1)</sup>	0.426	Precursor: flufenacet; to be used in complex modelling <sup>2)</sup>	18.9	Longest not normalised lab value
	Groundwater	----	Not applicable	0.426	Precursor: flufenacet;	11.08	Normalised lab geomean value
	Surface Water	26.3	To be used in calculations at Steps 1 and 2	0.426	Precursor: flufenacet; to be used in Step 3-4 assessment	11.08	Normalised lab geomean value
FOE Methylsulfone	Soil	6.6	Recommended for simple modelling <sup>1)</sup>	0.070	Precursor: flufenacet; to be used in complex modelling <sup>2)</sup>	174	Longest not normalised lab value
	Groundwater	----	Not applicable	0.070	Precursor: flufenacet;	81.70	Normalised lab median value
	Surface Water	6.6	To be used in calculations at Steps 1 and 2	0.070	Precursor: flufenacet; to be used in Step 3-4 assessment	81.70	Normalised lab median value
FOE Thiadone	Soil	5.8	Recommended for simple modelling <sup>1)</sup>	0.570	Precursor: flufenacet; to be used in complex modelling <sup>2)</sup>	15.9	Longest not normalised lab value
	Groundwater	----	Not applicable	0.570	Precursor: flufenacet;	1.95	Normalised lab geomean value
	Surface Water	5.8	To be used in calculations at Steps 1 and 2	0.570	Precursor: flufenacet; to be used in Step 3-4 assessment	1.95	Normalised lab geomean value
FOE 5043-Trifluoroethane-sulfonic acid	Soil	6.0	Recommended for simple modelling <sup>1)</sup>	0.469	Precursor: Thiadone; to be used in complex modelling <sup>2)</sup>	20.9	Longest not normalised lab value
	Groundwater	----	Not applicable	0.469	Precursor: Thiadone;	6.41	Normalised lab geomean value
	Surface Water	6.0	To be used in calculations at Steps 1 and 2	0.469	Precursor: Thiadone; to be used in Step 3-4 assessment	6.41	Normalised lab geomean value
Trifluoroacetic acid (TFA)	Soil	81.5	Recommended for simple modelling <sup>1)</sup>	0.430	Precursor: flufenacet; to be used in complex modelling <sup>2)</sup>	10000	Longest lab value (default)
				0.531	Precursor: Thiadone; to be used in complex modelling <sup>2)</sup>		
	Groundwater	----	Not applicable	0.430	Precursor: flufenacet;	1000	FOCUS default for non-degrading compounds
				0.531	Precursor: Thiadone;		
	Surface Water	81.5	To be used in calculations at Steps 1 and 2	0.430	Precursor: flufenacet; to be used in Step 3-4 assessment	1000	FOCUS default for non-degrading compounds
				0.531	Precursor: Thiadone; to be used in Step 3-4 assessment		

**Footnotes to the table:**

- 1) By the term “simple modelling” are understood calculations performed using simple models with metabolites applied as parent;
- 2) The term “complex models” concerns calculations performed using more sophisticated tools, e.g. ESCAPE, in which metabolites are calculated as formed from their precursor (parent compound or preceding degradation product).

Additionally the results of the determination of the rate of degradation of Flufenacet in aerobic soils incubated under controlled (laboratory) conditions were provided by two literature studies. The key results of these two studies are provided below in the table B.8.1.1.\_CP-23. These results shall be considered indicative and for that reason were not used to derive the regulatory endpoints.

**Table B.8.1.1.\_CP-23:** The key results of the relevant publications examining the rate of degradation of Flufenacet in aerobic soils.

Study	Test soil	Key soil properties			Incubation conditions		Fortification level [µg a. s./g soil]	Kinetic endpoints – DT <sub>50</sub> [days]		Method of calculation
		Soil type (USDA)	pH	OC [%]	T [°C]	Soil moisture		T=25°C; FC	T=20°C; FC	
<i>Gupta, Gajbhiye, Agnihotri [2001]</i>	Sandy loam	Sandy loam	7.1	0.34	25	FC	1	9.3	13.4	1 <sup>st</sup> order, linear regression, r =0.99
							10	13.0	20.4	1 <sup>st</sup> order, linear regression, r =0.99
<i>Gupta, Gajbhiye, [2002]</i>	Dehli sandy loam	US Loamy sand	7.69	0.50	25	FC	1	10.1	15.8	1 <sup>st</sup> order, linear regression, r =0.99
							10	13.0	20.4	1 <sup>st</sup> order, linear regression, r =0.99
	Ranchi sandy loam	US Sandy clay loam	5.54	0.04	25	FC	1	10.5	16.5	1 <sup>st</sup> order, linear regression, r =0.99
							10	21.3	33.4	1 <sup>st</sup> order, linear regression, r =0.99
	Nagpur clayey soil	US Clay	8.25	0.40	25	FC	1	31.0	48.6	1 <sup>st</sup> order, linear regression, r =0.99
							10	29.2	45.8	1 <sup>st</sup> order, linear regression, r =0.94

The determination of the kinetic parameters of the process of degradation of Flufenacet in anaerobic soil was performed for the results obtained in two studies, on three soils using the test compound radiolabelled in two different positions:

- uniformly in phenyl ring (one test soil);
- in C5 position of thiadiazole moiety (two test soils).

The conclusions and key results are presented below, individually for each test soil.

- The conclusions and key results obtained for Sandy loam (Howe) soil treated with Phenyl-U-<sup>14</sup>C] Flufenacet (study by [Pangilinan and Smith; 1995]):

The kinetic analysis of the data for Flufenacet and its major degradation products – FOE Oxalate and FOE Sulfonic acid, obtained for Sandy loam (Howe) soil incubated under anaerobic conditions demonstrated that:

- The degradation of Flufenacet in that soil was most adequately described by DFOP kinetic model. Therefore that model should be considered as providing the kinetic endpoints describing the persistence of Flufenacet in anaerobic sandy loam soil;
- DFOP kinetic model – its slow phase, should be also considered as providing the kinetic endpoints appropriate for modelling. That conclusion is drawn by the RMS and is different from the Applicant's proposal – to consider the SFO kinetic model as a source of the kinetic endpoints appropriate for modelling. That conclusion is based on the fact that DFOP fit was superior to SFO both when the fitting was performed for the parent compound alone and for the parent and degradation products.
- It was not possible to obtain the reliable kinetic fit for either of the degradation products – FOE Oxalate and FOE Sulfonic acid kinetically examined together with parent. Slightly better results were obtained when the data for these two compounds were fitted alone using the top-down approach. In both cases SFO was identified as returning visually and statistically reliable fits with reliable parameters. RMS however is of the opinion that the kinetic endpoints derived from those fits should be considered indicative with regard to the persistence of both compounds in anaerobic sandy loam soil and cannot be further used to derive any modelling endpoints. It shall be also noted that it was not possible to derive reliable kinetic formation fractions for either FOE Oxalate or FOE Sulfonic acid.

The proposed set of the kinetic endpoints derived from that study is following:

- Flufenacet, persistence endpoints:  $DT_{50} = 229.63$  days,  $DT_{90} = 895.64$  days, DFOP model ( $k_1 = 0.9976$  days<sup>-1</sup>,  $k_2 = 2.416 \text{ E-}3$  days<sup>-1</sup>,  $g = 0.1291$ );
  - Flufenacet, modelling endpoints not normalised:  $k = 2.416 \text{ E-}3$  [days<sup>-1</sup>],  $DT_{50} = 286.90$  days,  $DT_{90} = 953.06$  days, SFO (slow phase DFOP);
  - Flufenacet, modelling endpoints normalized for temperature:  $k = 2.205 \text{ E-}3$  [days<sup>-1</sup>],  $DT_{50} = 314.35$  days,  $DT_{90} = 1044.26$  days, SFO (slow phase DFOP);
  - FOE Oxalate, persistence endpoints (indicative):  $DT_{50} = 311$  days,  $DT_{90} = 1030$  days, SFO model – top-down approach ( $k = 0.002233$  days<sup>-1</sup>);
  - FOE Sulfonic acid, persistence endpoints (indicative):  $DT_{50} = 352$  days,  $DT_{90} = 1170$  days, SFO model – top-down approach ( $k_1 = 0.001986$  days<sup>-1</sup>).
- The conclusions and key results obtained for Silt loam (Hoefchen am Hohenseh 4a) soil treated with [Thiadiazole-5-<sup>14</sup>C]Flufenacet (study by [Heinemann; 2012]):

The kinetic analysis of the data for Flufenacet and its major degradation products – FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid, obtained for Silt loam (Hoefchen am Hohenseh 4 a) soil incubated under anaerobic conditions demonstrated that:

- The degradation of Flufenacet in that soil was most adequately described by DFOP kinetic model. Therefore that model should be considered as providing the kinetic endpoints describing the persistence of Flufenacet in anaerobic Silt loam soil;
- DFOP kinetic model – its slow phase, should be also considered as providing the kinetic endpoints appropriate for modelling.
- It was possible to obtain reliable kinetic fit and kinetic endpoints for FOE Thiadone;
- Although it was possible to obtain reliable kinetic fit for Trifluoroacetic acid, the reliable kinetic parameters describing degradation of that compound could not be derived due to the fact that the decline phase was not reached. Therefore RMS proposed to use the default  $DT_{50}$  and  $DT_{90}$  values instead of those calculated by the model;
- It was not possible to obtain the reliable kinetic fit for FOE 5043-Trifluoroethanesulfonic acid, therefore for that compound no reliable kinetic endpoints are available. RMS attributed that to the low

concentrations of the compound recorded in the test system and their significant scattering, what may indicate that the compound of concern is transient and rapidly degrades in anaerobic silt loam soil.

The proposed set of the kinetic endpoints derived from that study is following:

- Flufenacet, persistence endpoints:  $DT_{50} = 22.66$  days,  $DT_{90} = 156.90$  days, DFOP model ( $k_1 = 0.1214$  days<sup>-1</sup>,  $k_2 = 0.01162$  days<sup>-1</sup>,  $g = 0.3810$ );
  - Flufenacet, modelling endpoints:  $k = 0.01162$  [days<sup>-1</sup>],  $DT_{50} = 59.65$  days,  $DT_{90} = 198.16$  days, SFO (slow phase DFOP), normalisation was not required as the experiment was carried out at  $T = 20^{\circ}\text{C}$  and the correction for soil moisture was not necessary (soil was permanently flooded);
  - FOE Thiadone, persistence and modelling endpoints:  $DT_{50} = 97.04$  days,  $DT_{90} = 322.30$  days,  $ff = 0.425$  (from parent compound), SFO model ( $k = 0.0071$  days<sup>-1</sup>);
  - Trifluoroacetic acid persistence endpoints (indicative):  $DT_{50} = 1000$  days,  $DT_{90} > 1000$  days,  $ff = 0.575$  (from parent compound), SFO model;
  - FOE 5043-Trifluoroethanesulfonic acid: it was not possible to derive reliable kinetic endpoints.
- The conclusions and key results obtained for Loam (Dollendorf II) soil treated with [Thiadiazole-5-<sup>14</sup>C] Flufenacet (study by [Heinemann; 2012]):

The kinetic analysis of the data for Flufenacet and its major degradation products – FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid, obtained for Loam (Dollendorf II) soil incubated under anaerobic conditions demonstrated that:

- The degradation of Flufenacet in that soil was most adequately described by DFOP kinetic model. Therefore that model should be considered as providing the kinetic endpoints describing the persistence of Flufenacet in anaerobic Silt loam soil;
- DFOP kinetic model – its slow phase, should be also considered as providing the kinetic endpoints appropriate for modelling.
- It was possible to obtain reliable kinetic fit and kinetic endpoints for FOE Thiadone;
- Although it was possible to obtain reliable kinetic fit for Trifluoroacetic acid, the reliable kinetic parameters describing degradation of that compound could not be derived due to the fact that the well pronounced decline phase was not reached. Therefore RMS proposed to use the default  $DT_{50}$  and  $DT_{90}$  values instead of those calculated by the model;
- It was not possible to obtain the reliable kinetic fit for FOE 5043-Trifluoroethanesulfonic acid, therefore for that compound no reliable kinetic endpoints are available. RMS attributed that to the low concentrations of the compound recorded in the test system and their significant scattering, what may indicate that the compound of concern is transient and rapidly degrades in anaerobic silt loam soil.

The proposed set of the kinetic endpoints derived from that study is following:

- Flufenacet, persistence endpoints:  $DT_{50} = 13.51$  days,  $DT_{90} = 110.02$  days, DFOP model ( $k_1 = 0.4756$  days<sup>-1</sup>,  $k_2 = 0.0167$  days<sup>-1</sup>,  $g = 0.3745$ );
- Flufenacet, modelling endpoints not normalised:  $k = 0.0167$  [days<sup>-1</sup>],  $DT_{50} = 41.51$  days,  $DT_{90} = 137.88$  days, SFO (slow phase DFOP), normalisation was not required as the experiment was carried out at  $T = 20^{\circ}\text{C}$  and the correction for soil moisture was not necessary (soil was permanently flooded);
- FOE Thiadone, persistence and modelling endpoints:  $DT_{50} = 97.04$  days,  $DT_{90} = 322.30$  days,  $ff = 0.425$  (from parent compound), SFO model ( $k = 0.0071$  days<sup>-1</sup>);
- Trifluoroacetic acid persistence endpoints (indicative):  $DT_{50} = 1000$  days,  $DT_{90} > 1000$  days,  $ff = 0.575$  (from parent compound), SFO model;
- FOE 5043-Trifluoroethanesulfonic acid: it was not possible to derive reliable kinetic endpoints.

Additionally the results of the determination of the rate of degradation of Flufenacet in anaerobic soils incubated under controlled (laboratory) conditions were provided by two literature studies, also providing the results for aerobic soils. Below, in the table B.8.1.1.\_CP-24 are given the key results obtained in these two studies. As already indicated, these results may be considered only as indicative and were not used to derive the regulatory endpoints.

**Table B.8.1.1\_CP-24:** The key results of the relevant publications examining the rate of degradation of Flufenacet in anaerobic (submerged) soils.

Study	Test soil	Key soil properties			Incubation conditions		Fortification level [µg a. s./g soil]	Kinetic endpoints – DT <sub>50</sub> [days]		Method of calculation
		Soil type (USDA)	pH	OC [%]	T [°C]	Soil moisture		T=25°C; FC	T=20°C; FC	
<i>Gupta, Gajbhiye, Agnihotri [2001]</i>	Sandy loam	Sandy loam	7.1	0.34	25	FC	10	22.5	35.3	1 <sup>st</sup> order, linear regression, r =0.99
<i>Gupta, Gajbhiye, [2002]</i>	Dehli sandy loam	US Loamy sand	7.69	0.50	25	FC	10	22.3	35.0	1 <sup>st</sup> order, linear regression, r =0.99
	Ranchi sandy loam	US Sandy clay loam	5.54	0.04	25	FC	10	24.1	37.8	1 <sup>st</sup> order, linear regression, r =0.99
	Nagpur clayey soil	US Clay	8.25	0.40	25	FC	10	30.1	47.2	1 <sup>st</sup> order, linear regression, r =0.93

The photolysis of Flufenacet on the soil surface was examined in one experiment using one soil. Its results were kinetically examined, in line with the recommendations given by FOCUS [2006], by the RMS. The final set of the kinetic endpoints obtained for Flufenacet as a result of that examination is presented below in the table B.8.1.1\_CP-25.

**Table B.8.1.1\_CP-25:** The definitive set of the kinetic endpoints obtained for Flufenacet in the study examining soil photolysis of that compound.

Determined parameter	Results obtained for:		
	Dark control samples	Irradiated samples	
		Values not corrected (Suntest days)	Values corrected for summer sunlight intensity (Natural sunlight days) <sup>1)</sup>
<i>Rate constant k [days<sup>-1</sup>]</i>	0.0124	0.076	0.0026
<i>DT<sub>50</sub> [days]</i>	55.90	90.72	265.67
<i>DT<sub>90</sub> [days]</i>	185.68	301.36	882.55
<i>Kinetic model</i>	SFO	SFO	SFO

**Footnotes to the table:**

1) values calculated for conditions representative for summer sunny day in Phoenix, AZ, USA – longitude: 33° 27' N

On their basis it can be stated that Flufenacet is not expected to degrade in soil via its photolysis on the soil surface.

The conclusion drawn by the RMS from the study on the basis of the results presented above was following: “The results clearly demonstrate that the degradation of Flufenacet was slower in irradiated samples than in the dark control. On that basis it can be stated that Flufenacet is not prone to the photolysis on the soil surface, hence soil photolysis will not be a relevant mechanism of degradation of Flufenacet in soil.”.

None of the degradation products of Flufenacet requiring further assessment were formed in that study, so the kinetic analysis for them was not performed. However, for one the major soil degradation product of Flufenacet – FOE Thiadone the photodegradation of that compound on the soil surface was examined in a separate study. The results were kinetically examined by the RMS and the definitive data set is presented below in the table B.8.1.1\_CP-26.

**Table B.8.1.1.\_CP-26:** The definitive set of the kinetic endpoints obtained for FOE Thiadone in the study examining its photolysis on the soil surface.

Determined parameter	Results obtained for:	
	Dark control samples	Irradiated samples
Rate constant $k$ [days <sup>-1</sup> ]	0.1612	0.2120
DT <sub>50</sub> [days]	4.30	3.27
DT <sub>90</sub> [days]	14.29	10.86
Kinetic model	SFO	SFO

The results demonstrate that photolysis on the soil surface might contribute to degradation of FOE Thiadone in soil.

The net rate constant of the photolysis will be:

$$k_{\text{photolysis}} = k_{\text{irrad}} - k_{\text{dark control}} = 0.2120 - 0.1612 = 0.0508 \text{ [days}^{-1}\text{]}.$$

The resulting kinetic endpoints calculated using that value are: **DT<sub>50</sub> = 13.64 days** and **DT<sub>90</sub> = 45.33 days**.

At the same time it shall be pointed out however that the probability that that compound would be found on the soil surface in any substantial amounts is minimal. For that reason the process should be considered to have minimal relevance in the overall transformation of Flufenacet in soil.

The dissipation of Flufenacet in soil under field conditions was examined on sixteen trial sites located in the EU – in Germany, France (Northern and Southern) and Italy. The characteristic of the trial sites is presented below in the table B.8.1.1.\_CP-27. The next table – B.8.1.1.\_CP-28, provides the brief characteristic of the weather conditions recorded at each trial site during the experiment.

**Table B.8.1.1.\_CP-27:** The brief characteristic of field trials.

Study	Information on the trial site			Data on application		Data on crop cover		
	Trial number	Name of the trial site	Location - country	Application rate [g/ha]	Application date	Crop	Date of sowing	Sowing – days before application
[Sommer; 1995]	30159/0	Breitenfelde	Germany	480	15. 04. 1993	Bare soil	Not applicable	Not applicable
	30162/0	Kirchlauter	Germany	480	13. 04. 1993	Bare soil	Not applicable	Not applicable
	30163/9	Monheim	Germany	480	30. 04. 1993	Bare soil	Not applicable	Not applicable
	30164/7	Burscheid	Germany	480	22. 04. 1993	Bare soil	Not applicable	Not applicable
	30248/1	Fresne-L'Archeveque	France (North)	600	11. 05. 1993	Maize	04. 05. 1993	7
	30250/3	Fresne-L'Archeveque (I)	France (North)	600	27. 05. 1993	Maize	24. 05. 1993	3
	30251/1	Laudun	France (South)	600	18. 05. 1993	Sunflower	22. 04. 1993	26
	30253/8	St. Etienne du Gres	France (South)	600	17. 05. 1993	Sunflower	16. 05. 1993	1
[Sommer; 1995b]	30254/6	Saussay-la-Campagne	France (South)	240	11. 03. 1994	Winter wheat	14. 10. 1993	158
	30455/7	Fresne-L'Archeveque	France (North)	240	28. 04. 1994	Winter wheat	22. 10. 1993	169
[Sommer; 1995a]	30499/9	Burscheid	Germany	240	26. 10. 1993	Bare soil	Not applicable	Not applicable
	30500/6	Monheim	Germany	240	26. 10. 1993	Bare soil	Not applicable	Not applicable
[Sommer; 1995c]	40163/3	Laudun	France (South)	600	17. 05. 1994	Sunflower	04. 05. 1994	13
	40164/1	St. Etienne du Gres	France (South)	600	22. 04. 1994	Sunflower	16. 04. 1994	6
	40494/2	Ravenna	Italy	600	27. 04. 1994	Soybean	25. 04. 1994	2
	40495/0	S. Romualdo	Italy	600	27. 04. 1994	Soybean	26. 04. 1994	1

**Table B.8.1.1.\_CP-28:** The climatic conditions and weather data recorded at on each trial site.

Information on the trial:			Duration of the trial after application of the test compound [days]	Weather data			
Trial number	Trial site - name	Location - country		Source of the weather data	Mars grid cell	Experimental weather data collected at trial site	
						Cumulative rainfall [mm]	Mean temperature T [°C]
30159/0	Breitenfelde	Germany	240	German Weather Service, Lübeck	64060	592	11.0
30162/0	Kirchlauter	Germany	237	Weather station in 4 km from the trial site	56060	319	11.1
30163/9	Monheim	Germany	231	Trial Station Laacherhof	58055	653	12.1
30164/7	Burscheid	Germany	239	Trial Station Höfchen	58055	839	10.6
30248/1	Fresne-L'Archeveque	France (North)	303	Meteo France Station de Boos	55047	870	9.6
30250/3	Fresne-L'Archeveque	France (North)	297	Meteo France Station de Boos	55047	778	9.4
30251/1	Laudun	France (South)	255	Meteo France Station Chusclan	43051	683	15.2
30253/8	St. Etienne du Gres	France (South)	260	Meteo France Station Chateuaurenard	42051	670	14.8
30254/6	Saussay-la-Campagne	France (South)	242	Meteo France Station de Boos (76)	55047	598	12.7
30455/7	Fresne-L'Archeveque	France (North)	240	Meteo France Station de Boos (76)	55047	661	13.0
30499/9	Burscheid	Germany	234	Versuchsgut Höfchen, 41399 Burscheid	58055	695	6.3
30500/6	Monheim	Germany	240	Versuchsgut Laacherhof, 40789 Monheim	58055	815	6.3
40163/3	Laudun	France (South)	240	Meteo France	43051	658	16.8
40164/1	St. Etienne du Gres	France (South)	236	Meteo France	42051	640	18.7
40494/2	Ravenna	Italy	236	Ar. Sperim. M. Marani/Ravenna	44063	407	17.0
40495/0	S. Romualdo	Italy	236	Ar. Sperim. M. Marani/Ravenna	44063	407	17.0

The residues of Flufenacet on the trial sites were determined by sampling, at pre-defined intervals, soil cores down to 30-cm or 50-cm depth. The number of sampling points was, depending on the trial site, eight or nine. The soil cores were dissected into 10-cm layers and analysed for the content of Flufenacet and its three major soil degradates – FOE Alcohol, FOE Oxalate and FOE Sulfonic acid.

The performed analysis showed that FOE Alcohol was not formed on any trial site in detectable amounts >3 µg/kg soil (LOD). Other two degradation products were detectable and, on some trial sites even quantifiable (recorded in amounts > LOQ = 10 µg/kg soil), but in none of the trials were observed in amounts higher than 30 µg/kg soil. Neither Flufenacet nor any of its degradation products were detected in deeper soil layers – below 20 cm.

The obtained results were kinetically examined in line with the recommendations of the FOCUS Work Group on the Degradation Kinetics. The results of the determination of the persistence of Flufenacet and its two quantifiable degradation products – FOE Oxalate and FOE Sulfonic acid, are presented below in three separate tables – B.8.1.1.\_CP-29 (Flufenacet), B.8.1.1.\_CP-30 (FOE Oxalate) and B.8.1.1.\_CP-31 (FOE Sulfonic acid).

Table B.8.1.1.\_CP-29: The persistence kinetic endpoints determined for Flufenacet in field dissipation trials.

Data on the trial		Soil properties (0-30 cm layer)			Identified best-fit model	Kinetic parameter		Evaluation of the fit		Kinetic endpoints	
Trial code	Location; type of trial	Soil type (USDA classif.)	pH <sup>1)</sup>	OC [%]		par.	value	Visual fit <sup>2)</sup> / r <sup>3)</sup>	χ <sup>2</sup> % error	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]
30159/0	Breitenfelde, Germany; bare soil	Sandy loam	6.2	1.69	SFO	k	0.02092	A./0.9648	13.3	33.1	110.0
30162/0	Kirchlauter, Germany; bare soil	Heavy sandy loam <sup>4)</sup>	7.1	0.61	SFO	k	0.0131	G./0.988	6.43	52.9	176.0
30163/9	Monheim, Germany; bare soil	Sandy loam	6.7	1.45	SFO	k	0.0144	A./0.9275	16.1	48.2	160.0
30164/7	Burscheid, Germany; bare soil	Silt loam	6.5	0.97	SFO	k	0.04309	G./0.9915	6.83	16.1	53.4
30248/1	Fresne-L'Archeveque, North France; cropped soil	Silt loam	6.0	1.11	SFO	k	0.01827	A./0.9536	15.8	38.0	126.0
30250/3	Fresne-L'Archeveque1, North France; cropped soil	Silt loam	5.2	1.86	SFO	k	0.01352	A./0.9672	11.0	51.3	170.0
30251/1	Laudun, South France; cropped soil	Loam	7.6	0.62	SFO	k	0.02278	A./0.9804	10.2	30.4	101.0
30253/8	St. Etienne du Gres, South France; cropped soil	Loam	7.7	0.80	SFO	k	0.01687	G./0.9902	6.68	41.1	137.0
30499/9	Burscheid, Germany; bare soil	Silt loam	6.5	0.97	DFOP	k <sub>1</sub>	1.501	A./0.9674	7.11	31.5	140.0
						k <sub>2</sub>	0.01481				
						g	0.2025				
30500/6	Monheim, Germany; bare soil	Sandy loam	6.7	1.45	SFO	k	0.01017	G./0.991	5.1	68.1	226.0
30254/6	Sausay-la-Campagne, South France; cropped soil	Silt loam	7.4	0.92	FOMC	α	4.673	G./0.9993	2.79	14.2	56.7
						β	88.960				
30455/7	Fresne-L'Archeveque; North France; cropped soil	Silt loam	6.6	1.00	SFO	k	0.04024	G./0.9989	3.32	17.2	57.2
40163/3	Laudun, South France; cropped soil	Clay loam	7.7	1.28	SFO	k	0.01451	A./0.9774	9.86	49.0	163.0
40164/1	St. Etienne du Gres, South France; cropped soil	Silt loam	7.7	0.96	SFO	k	0.01442	A./0.9892	7.08	48.1	160.0
40494/2	Ravenna, Italy; cropped soil	Silt loam	7.8	0.98	SFO	k	0.02016	G./0.991	7.23	34.4	114.0
40495/0	S. Romualdo, Italy; cropped soil	Silty loam	7.8	1.11	SFO	k	0.01368	G./0.9884	6.58	50.7	168.0

## Footnotes to the table:

- 1) Determined in 0.01M CaCl<sub>2</sub>;
- 2) Following abbreviations were used: P – Poor; A – Acceptable; G – Good;
- 3) r = correlation coefficient;
- 4) The DIN 19682 classification presented because the USDA classification not provided; in another report it was stated to be Sandy loam (USDA) containing 58.5% sand, 22.7% silt and 18.8% clay.

**Table B.8.1.1.\_CP-30:** The reliable persistence kinetic endpoints determined for FOE Oxalate in field dissipation trials.

Data on the trial		Soil properties (0-30 cm layer)			Identified best-fit model	Kinetic parameter		Evaluation of the fit		Kinetic endpoints	
Trial code	Location; type of trial	Soil type (USDA classif.)	pH <sup>1)</sup>	OC [%]		par.	value	Visual fit <sup>2)/ r<sup>3)</sup></sup>	$\chi^2$ % error	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]
30250/3	Fresne-L'Archeveque1, North France; cropped soil	Silt loam	5.2	1.86	SFO	k	0.01091	G./0.9895	4.53	68.0	226.0

**Footnotes to the table:**

- 1) Determined in 0.01M CaCl<sub>2</sub>;  
 2) Following abbreviations were used: P – Poor; A – Acceptable; G – Good;  
 3) *r* = correlation coefficient;

**Table B.8.1.1.\_CP-31:** The reliable persistence kinetic endpoints determined for FOE Sulfonic acid in field dissipation trials.

Data on the trial		Soil properties (0-30 cm layer)			Identified best-fit model	Kinetic parameter		Evaluation of the fit		Kinetic endpoints	
Trial code	Location; type of trial	Soil type (USDA classif.)	pH <sup>1)</sup>	OC [%]		par.	value	Visual fit <sup>2)/ r<sup>3)</sup></sup>	$\chi^2$ % error	DT <sub>50</sub> [days]	DT <sub>90</sub> [days]
30248/1	Fresne-L'Archeveque; North France; cropped soil	Silt loam	6.0	1.11	SFO	k	0.01144	A./0.7441	23.3	60.6	201.0
30250/3	Fresne-L'Archeveque1, North France; cropped soil	Silt loam	5.2	1.86	SFO	k	0.00921	G./0.9477	9.83	75.3	250.0
30253/8	St. Etienne du Gres, South France; cropped soil	Loam	7.7	0.80	SFO	k	0.02249	G./0.9379	12.1	30.8	102.0
40164/1	St. Etienne du Gres, South France; cropped soil	Silt loam	7.7	0.96	SFO	k	0.007303	A./0.9319	20.5	94.9	315.0

**Footnotes to the table:**

- 1) Determined in 0.01M CaCl<sub>2</sub>;  
 2) Following abbreviations were used: P – Poor; A – Acceptable; G – Good;  
 3) *r* = correlation coefficient;

The results obtained for Flufenacet and FOE Sulfonic acid were also kinetically examined with aim to derive the kinetic endpoints suitable for modelling. The kinetic analysis was performed using the inverse modelling approach. The assessment was conditionally accepted by the RMS. However, RMS decided, because of the stated deficiencies, not to use its results in the model exposure assessment, nor to report them in the List of End Points. They may nevertheless be used, at zonal or MS level, as refined input parameters in Tier 2a GW exposure assessment. The results are presented below in the table B.8.1.1.\_CP-32.

**Table B.8.1.1.\_CP-32:** The proposed modelling kinetic endpoints for Flufenacet and FOE Sulfonic acid determined from the data obtained in field dissipation trials using the inverse modelling approach.

Data on the trial		Soil properties (0-30 cm layer)			Results obtained for:					
Trial code	Location; type of trial	Soil type (USDA classif.)	pH <sup>1)</sup>	OC [%]	Flufenacet			FOE Sulfonic acid		
					Kinetic model	$\chi^2$ % error	DT <sub>50</sub> [days] (20°C/pF2)	Kinetic model	$\chi^2$ % error	DT <sub>50</sub> [days] (20°C/pF2)
30159/0	Breitenfelde, Germany; bare soil	Sandy loam	6.2	1.69	SFO	10.2	17.1	SFO	24.8	17.7
30162/0	Kirchlauter, Germany; bare soil	Heavy sandy loam <sup>2)</sup>	7.1	0.61	SFO	19.5	33.3	----	----	----
30163/9	Monheim, Germany; bare soil	Sandy loam	6.7	1.45	SFO	15.4	31.8	----	----	----
30164/7	Burscheid, Germany; bare soil	Silt loam	6.5	0.97	SFO	7.4	11.4	----	----	----
30248/1	Fresne-L'Archeveque, North France; cropped soil	Silt loam	6.0	1.11	SFO	14.4	31.4	SFO	40.4	18.1
30250/3	Fresne-L'Archeveque, North France; cropped soil	Silt loam	5.2	1.86	SFO	8.8	32.9	SFO	42.0	20.8
30251/1	Laudun, South France; cropped soil	Loam	7.6	0.62	SFO	10.6	24.7	----	----	----
30253/8	St. Etienne du Gres, South France; cropped soil	Loam	7.7	0.80	SFO	8.9	37.6	SFO	32.0	19.6
30499/9	Burscheid, Germany; bare soil	Silt loam	6.5	0.97	SFO	9.3	8.5	----	----	----
30500/6	Monheim, Germany; bare soil	Sandy loam	6.7	1.45	SFO	13.5	14.7	----	----	----
30254/6	Sausay-la-Campagne, South France; cropped soil	Silt loam	7.4	0.92	SFO	11.5	6.0	----	----	----
30455/7	Fresne-L'Archeveque, North France; cropped soil	Silt loam	6.6	1.00	SFO	10.8	7.1	----	----	----
40163/3	Laudun, South France; cropped soil	Clay loam	7.7	1.28	SFO	16.5	45.3	SFO	35.1	21.8
40164/1	St. Etienne du Gres, South France; cropped soil	Silt loam	7.7	0.96	SFO	16.2	41.0	SFO	25.8	25.0
40494/2	Ravenna, Italy; cropped soil	Silt loam	7.8	0.98	SFO	14.5	36.2	----	----	----
40495/0	S. Romualdo, Italy; cropped soil	Silty loam	7.8	1.11	SFO	10.3	51.1	----	----	----
					Geomean		22.3 (n = 16)	----	----	20.5 (n = 6)
					Median		31.6 (n = 16)	----	----	20.2 (n = 6)

**Footnotes to the table:**1) Determined in 0.01M CaCl<sub>2</sub>;

2) The DIN 19682 classification presented because the USDA classification not provided; in another report it was stated to be Sandy loam (USDA) containing 58.5% sand, 22.7% silt and 18.8% clay.

The soil residues studies and soil accumulation studies were not performed as the results of the field dissipation studies demonstrated that they were not required – their results clearly indicated that neither Flufenacet nor its degradation products would accumulate in soil.

Finally three relevant open-literature studies examining the dissipation of Flufenacet in soil under realistic – field conditions were identified. Their key results are presented below in the table B.8.1.1.\_CP-33.

**Table B.8.1.1.\_CP-33:** The key results obtained in the literature studies examining the field dissipation of Flufenacet.

Data on the trial			Soil characterisation			Data on application		Soil persistence of the test compound - Flufenacet		Mobility of the test compound – Flufenacet in soil profile
<i>Trial site</i>	<i>Duration of the study – Days After application</i>	<i>Crop cover</i>	<i>Soil textural type</i>	<i>Soil pH</i>	<i>OM content</i>	<i>Application date</i>	<i>Application rate [g/ ha]</i>	<i>DisT<sub>50</sub> [days]</i>	<i>Kinetic model</i>	
Melle/ Belgium	266	Bare soil	Sandy loam	6.2	2.2	21/11/1997	240	98	1 <sup>st</sup> order, linear regression	No residues below 15 cm
Melle/ Belgium	182	Spring corn	Sandy loam	6.2	2.2	24/03/1998	600	74	1 <sup>st</sup> order, linear regression	No residues below 15 cm
Melle/ Belgium	168	Summer corn	Sandy loam	6.2	2.2	28/05/1998	600	56	1 <sup>st</sup> order, linear regression	No residues below 15 cm
Melle/ Belgium	241	Winter wheat	Sandy loam	7.0	1.5	25/11/1999	240	66	1 <sup>st</sup> order, linear regression	Residues detected down to 20 cm, but mainly confined to top 10 cm
Zingem/ Belgium	241	Winter wheat	Loamy sand	6.4	1.6	25/11/1999	240	97	1 <sup>st</sup> order, linear regression	Residues detected down to 20 cm, but mainly confined to top 10 cm
Zevekote/ Belgium	241	Winter wheat	Clay loam	6.6	2.1	26/11/1999	240	64	1 <sup>st</sup> order, linear regression	Residues detected down to 20 cm, but mainly confined to top 10 cm
Crotil-Noirmont/ Belgium	241	Winter wheat	Silt loam	6.7	1.2	01/12/2000	240	54	1 <sup>st</sup> order, linear regression	Residues detected down to 20 cm, but mainly confined to top 10 cm
Melle/ Belgium	~150	Winter wheat	Sandy loam	7.0	1.5	17/03/2000	240	44	1 <sup>st</sup> order, linear regression	No information provided
Zingem/ Belgium	~150	Winter wheat	Loamy sand	6.4	1.6	04/04/2000	240	66	1 <sup>st</sup> order, linear regression	No information provided

**B.8.1.2. – Mobility in soil**

The sorption of Flufenacet onto soil at equilibrium was extensively examined in four studies using fourteen test soils. The results of that examination were used to obtain Freundlich sorption isotherms for adsorption and desorption processes and derive Freundlich sorption isotherm parameters. In case of adsorption reliable parameters of Freundlich isotherm were obtained for ten test soils, while for desorption the reliable Freundlich parameters were derived using nine test soils. They are presented below in two tables: B.8.1.2.\_CP-1 for adsorption and B.8.1.2.\_CP-2 for desorption. The results obtained for adsorption indicate that Flufenacet is moderately to strongly sorbed onto soil and that the process is not preferential. It was also determined that it was not pH-dependent.

**Table B.8.1.2.\_CA-1:** The results of the determination of the adsorption of Flufenacet onto soil at equilibrium – the reliable parameters of the Freundlich adsorption isotherm.

Soil name	Soil properties			Adsorption distribution coefficients		Freundlich adsorption isotherm parameters			
	Soil type (USDA)	pH	OC [%]	$K_d$ [mL/g]	$K_{d oc}$ [mL/g]	$K_f$ [mL/g]	$K_{f oc}$ [mL/g]	1/n	$R^2$
<i>Stanley (307)</i>	Silt loam	5.9	1.68	----	----	3.18	189.28	0.848	0.9971
<i>Hagerstown (318)</i>	Clay loam	6.4	1.28	----	----	2.81	219.53	0.878	0.9986
<i>Howe (395)</i>	Loamy sand	6.4	0.23	----	----	1.48	643.48	0.894	0.9932
<i>Monheim (3253)</i>	Sandy loam	6.4	1.4	----	----	4.55	325.00	0.920	0.9991
<i>Laacher Hof AXXa (AA)</i>	Loamy sand	5.8	2.2	----	----	3.55	161.6	0.928	0.9991
<i>Hoefchen am Hohenseh (HH)</i>	Silt loam	6.5	1.6	----	----	3.28	205.0	0.926	0.9965
<i>Hanscheider Hof (HN)</i>	Silt loam	5.3	2.7	----	----	5.10	188.9	0.926	0.9992
<i>Dollendorf II (DD)</i>	Loam	7.3	4.4	----	----	7.49	178.5	0.903	0.9994
<i>Wurmweise (WW)</i>	Sandy loam	5.1	1.7	----	----	3.39	195.2	0.980	0.9966
<i>Kamikawa</i>	Loam	4.9	2.1	----	----	8.96	426.5	0.958	0.9984
Geomean (n = 10)						<b>3.89</b>	<b>245.9</b>	----	----
Arithmetic mean (n = 10)						----	----	<b>0.916</b>	----
pH dependence						No			----

**Table B.8.1.2.\_CP-2:** The results of the determination of the desorption of Flufenacet onto soil at equilibrium – the reliable parameters of the Freundlich desorption isotherm.

Soil name	Soil properties			Desorption distribution coefficients		Freundlich desorption isotherm parameters			
	Soil type (USDA)	pH	OC [%]	$K_d$ [mL/g]	$K_{d oc}$ [mL/g]	$K_f$ [mL/g]	$K_{f oc}$ [mL/g]	1/n	$R^2$
<i>Stanley (307)</i>	Silt loam	5.9	1.68	----	----	3.81	226.79	0.864	0.9998
<i>Hagerstown (318)</i>	Clay loam	6.4	1.28	----	----	2.75	214.84	0.893	0.9996
<i>Howe (395)</i>	Loamy sand	6.4	0.23	----	----	2.10	913.04	0.911	0.9992
<i>Monheim (3253)</i>	Sandy loam	6.4	1.4	----	----	5.25	375.00	0.928	0.9993
<i>Laacher Hof AXXa (AA)</i>	Loamy sand	5.8	2.2	----	----	5.58	253.6	0.944	0.9988
<i>Hoefchen am Hohenseh (HH)</i>	Silt loam	6.5	1.6	----	----	5.64	352.3	0.943	0.9980
<i>Hanscheider Hof (HN)</i>	Silt loam	5.3	2.7	----	----	8.49	314.4	0.937	0.9996
<i>Dollendorf II (DD)</i>	Loam	7.3	4.4	----	----	11.71	278.7	0.908	0.9996
<i>Wurmweise (WW)</i>	Sandy loam	5.1	1.7	----	----	5.49	349.4	0.989	0.9967
Geomean (n = 9)						<b>5.01</b>	<b>329.38</b>	----	----
Arithmetic mean (n = 9)						----	----	<b>0.924</b>	----
pH dependence						No			----

The additional information on the soil sorption of Flufenacet at equilibrium were provided by three open-literature scientific papers. The key results obtained in them are presented below in the table B.8.1.2.\_CP-3. The values reported below may be considered as indicative and should not be used to derive the regulatory endpoints characterising soil sorption of Flufenacet.

**Table B.8.1.2.\_CP-3:** The results of the determination of the adsorption of Flufenacet onto soil at equilibrium obtained in the open-source literature scientific papers.

Study	Soil name	Soil properties			Freundlich adsorption isotherm parameters			
		Soil type	pH	OC [%]	$K_f$ [mL/g]	$K_{foc}$ [mL/g]	1/n	r
<i>Gupta, Gajbhiye &amp; Agnihotri; 2001</i>	<i>Inceptisol</i>	Sandy loam	7.1	0.34	2.26	664.71	0.988	0.99
<i>Gajbhiye &amp; Gupta; 2001</i>	<i>Delhi</i>	Loamy sand	7.69	0.501	2.10	419.16	0.996	0.99
	<i>Ranchi</i>	Sandy clay loam	5.54	0.042	3.62	8619.05	0.981	0.98
	<i>Nagpur</i>	Clay	8.35	0.399	3.20	802.00	1.221	0.99
	<i>Kerala</i>	Sandy clay loam	4.45	0.456	4.39	962.72	1.015	0.99
<i>Rouchaud, Neus, Eelen, Bulcke; 2001</i>	<i>Melle</i>	Sandy loam	7.0	1.51 <sup>1)</sup>	16	1802	0.89	----
	<i>Zingem</i>	Loamy sand	6.4	1.60 <sup>1)</sup>	43	4602	0.91	----
	<i>Zevekote</i>	Clay loam	6.6	2.1 <sup>1)</sup>	15	1231	0.93	----
	<i>Cortil-Noirmont</i>	Silt loam	6.7	1.2 <sup>1)</sup>	9	1257	0.94	----

Footnotes to the table:

1) OM content reported, no values for OC content

In the studies by [Gupta, Gajbhiye and Agnihotri; 2001] and [Gajbhiye and Gupta; 2001] for adsorption of Flufenacet onto test soil the value of the free Gibbs energy of adsorption –  $\Delta G$ , was determined. It was in range  $\Delta G = (-3.27) - (-5.08)$  [Kcal/mol], indicating that adsorption of Flufenacet onto soil was a spontaneous process and mechanistically it was predominantly physisorption. It was also demonstrated, in the study by [Gupta, Gajbhiye and Agnihotri; 2001], that the soil sorption of Flufenacet was strongly positively correlated with soil OC/OM content. As the results obtained in these two studies are in line with those from reliable regulatory studies, that conclusion may be considered to be a general conclusion with regard to the adsorption of Flufenacet onto soil.

Also examined was sorption onto soil at equilibrium of major soil degradation products of Flufenacet: FOE Oxalate, FOE Sulfonic acid, FOE Methylsulfone, FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid (FOE TFESA) and Trifluoroacetic acid (TFA). The key results – Freundlich sorption parameters, are presented below, individually for each test compound.

For FOE Oxalate the reliable Freundlich isotherm parameters for adsorption were determined in three test soils. The desorption was not examined because of the low level of adsorption onto soil. The results are presented below in the table B.8.1.2.\_CP-4.

**Table B.8.1.4.\_CA-4:** The Freundlich adsorption and desorption parameters determined for FOE Oxalate.

Test soil – USDA type (name)	Key soil properties		Freundlich adsorption isotherm parameters			Freundlich desorption isotherm parameters		
	pH <sup>1)</sup>	OC [%]	$K_F$ [mL/g]	$K_{Foc}$ [mL/g]	1/n	$K_F$ [mL/g]	$K_{Foc}$ [mL/g]	1/n
<i>Sandy loam (Shipshe)</i>	6.3	0.75	0.096	12.80	0.933	Not determined		
<i>Silty clay loam (Drummer)</i>	6.6	2.13	0.153	7.18	0.824	Not determined		
<i>Silty clay (Oska-Martin)</i>	6.0	1.21	0.157	12.97	0.978	Not determined		
Geomean (n = 3)			<b>0.132</b>	<b>10.60</b>	----			
Arithmetic mean (n = 3)			----	----	<b>0.912</b>			
pH dependence			No					

Footnotes to the table:

1) Measured in water;

For FOE Sulfonic acid the reliable Freundlich isotherm parameters for adsorption were determined in four test soils. The desorption was not examined because of the low level of adsorption onto soil. The results are presented below in the table B.8.1.2.\_CP-5.

**Table B.8.1.2.\_CP-5:** The Freundlich adsorption and desorption parameters determined for FOE Sulfonic acid.

Test soil – USDA type (name)	Key soil properties		Freundlich adsorption isotherm parameters			Freundlich desorption isotherm parameters		
	pH <sup>1)</sup>	OC [%]	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n
<i>Sand (Winder)</i>	5.8	0.27	0.051	18.88	0.865	Not determined		
<i>Sandy loam (Shipshe)</i>	6.3	0.75	0.106	14.13	1.002	Not determined		
<i>Silty clay loam (Drummer)</i>	6.6	2.13	0.204	9.58	0.931	Not determined		
<i>Silty clay (Oska-Martin)</i>	6.0	1.21	0.072	5.95	1.183	Not determined		
Geomean (n = 4)			<b>0.094</b>	<b>11.10</b>	----			
Arithmetic mean (n = 4)			----	----	<b>0.995</b>			
pH dependence			No					

**Footnotes to the table:**

1) Measured in water;

For FOE Methylsulfone reliable Freundlich isotherm parameters for adsorption and desorption were determined in five test soils. The results are presented below in the table B.8.1.2.\_CP-6.

**Table B.8.1.2.\_CP-6:** The of Freundlich adsorption and desorption parameters determined for FOE Methylsulfone.

Test soil – USDA type (name)	Key soil properties		Freundlich adsorption isotherm parameters			Freundlich desorption isotherm parameters		
	pH <sup>1)</sup>	OC [%]	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n
<i>Loam (Wurmwiese)</i>	5.5	1.8	0.658	37.4	0.892	0.769	43.7	0.898
<i>Silt loam (Hoefchchen am Hohenseh)</i>	6.8	2.4	1.280	52.9	0.888	1.467	60.6	0.893
<i>Clay loam (Dollendorf II)</i>	7.4	4.6	1.569	33.2	0.900	1.820	38.6	0.912
<i>Sandy loam (Guadalupe)</i>	6.8	0.7	0.525	75.0	0.910	0.567	81.0	0.905
<i>Silt loam (Springfield)</i>	7.2	1.7	2.920	171.8	0.860	3.594	211.4	0.883
Geomean (n = 5)			<b>1.152</b>	<b>61.03</b>	----	<b>1.332</b>	<b>70.57</b>	----
Arithmetic mean (n = 5)			----	----	<b>0.860</b>	----	----	<b>0.898</b>
pH dependence			No			No		

**Footnotes to the table:**

1) Measured in water;

For FOE Thiadone the reliable Freundlich isotherm parameters for adsorption and desorption were determined in four test soils. The results are presented below in the table B.8.1.2.\_CP-7.

**Table B.8.1.2.\_CP-7:** The of Freundlich adsorption and desorption parameters determined for FOE Thiadone.

Test soil – USDA type (name)	Key soil properties		Freundlich adsorption isotherm parameters			Freundlich desorption isotherm parameters		
	pH <sup>1)</sup>	OC [%]	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n
<i>Sand (Winder)</i>	5.8	0.27	0.115	42.59	0.781	0.467	172.96	0.909
<i>Sandy loam (Shipshe)</i>	6.3	0.75	0.332	44.27	0.806	1.368	182.40	0.867
<i>Silty clay loam (Drummer)</i>	6.6	2.13	0.611	28.68	0.672	1.559	73.91	0.654
<i>Silty clay (Oska-Martin)</i>	6.0	1.21	0.703	58.10	0.796	2.104	173.88	0.887
<b>Geomean (n = 4)</b>			<b>0.358</b>	<b>42.10</b>	----	<b>1.203</b>	<b>141.90</b>	----
<b>Arithmetic mean (n = 4)</b>			----	----	<b>0.764</b>	----	----	<b>0.829</b>
<b>pH dependence</b>			<b>No</b>			<b>No</b>		

**Footnotes to the table:**

1) Measured in water;

For Trifluoroacetic acid Freundlich isotherm parameters for adsorption were determined in five test soils. The desorption was not examined because of the very low level of adsorption onto soil. The results are presented below in the table B.8.1.2.\_CP-8.

**Table B.8.1.2.\_CP-8:** The of Freundlich adsorption and desorption parameters determined for Trifluoroacetic acid.

Test soil – USDA type (name)	Key soil properties		Freundlich adsorption isotherm parameters			Freundlich desorption isotherm parameters		
	pH <sup>1)</sup>	OC [%]	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n
<i>Loam (Wurmwiess)</i>	5.5	1.76	0.0	0.0001	1.00	Not determined		
<i>Silt loam (Hoefchen am Hohenseh)</i>	6.8	2.42	0.0	0.0001	1.00	Not determined		
<i>Clay loam (Dollendorf II)</i>	7.4	4.72	0.0	0.0001	1.00	Not determined		
<i>Sandy loam (Guadalupe)</i>	6.8	0.7	0.0	0.0001	1.00	Not determined		
<i>Silt loam (Springfield)</i>	7.2	1.7	0.0	0.0001	1.00	Not determined		
<b>Geomean (n = 5)</b>			<b>0.0</b>	<b>0.0001</b>	----			
<b>Arithmetic mean (n = 5)</b>			----	----	<b>1.00</b>			
<b>pH dependence</b>			<b>No</b>					

**Footnotes to the table:**

1) Measured in water;

For FOE 5043-Trifluoroethanesulfonic acid reliable Freundlich isotherm parameters for adsorption were determined in five test soils. The desorption was not examined because of the very low level of adsorption onto soil. The results are presented below in the table B.8.1.2.\_CP-9.

**Table B.8.1.2.\_CP-9:** The of Freundlich adsorption and desorption parameters determined for FOE 5043-Trifluoroethanesulfonic acid.

Test soil – USDA type (name)	Key soil properties		Freundlich adsorption isotherm parameters			Freundlich desorption isotherm parameters		
	pH <sup>1)</sup>	OC [%]	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n	K <sub>F</sub> [mL/g]	K <sub>F OC</sub> [mL/g]	1/n
<i>Loamy sand (Laacher Hof AXXa)</i>	6.6	1.8	0.0	0.0001	1.00	Not determined		
<i>Silt loam (Hoefchen am Hohenseh)</i>	6.7	1.7	0.0	0.0001	1.00	Not determined		
<i>Slit loam (Hnascheider Hof)</i>	5.3	2.8	0.0	0.0001	1.00	Not determined		
<i>Loam (Dollendorf II)</i>	7.5	5.0	0.0	0.0001	1.00	Not determined		
<i>Sandy loam (Wurmwiese)</i>	5.4	1.9	0.0	0.0001	1.00	Not determined		
Geomean (n = 5)			0.0	0.0001	----			
Arithmetic mean (n = 5)			----	----	1.00			
pH dependence			No					

**Footnotes to the table:**

1) Measured in water;

The results showed that FOE Methylsulfone and FOE Thiadone were moderately sorbed onto soil. FOE Oxalate and FOE Sulfonic acid were only weakly sorbed onto soil, while FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid were practically not sorbed onto soil. No pH-dependence of the adsorption was stated for any of the degradation products, but in case of FOE Thiadone, FOE Sulfonic acid and FOE Oxalate that may be due to the limited number of soils used in the experiment as well as their narrow pH range.

Additionally for FOE Methylsulfide – major aquatic degradation product of Flufenacet, the K<sub>OC</sub> value was estimated using KOCWIN – a part of EPISuite 4.1 modelling tool. The estimated value is **K<sub>OC</sub> = 598 L/kg** and is recommended to be used as an input value in SW/SED model exposure assessment.

For FOE Sulfonic acid the additional examination of the soil sorption in function of time – time-dependent sorption, was performed. The key results of that examination – adsorption parameters in function of time, are provided below in the table B.8.1.2.\_CP-10.

**Table B.8.1.4.\_CP-10:** The key results of the examination of the time-dependent sorption of FOE Sulfonic acid onto soil.

Results obtained for <i>Laacherhof AXXa</i> test soil					Results obtained for <i>Laacherhof AIII</i> test soil				
Soil key properties		Results			Soil key properties		Results		
Parameter	Value	Time point [DAT]	K <sub>d</sub> [mL/g]	K <sub>d OC</sub> [mL/g]	Parameter	Value	Time point [DAT]	K <sub>d</sub> [mL/g]	K <sub>d OC</sub> [mL/g]
Soil type (USDA)	Sandy loam	0	0.12	8	Soil type (USDA)	Silt loam	0	0.12	13
		3	0.16	11			3	0.14	16
OC [%]	1.47	7	0.16	11	OC [%]	0.88	7	0.14	16
		14	0.17	11			14	0.15	17
Soil pH (in H <sub>2</sub> O)	6.9	28	0.20	13	Soil pH (in H <sub>2</sub> O)	7.6	28	0.15	17
		56	0.18	12			56	0.15	18
DT <sub>50</sub> [days]	49.8	100	0.23	16	DT <sub>50</sub> [days]	40.4	100	0.18	20

The calculated adsorption coefficient increase factor was **2** for Laacherhof AXXa test soil and **1.5** for Laacherhof AIII test soil, indicating that the compound became more strongly sorbed onto soil with elapsing time. However that increase did not strongly influenced the mobility of FOE Sulfonic acid in soil, which remained very mobile, as indicated K<sub>d</sub> and K<sub>d OC</sub> values.

The examination of the mobility of Flufenacet and its major transformation products in soil covered following issues:

- column leaching,
- aged residue column leaching,
- lysimeter studies,
- determination of the Plant Uptake Factor – PUF, as “Other studies”

The Applicant did not submit any studies covering the issue of the column leaching of Flufenacet. Instead, in the provided justification for the non-submission, it was stated that the issue was covered by the results of the examination of sorption in soil at equilibrium (batch sorption studies) and those aimed on the examination of leaching of the aged residues. That justification was found acceptable by the RMS. It shall be indicated however, that the evaluation of the study examining the leaching behaviour of the aged residues of Flufenacet demonstrated that the study was not acceptable.

Two additional open-literature studies found by the RMS, considered supplementary, indicated that under typical EU conditions Flufenacet should not move in the soil profile below the depth of 25 cm. Such statement seems to be confirmed by the results of the field dissipation studies performed for Flufenacet.

Additionally, a study was submitted examining the column leaching of one of the major soil degradation products of Flufenacet – TFA. That study, performed using four European soils, showed that TFA was very mobile in soil. The key results of that study are presented below.

The leaching behaviour of TFA was examined using soil columns filled with one of the following test soils:

- Loamy sand (*Laacherhof AXXa*) test soil, having OC = 1.8% and pH = 6.2;
- Loam (*Dollendorf II*) test soil, having OC = 5.2% and pH = 7.4;
- Silt loam (*Höfchen am Hohenseh*) test soil, having OC = 1.6 and pH = 6.5;
- Sandy loam (*Laacherhof Wurmwielse*) test soil, having OC = 1.9 and pH = 5.3.

The experiment was performed in two variants, denominated **Study design A** and **Study design B**, that may be characterised as follows:

- in **Study design A** leaching lasted 48 hours and was performed with 393 mL of artificial rain (0.01M  $\text{CaCl}_2$  aq), corresponding to 200 mm of rain;
- in **Study design B** leaching lasted 120 hours and was performed with 984 mL of artificial rain (0.01M  $\text{CaCl}_2$  aq), corresponding to 502 mm of rain;

In the variant denominated **Study design A** the following results were obtained for TFA:

- amount of TFA in the eluates (mean values of the two replicates), expressed as % AR, was:
  - 95.5% AR for columns filled with Loamy sand (*Laacherhof AXXa*) test soil;
  - 73.2% AR for columns filled with Loam (*Dollendorf II*) test soil;
  - 92.1% AR for columns filled with Silt loam (*Höfchen am Hohenseh*) test soil;
  - 66.2% AR for columns filled with Sandy loam (*Laacherhof Wurmwielse*) test soil.
- the extractable radioactivity retained within soil columns attributed to TFA was (mean values of the two replicates):
  - 5.0% AR for columns filled with Loamy sand (*Laacherhof AXXa*) test soil;
  - 28.3% AR for columns filled with Loam (*Dollendorf II*) test soil;
  - 6.5% of AR for columns filled with Silt loam (*Höfchen am Hohenseh*) test soil;
  - 35.6% AR for columns filled with Sandy loam (*Laacherhof Wurmwielse*) test soil.
- the NER fraction attributed to TFA, expressed as % AR, in the soil columns (mean values of the two replicates) was:
  - 1.2% AR for columns filled with Loamy sand (*Laacherhof AXXa*) test soil;
  - 1.8% AR for columns filled with Loam (*Dollendorf II*) test soil;
  - 0.8% AR for columns filled with Silt loam (*Höfchen am Hohenseh*) test soil;
  - 1.1% AR for columns filled with Sandy loam (*Laacherhof Wurmwielse*) test soil.
- the distribution of residues of TFA in soil was following:
  - for columns filled with Loamy sand (*Laacherhof AXXa*) test soil they were found predominantly in the lowest segment – S5;
  - for columns filled with Loam (*Dollendorf II*) test soil the highest concentration of TFA residues was determined in the top section of the column (segments S1 and S2) with the peak amount in segment S2, and it gradually decreased towards the bottom of the soil column;
  - for columns filled with Silt loam (*Höfchen am Hohenseh*) test soil they were found predominantly in the lowest segment – S5;

- for columns filled with Sandy loam (*Laacherhof Wurmwielse*) test soil the residues of TFA were generally found in the lower part of the column, with the peak amount in the middle section S3.
- The  $K_d$  and  $K_{dOC}$  values determined for TFA in this experiment were following:
  - for the test soil Loamy sand (*Laacherhof AXXa*)  $K_d = 0.0$  mL/g and  $K_{dOC} = 0.0$  mL/g;
  - for the test soil Loam (*Dollendorf II*)  $K_d = 0.0$  mL/g and  $K_{dOC} = 0.0$  mL/g;
  - for the test soil Silt loam (*Höfchen am Hohenseh*)  $K_d = 0.0$  mL/g and  $K_{dOC} = 0.0$  mL/g;
  - for the test soil Sandy loam (*Laacherhof Wurmwielse*)  $K_d = 0.0$  mL/g and  $K_{dOC} = 0.0$  mL/g;
  - mean  $K_d = 0.0$  mL/g and  $K_{dOC} = 0.0$  mL/g.

In the variant denominated **Study design B** the following results were obtained for TFA:

- amount of TFA in the eluates (mean values of the two replicates), expressed as % AR, was:
  - 101.1% AR for columns filled with Loamy sand (*Laacherhof AXXa*) test soil;
  - 96.3% AR for columns filled with Loam (*Dollendorf II*) test soil;
  - 98.6% AR for columns filled with Silt loam (*Höfchen am Hohenseh*) test soil;
  - 100.9% AR for columns filled with Sandy loam (*Laacherhof Wurmwielse*) test soil.
- the amount of radioactivity retained within soil columns attributed to TFA was not analysed because it was wholly recovered in leachates.
- The  $K_d$  and  $K_{dOC}$  values determined for TFA in this experiment were following:
  - for the test soil with Loamy sand (*Laacherhof AXXa*)  $K_d = 0.1$  mL/g and  $K_{dOC} = 4.5$  mL/g;
  - for the test soil Loam (*Dollendorf II*)  $K_d = 0.0$  mL/g and  $K_{dOC} = 0.0$  mL/g;
  - for the test soil Silt loam (*Höfchen am Hohenseh*)  $K_d = 0.2$  mL/g and  $K_{dOC} = 11.3$  mL/g;
  - for the test soil Sandy loam (*Laacherhof Wurmwielse*)  $K_d = 0.2$  mL/g and  $K_{dOC} = 7.1$  mL/g;
  - mean  $K_d = 0.2$  mL/g and  $K_{dOC} = 9.1$  mL/g.

The aged residues leaching was examined in one study, submitted also for the previous authorisation of Flufenacet in the EU. RMS evaluated that study for its compliance with the current guidelines, in particular the OECD Guideline for testing chemicals No. 312. Several minor deficiencies were stated that had no impact on the validity of the study. However, the thorough examination of the study report showed that there was a significant discrepancy between the application rate declared to be used to treat soil subjected to the ageing procedure and that used in the leaching experiment with aged soil.

Second problem identified in the study report was the fact that the analytical procedure used to characterise quantitatively and qualitatively the residues in soil after ageing was not presented.

As a result, mainly due to the discrepancies in the amount of the radioactivity introduced into soil at the beginning of the ageing period and that used in leaching experiment, introduced with aged soils, RMS decided to consider the study not acceptable. That was because of the significant uncertainty related to the reliability of the obtained results.

The leaching behaviour of Flufenacet and its degradation products through the undisturbed soil profiles under the agronomic and climatic conditions relevant for Germany was examined on four outdoor lysimeters. The results of that examination were presented in two study reports submitted by the Applicant for the purpose of the current evaluation. Additionally the Applicant submitted the interim reports of the same experiments, not summarised in the Renewal Assessment Report for Flufenacet, but analysed for their compliance with the adequate final reports. The third study submitted for evaluation was aimed on the validation of the lysimeter studies by comparing their results with those of the modelling exposure assessment carried out for the GW compartment. RMS however decided not to use it, as the modelling tools and scenarios were not those recommended by FOCUS.

The key data and results obtained in the two studies are summarily presented below in tables B.8.1.2.\_CP-11 – B.8.1.2.\_CP-11c.

Table B.8.1.2.\_CP-11: The key data and results obtained in the outdoor lysimeter studies.

Parameter				Data for Lysimeter			
				#15	#16	#17	#18
General information	Trial site	Test facility		Lysimeter station of Bayer AG	Lysimeter station of Bayer AG	Lysimeter station of Bayer AG	Lysimeter station of Bayer AG
		Location (town, region, country)		Monheim, NRW, Germany	Monheim, NRW, Germany	Monheim, NRW, Germany	Monheim, NRW, Germany
		Geographic coordinates	Longitude	6° 55' E	6° 55' E	6° 55' E	6° 55' E
			Latitude	51° 4' N	51° 4' N	51° 4' N	51° 4' N
	Long-term weather conditions at trial site (1996 – 1995)	Average rainfall [mm]	Annual	745	745	745	745
			Monthly min. (month)	42.7 (February)	42.7 (February)	42.7 (February)	42.7 (February)
			Monthly max. (month)	78.1 (June)	78.1 (June)	78.1 (June)	78.1 (June)
		Average annual relative air humidity [%]		73	73	73	73
		Average temperature at 2 metres above the ground [°C]	Annual	10.0	10.0	10.0	10.0
			Monthly min. (month)	2.6 (January)	2.6 (January)	2.6 (January)	2.6 (January)
			Monthly max. (month)	18.4 (June)	18.4 (June)	18.4 (June)	18.4 (June)
		Average annual wind velocity [m/s.]		2.5	2.5	2.5	2.5
		Average radiant heat [kJ/cm²]	Annual	29.1	29.1	29.1	29.1
			Monthly min. (month)	5.8 (December)	5.8 (December)	5.8 (December)	5.8 (December)
			Monthly max. (month)	53.1 (July)	53.1 (July)	53.1 (July)	53.1 (July)
	Duration of the study	Preliminary period	Duration [years]	1	1	1	1
			Beginning	March 1992	March 1992	March 1992	March 1992
			End	May 1993	May 1993	May 1993	May 1993
		Experimental period	Duration [years]	3	3	2.5	2.5
			Beginning	May 1993	May 1993	May 1993	May 1993
Characterisation of lysimeter	Lysimeter depth	Total [cm]		135	135	120	120
		Soil monolith [cm]		130	130	115	115
		Gravel layer [cm]		5	5	5	5
		Soil type (FAO)		Eutric Cambisol	Eutric Cambisol	Eutric Cambisol	Eutric Cambisol
	Characteristic of soil monolith	Soil properties, depth 0 – 30 cm	Soil texture (USDA)	Sandy loam	Sandy loam	Sandy loam	Sandy loam
			pH (CaCl <sub>2</sub> )	7.04	7.04	7.04	7.04
			OC%	1.41	1.41	1.41	1.41
			CEC [meq/100g]	9.61	9.61	9.61	9.61
		Soil properties, depth 30 – 60 cm	Microbial biomass [mg/kg]	235	235	235	235
			Soil texture (USDA)	Sandy loam	Sandy loam	Sandy loam	Sandy loam
			pH (CaCl <sub>2</sub> )	7.24	7.24	7.24	7.24
			OC%	0.34	0.34	0.34	0.34
			CEC [meq/100g]	7.43	7.43	7.43	7.43
		Soil properties, depth 60 – 100 cm	Microbial biomass [mg/kg]	34	34	34	34
			Soil texture (USDA)	Loamy sand	Loamy sand	Loamy sand	Loamy sand
			pH (CaCl <sub>2</sub> )	7.18	7.18	7.18	7.18
			OC%	0.19	0.19	0.19	0.19
			CEC [meq/100g]	7.57	7.57	7.57	7.57
		Soil properties, depth 100 – 115 cm	Microbial biomass [mg/kg]	11	11	11	11
			Soil texture (USDA)	Loamy sand	Loamy sand	Loamy sand	Loamy sand
			pH (CaCl <sub>2</sub> )	7.46	7.46	7.46	7.46
			OC%	0.17	0.17	0.17	0.17
			CEC [meq/100g]	8.52	8.52	8.52	8.52
			Microbial biomass [mg/kg]	13	13	13	13
Maintenance data	Application of the test compound	Test compound		<sup>14</sup> C-Flufenacet	<sup>14</sup> C-Flufenacet	<sup>14</sup> C-Flufenacet	<sup>14</sup> C-Flufenacet
		Number of applications/ experiment		2	2	2	2
		1 <sup>st</sup> application	Year of experiment	1	1	1	1
			Application date	12/05/1993	12/05/1993	13/05/1993	13/05/1993
			Application rate	48.14 mg/m <sup>2</sup> (480 g/ha)	48.14 mg/m <sup>2</sup> (480 g/ha)	48.14 mg/m <sup>2</sup> (480 g/ha)	48.14 mg/m <sup>2</sup> (480 g/ha)
		2 <sup>nd</sup> application	Year of experiment	2	2	1	1
			Application date	05/05/1994	05/05/1994	03/11/1993	03/11/1993
			Application rate	48.04 mg/m <sup>2</sup> (480 g/ha)	48.04 mg/m <sup>2</sup> (480 g/ha)	18.02 mg/m <sup>2</sup> (180 g/ha)	18.02 mg/m <sup>2</sup> (180 g/ha)

Table B.8.1.2.\_CP-11a: The key data and results obtained in the outdoor lysimeter studies (continued).

Parameter				Data for Lysimeter			
				#15	#16	#17	#18
Maintenance data, continued	Crop data	1 <sup>st</sup> crop, target	Crop	Maize, grain	Maize, grain	Maize, fodder	Maize, fodder
			Year of experiment	1	1	1	1
			Date of sowing	10/05/1993	10/05/1993	10/05/1993	10/05/1993
			Date of harvest	12/11/1993	12/11/1993	28/09/1993	28/09/1993
			Harvested parts	Corncoobs	Corncoobs	Silage material	Silage material
		2 <sup>nd</sup> crop, target	Crop	Maize, grain	Maize, grain	Winter wheat	Winter wheat
			Year of experiment	2	2	1 – 2	1 – 2
			Date of sowing	05/05/1994	05/05/1994	02/11/1993	02/11/1993
			Date of harvest	10/05/1994	10/05/1994	03/08/1994	03/08/1994
			Harvested parts	Corncoobs	Corncoobs	Grain and straw	Grain and straw
		3 <sup>rd</sup> crop, succeeding	Crop	Sugar beet	Sugar beet	Sugar beet	Sugar beet
			Year of experiment	3	3	3	3
			Date of sowing	13/04/1995	13/04/1995	13/04/1995	13/04/1995
			Date of harvest	07/11/1995	07/11/1995	07/11/1995	07/11/1995
			Harvested parts	Leaves and tubers	Leaves and tubers	Leaves and tubers	Leaves and tubers
	Irrigation and precipitation during experiment	1 <sup>st</sup> year	Precipitation [mm]	897.1	897.1	897.1	897.1
			Irrigation [mm]	46.0	46.0	51.0	51.0
			Sum [mm]	943.1	943.1	948.1	948.1
		2 <sup>nd</sup> year	Precipitation [mm]	814.2	814.2	813.9	813.9
			Irrigation [mm]	100.0	100.0	75.0	75.0
			Sum [mm]	914.2	914.2	888.9	888.9
		3 <sup>rd</sup> year	Precipitation [mm]	496.1	496.1	338.0	338.0
			Irrigation [mm]	104.0	104.0	104.0	104.0
			Sum [mm]	600.1	600.1	442.0	442.0
		Total	Precipitation [mm]	2207.5	2207.5	2049.0	2049.0
			Irrigation [mm]	250	250	250	250
			Sum [mm]	2457	2457	2279.0	2279.0
Radioactivity - recovery	Radioactivity recovered [% AR]	in soil monolith	0- 30 cm	40.289	41.414	37.80	~48.2
			30 – 60 cm	2.095	3.128	2.46	~3.1
			below 60 cm	0.777	0.485	~2.00	~1.7
			total	43.16	45.03	42.33	52.96
		in leachates	1 <sup>st</sup> year	0.772	0.815	1.436	1.563
			2 <sup>nd</sup> year	0.250	0.161	0.122	0.150
			3 <sup>rd</sup> year	0.006	0.006	0.006	0.007
			total	0.64	0.58	~1.56	~1.72
		in crops	1 <sup>st</sup> crop	0.014	0.015	0.38	0.39
			2 <sup>nd</sup> crop	0.016	0.014	0.04	0.05
			3 <sup>rd</sup> crop	0.059	0.061	0.07	0.07
			total	0.08	0.08	0.48	0.50
		Total recovered		43.89	45.68	44.38	55.18
		Lost (eg as <sup>14</sup> CO <sub>2</sub> ) [% AR]		56.11	54.32	55.62	44.82
Radioactivity in soil monoliths	in 0 – 30 cm layer	Total [% AR]		40.29	41.41	37.80	48.2
		identified as Flufenacet	[µg/layer]	1860.96	1839.68	450.75	528.48
		identified as FOE Alcohol	[µg/kg soil FW]	3.91	3.91	1.07	1.06
		identified as FOE Oxalate	[µg/layer]	143.49	159.02	60.09	87.67
		identified as FOE Sulfonic acid	[µg/kg soil FW]	0.30	0.34	0.14	0.18
		identified as FOE Sulfonic acid	[µg/layer]	212.84	167.72	28.23	63.74
		Identified as FOE Sulfonic acid	[µg/kg soil FW]	0.45	0.36	0.07	0.13
		Identified as FOE Sulfonic acid	[µg/layer]	71.44	138.39	45.74	43.42
		Identified as FOE Sulfonic acid	[µg/kg soil FW]	0.15	0.29	0.11	0.09
	in 30 – 60 cm layer	Total [% AR]		2.095	3.128	2.46	3.1
Detailed characterisation of leachates	1 <sup>st</sup> year early leachate	Collection time	Week of experiment	24	24	24	24
			Collection date	29/10/1993	29/10/1993	29/10/1993	29/10/1993
		Volume of leachate [L]		3.7	4.7	8.2	8.2
		Characterisation of TRR – Total Radioactivity Recovered	Total TRR [µg a. i. equival./L]	0.256	0.221	0.588	0.505
			acidic TRR [µg a. i. equival./L]	0.218	0.183	0.539	0.477
			<sup>14</sup> CO <sub>2</sub> -associated radioactivity [% total TRR]	14.87	17.23	8.34	5.64
		Characterisation of acidic TRR <sup>1)</sup>	Flufenacet [µg /L]	<0.011	<0.014	0.006	<0.005
			FOE ALC [µg /L]	<0.001	0.006	0.002	0.095
			FOE OXA [µg /L]	0.002	0.007	<0.001	0.005
			FOE SA [µg /L]	0.065	0.025	0.225	0.182
			FOE TGS [µg /L]	0.017	0.009	0.015	0.027

**Footnotes to the table:**

1) Abbreviations used: FOE ALC – FOE Alcohol, FOE OXA – FOE Oxalate, FOE SA – FOE Sulfonic acid, FOE TGS – FOE Thioglycolate sulfonide.

Table B.8.1.2.\_CP-11b: The key data and results obtained in the outdoor lysimeter studies (continued).

Parameter				Data for Lysimeter			
				#15	#16	#17	#18
Detailed characterisation of leachates - continued	1 <sup>st</sup> year leachate with max. TRR	Collection time	Week of experiment	37	35	38	38
			Collection date	28/01/1994	12/01/1994	04/02/1994	04/02/1994
		Volume of leachate [L]		17.2	21.5	21.3	21.3
		Characterisation of TRR – Total Radioactivity Recovered	Total TRR [µg a. i. equivalent/L]	2.350	1.989	5.106	5.455
			acidic TRR [µg a. i. equivalent/L]	2.228	1.915	4.940	5.255
			<sup>14</sup> CO <sub>2</sub> -associated radioactivity [% total TRR]	5.19	3.72	4.26	3.58
		Characterisation of acidic TRR <sup>1)</sup>	Flufenacet [µg /L]	≤0.007	<0.017	<0.011	<0.001
			FOE ALC [µg /L]	0.001	0.004	0.006	0.044
			FOE OXA [µg /L]	0.007	0.041	0.005	0.036
			FOE SA [µg /L]	1.293	1.090	3.375	3.682
			FOE TGS [µg /L]	0.079	0.036	0.017	0.028
	1 <sup>st</sup> year late leachate	Collection time	Week of experiment	47	47	47	47
			Collection date	11/04/1994	11/04/1994	11/04/1994	11/04/1994
		Volume of leachate [L]		11.5	15.5	19.4	15.0
		Characterisation of TRR – Total Radioactivity Recovered	Total TRR [µg a. i. equivalent/L]	0.850	0.798	2.545	3.102
			acidic TRR [µg a. i. equivalent/L]	0.767	0.732	1.389	2.916
			<sup>14</sup> CO <sub>2</sub> -associated radioactivity [% total TRR]	9.82	8.27	6.13	6.00
		Characterisation of acidic TRR <sup>1)</sup>	Flufenacet [µg /L]	<0.035	0.005	0.002	0.002
			FOE ALC [µg /L]	0.001	<0.001	0.008	0.041
			FOE OXA [µg /L]	0.012	0.031	0.026	0.017
			FOE SA [µg /L]	0.332	0.301	1.302	1.920
			FOE TGS [µg /L]	0.014	0.010	0.005	0.012
	1 <sup>st</sup> year annual leachate (pooled)	Collection time	Week of experiment	50	50	50	50
			Collection date	29/04/1994	29/04/1994	29/04/1994	29/04/1994
		Volume of leachate [L]		349.8	402.4	399.1	383.1
		Characterisation of TRR – Total Radioactivity Recovered	Total TRR [µg a. i. equivalent/L]	1.062	0.931	2.380	2.699
			acidic TRR [µg a. i. equivalent/L]	0.99	0.87	2.26	2.56
			<sup>14</sup> CO <sub>2</sub> -associated radioactivity [% total TRR]	6.47	6.82	5.31	5.35
		Characterisation of acidic TRR <sup>1)</sup>	Flufenacet [µg /L]	0.020	0.033	0.004	0.005
			FOE ALC [µg /L]	<0.002	0.000	0.034	0.016
			FOE OXA [µg /L]	0.015	0.004	0.017	0.006
			FOE SA [µg /L]	0.589	0.489	1.355	1.616
			FOE TGS [µg /L]	0.016	0.014	0.030	0.027
	2 <sup>nd</sup> year annual leachate (pooled)	Collection time	Week of experiment	103	103	103	103
			Collection date	05/05/1995	05/05/1995	05/05/1995	05/05/1995
		Volume of leachate [L]		317.6	299.9	365.4	368.9
		Characterisation of TRR – Total Radioactivity Recovered	Total TRR [µg a. i. equivalent/L]	0.758	0.516	0.221	0.269
			acidic TRR [µg a. i. equivalent/L]	0.670	0.46	0.19	0.22
			<sup>14</sup> CO <sub>2</sub> -associated radioactivity [% total TRR]	11.10	11.19	17.06	23.02
		Characterisation of acidic TRR <sup>1)</sup>	Flufenacet [µg /L]	0.003	0.003	0.002	0.005
			FOE ALC [µg /L]	0.003	0.005	0.001	0.004
			FOE OXA [µg /L]	<0.018	<0.014	0.009	0.006
			FOE SA [µg /L]	0.235	0.149	0.013	0.016
			FOE TGS [µg /L]	0.020	0.015	0.022	0.019

**Footnotes to the table:**

1) Abbreviations used: FOE ALC – FOE Alcohol, FOE OXA – FOE Oxalate, FOE SA – FOE Sulfonic acid, FOE TGS – FOE Thioglycolate sulfoxide.

**Table B.8.1.2.\_CP-11c:** The key data and results obtained in the outdoor lysimeter studies (continued).

Parameter				Data for Lysimeter			
				#15	#16	#17	#18
Detailed characterisation of leachates - continued	3 <sup>rd</sup> year annual leachate (pooled)	Collection time	Week of experiment	115	115	115	115
			Collection date	26/07/1995	26/07/1995	26/07/1995	26/07/1995
		Volume of leachate [L]		13.0	17.0	17.5	19.1
		Characterisation of TRR – Total Radioactivity Recovered	Total TRR [µg a. i. equival./L]	0.432	0.353	0.239	0.238
			acidic TRR [µg a. i. equival./L]	0.334	0.23	0.15	0.14
			<sup>14</sup> CO <sub>2</sub> -associated radioactivity [% total TRR]	22.80	34.56	35.22	40.88
		Characterisation of acidic TRR: compound/concentration [µg/L]		FOE SA <sup>1)</sup> ≤ 0.25	FOE SA <sup>1)</sup> ≤ 0.17	not performed	not performed
	Total leachate	Collection time	Weeks of experiment	115	115	115	115
			Collection dates: beginning/end	12/05/1993 26/07/1995	12/05/1993 26/07/1995	12/05/1993 26/07/1995	12/05/1993 26/07/1995
		Volume of leachate [L] (total)		680.4	719.3	782.0	771.1
		Characterisation of TRR – Total Radioactivity Recovered; average values	Total TRR [µg a. i. equival./L]	0.906	0.742	1.310	1.492
			acidic TRR [µg a. i. equival./L]	0.83	0.68	1.25	1.38
			<sup>14</sup> CO <sub>2</sub> -associated radioactivity [% total TRR]	8.42	8.39	6.28	6.85

**Footnotes to the table:**

1) Abbreviations used: FOE SA – FOE Sulfonic acid.

It may be stated that of all the compounds possible to be identified as originating from Flufenacet radiolabelled in fluorophenyl ring (including Flufenacet itself), only FOE Sulfonic acid was demonstrated to be found in leachates in amounts > 0.1 µg/L, what confirmed the risk to GW associated with that degradation product, demonstrated in GW model exposure assessment (for details please refer to the results of calculations presented under the point B.8.5 of this document).

Neither Flufenacet nor the second major soil degradation product relevant for that radiolabelling position – FOE Oxalate, were detected in leachates in amounts >0.1 µg/L, what may indicate that they would not pose a threat to the GW compartment.

In soil and leachates FOE Alcohol was detected – the compound determined in the studies examining the route of degradation of Flufenacet in aerobic soil to be minor/transient and therefore not taken into account in the GW model exposure assessment. It shall be indicated however that the would-be risk it may pose to the GW compartment was covered by the calculations carried out for FOE Oxalate – its immediate degradate.

Also detected in leachates was FOE Thioglycolate sulfoxide (FOE TGS), the compound not taken in the model GW exposure assessment into consideration, being identified as minor soil degradation product. It shall be indicated however, that in the study it was determined in leachates in amounts <0.1 µg/L, what may indicate that it would not pose a serious threat to the GW compartment.

Finally, it shall be indicated that, due to the fact that in the experiments was used Flufenacet radiolabelled only in the fluorophenyl ring, they gave no information on the leaching potential of the degradation products formed from the second moiety present within the molecule of Flufenacet – thiadiazole.

The comparative analysis of the application pattern (crops, application timing and application rates) used in the experiments and the EU-representative application pattern proposed for the current authorisation of Flufenacet in the EU showed that they may be considered as providing supplementary information with regard to the risk posed by Flufenacet and its soil degradation products to the GW compartment, but for the purpose of the decision making they should be considered with care.

The PUF – plant uptake factor was determined in three separate experiments for the following major soil degradation products of Flufenacet: FOE Sulfonic acid, FOE Methylsulfone, FOE 5043-Trifluoroethanesulfonic acid – FOE TFESA (for all three in one experiment), and Trifluoroacetic acid – TFA (in two separate experiments). The PUF values for FOE Sulfonic acid, FOE Methylsulfone and FOE TFESA were determined for Wheat as the experimental crop, while for TFA the test crops for which the PUF values were determined were Wheat, Corn (Maize) and Tomato.

Additionally was submitted a study, being in fact a position paper, supporting the value of PUF proposed for TFA.

For all four test compounds the experimental PUF values were determined for Wheat, the crop that may be considered representative for all cereals.

The determined values are:

- for FOE Sulfonic acid the PUF in cereals is **0.46**;
- for FOE Methylsulfone the PUF in cereals is **1.31**;
- for FOE 5043-Trifluoroethanesulfonic acid the PUF in cereals is **1.36**;
- for TFA (Trifluoroacetic acid) the PUF in cereals is **0.59**.

The Applicant proposed to use two of these experimentally derived values – PUF for FOE Sulfonic acid and PUF for TFA, as input values for GW model exposure assessment (please also refer to the point B.8.3. in the document Vol. 3\_CP – B.8. of this Renewal Assessment Report).

RMS decided to verify the correctness of that selection in light of the recommendations of the current Guidelines. That was done using the *Generic Guidance for Tier 1 FOCUS Ground Water Assessments, Version 2.2, May 2014*, document, which in paragraph 2.4.4 – *Crop related substance parameters* provides the recommendations with regard to the appropriate selection of the Plant Uptake Factor value. It is stated that the recommended default value for all compounds is 0. However, when a reliable measured  $K_{ow}$  value determined for neutral pH is available, the Briggs equation proposed for calculation of TSCF (Transpiration Stream Concentration Factor) may be used and so determined TSCF value used as input parameter for PUF in GW model exposure assessment. The Briggs equation for calculating TSCF presented in the cited above Guidance document looks as follows:

$$TSCF = 0.784 \exp \{(-[\text{Log}(K_{ow}) - 1.78]^2 / 2.44)\}$$

RMS decided to use it in order to calculate the TSCF values for Flufenacet and all its major soil degradation products, for which the GW model exposure assessment shall be performed and for which were available the reliable  $\text{Log } P_{ow}$  (=  $\text{Log } K_{ow}$ ) presented in section B.2 (Physicochemical properties) of this Renewal Assessment Report. As a next step the calculated values were compared with the proposed in the same Guideline maximum recommended TSCF value – 0.8, and, where available, with the experimental value. That was done in order to determine the suitable value representing TSCF/PUF to be used as input parameter in GW model exposure assessment. These value are also presented in the table B.8.1.2.\_CP-12. The TSCF/PUF values recommended as input for GW/SW modelling are given in **bold**.

**Table B.8.1.2.\_CP-12:** The results of the determination of TSCF/PUF value suitable for GW/SW model exposure assessment

Compound	Ionisable substance	Experimental values		TSCF		Measured PUF	TSCF/PUF value selected for modelling
		$\text{Log } P_{ow}$	measured at pH	calculated	Regulatory upper limit		
Flufenacet	No	3.5	7.0	0.744	0.8	n. a. <sup>3)</sup>	<b>0.744</b>
FOE Oxalate	No	2.2	7.0	0.983	0.8	n. a. <sup>3)</sup>	<b>0.8</b>
FOE Sulfonic acid	Yes	-2.72	7.0	0.133	0.8	0.46	<b>0.46</b>
FOE Methylsulfone	No	1.7	7.0	0.999	0.8	1.31	<b>0.8</b>
FOE Thiadone	No	0.62	7.0	0.874	0.8	n. a. <sup>3)</sup>	<b>0.8</b>
FOE TFESA <sup>1)</sup>	Yes	-2.95	7.0	0.107	0.8	1.36	<b>0.8</b>
TFA <sup>2)</sup>	Yes	-2.6	7.0	0.148	0.8	0.59	<b>0.59</b>

**Footnotes to the table:**

1) FOE TFESA = FOE 5043-Trifluoroethanesulfonic acid;

2) TFA = Trifluoroacetic acid;

3) n. a. = value not available (not determined experimentally).

### B.8.2 – Predicted Environmental Concentrations in Soil (PECs)

To address this data point the Applicant submitted two studies. Their evaluation is presented below.

#### *Study 1*

**Report:** Reinken G. Porschewski R., (2014): “Flufenacet Core PECsoil and Accumulation: Modelling Core Info Document for Soil Exposure Assessment in Europe.”; Bayer CropScienceAG, Environmental Safety, Alfred-Nobel-Straße 50, 40789 Monheim, Germany, unpublished Report No. EnSa-13-1007; 2014. 02. 25.

**Guidelines:** Not specified, it was stated however that the assessment of the kinetic endpoints for Flufenacet and its major soil degradation products to select those suitable for calculating PEC<sub>SOIL</sub> was performed to comply with the recommendations for modelling input selection given by the EU Commission, FOCUS and EFSA.

**GLP:** No, not applicable, modelling study

**RMS comments:** The study was performed as a supportive study to the main study presenting the results of the model exposure assessment for the soil compartment performed by the Applicant for Flufenacet and its major soil degradation products. It provides, for each compound of interest, the list of determined reliable DT<sub>50</sub> values, the analysis of the data set aimed on the identification of potential outliers and identification, with justification, of the value considered suitable in calculation of PEC<sub>SOIL</sub> values. The study was evaluated and summarised as **Study 23** in the document Vol. 3. Annex B8 (AS) – Environmental Fate and Behaviour under the data point B.8.1.1.2.1.1 – Rate of Degradation, Laboratory Studies, Aerobic Degradation, on pages 441 – 449. In the summary RMS indicated the DT<sub>50</sub> values for Flufenacet and its major soil degradation products recommended to be used in the soil exposure assessment – calculations of PEC<sub>SOIL</sub> values. They will be listed in the short summary below.

#### Summary:

The study provided the persistence kinetic endpoints determined during the kinetic evaluation of the data obtained for Flufenacet and its major soil degradation products – FOE Oxalate, FOE Sulfonic Acid, FOE Methylsulfone, FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid (TFA). Also were indicated the DT<sub>50</sub> values considered appropriate to be used in soil exposure assessment – calculation of PEC<sub>SOIL</sub> values. RMS evaluated the study, also with aim to verify the correctness of the Applicant’s proposal. The resulting persistence kinetic endpoints – DT<sub>50</sub> values, together with the kinetic model, identified by the RMS as appropriate input parameters for soil exposure assessment, are listed below. All values are the longest, not normalised lab values. They are following:

- for Flufenacet: **DT<sub>50</sub> = 57.6 days**, kinetic model – SFO;
- for FOE Oxalate: **DT<sub>50</sub> = 18.9 days**, kinetic model – SFO;
- for FOE Sulfonic acid: **DT<sub>50</sub> = 318 days**, kinetic model – SFO;
- for FOE Methylsulfone: **DT<sub>50</sub> = 174 days**, kinetic model – SFO;
- for FOE Thiadone: **DT<sub>50</sub> = 15.9 days**, kinetic model – SFO;
- for FOE 5043-Trifluoroethanesulfonic acid: **DT<sub>50</sub> = 20.9 days**, kinetic model – SFO;
- for Trifluoroacetic acid (TFA): **DT<sub>50</sub> = 10000 days**, kinetic model – SFO;

In the study report the Applicant also provided the observed maximum concentrations in soils for the degradation products, that were used as input parameters in the assessment. They are following:

- for FOE Oxalate: **26.5%**;
- for FOE Sulfonic acid: **26.3%**;
- for FOE Methylsulfone: **6.6%**;
- for FOE Thiadone: **5.9%**;
- for FOE 5043-Trifluoroethanesulfonic acid: **6.0%**;
- for Trifluoroacetic acid (TFA): **81.5%**;

**Study 2**

**Report:** Reinken G. Bolekhan A., (2014): “Flufenacet (FOE 5043) and metabolites: PECsoil EUR. Autumn use in winter cereals in Europe.”; Bayer CropScienceAG, Environmental Safety, Alfred-Nobel-Straße 50, 40789 Monheim, Germany, unpublished Report No. EnSa-14-0074; 2014. 02. 14.

**Guidelines:** The applicant stated that the calculations were performed in line with the following Guidelines:

- FOCUS (1997): Soil persistence models and EU registration. Final report of the work of the Soil Modelling Work Group of FOCUS;
- EU Commission (2000): Guidance Document on Persistence in Soil (Working Document) 9188/VI/97 rev. 8.

Additionally, for the selection of crop-related parameters, was consulted the following Guidance document:

- FOCUS (2002): Generic Guidance for FOCUS Groundwater Scenarios, Version 1.1.

**GLP:** No, not applicable, modelling study

**RMS comments:** The study was performed in line with the provisions of the evoked Guidelines. As recommended, simple models were used. The calculations were carried out for the crop scenarios that covered the uses proposed in the EU-representative GAP. For the degradation products the PEC values were calculated as if they were applied as a parent compound. The calculations however were not accepted because of the DT<sub>50</sub> values used as input parameters, that had to be changed for all evaluated compounds. That in turn was due to the outcome of the verification of the Applicant’s kinetic analysis carried out by the RMS.

For that reason RMS decided to repeat the calculations and not to summarise the Applicant’s report. However, presenting own calculations RMS will indicate which elements are common for both – RMS’s and Applicant’s, assessments.

**Summary:**

Study not summarised because found not acceptable.

**Calculations performed by the RMS:**

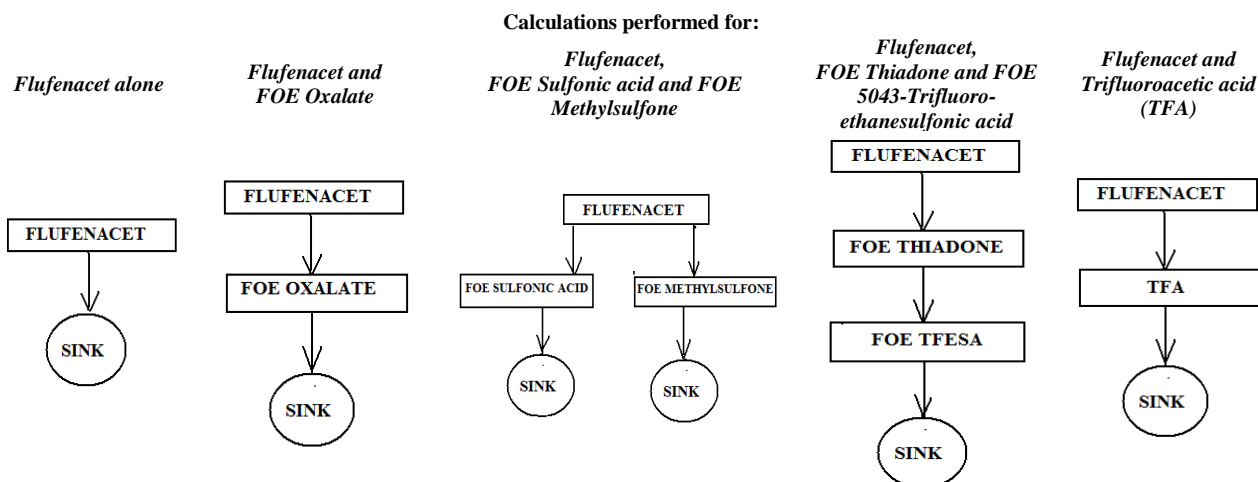
The calculations were carried out in line with the recommendations given in the Guidance document:

- FOCUS (2006): “Guidance Document on Estimating Persistence and Degradation Kinetics from Environmental Fate Studies on Pesticides in EU Registration.” Report of the FOCUS Work Group on Degradation Kinetics, EC Document Reference SANCO/10058/2005 version 2.0, 434 pp.;

Also consulted, for the appropriate crop-related parameters – CI factor, was the following Guidance Document:

- FOCUS (2014): “Generic guidance for Tier 1 FOCUS Ground Water Assessments”, version 2.2, May 2014.

The calculations were performed for Flufenacet and its six major soil degradation products – FOE Oxalate, FOE Sulfonic Acid, FOE Methylsulfone, FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid (TFA), using ESCAPE 1 modelling tool (version updated online). The calculations were performed for the parent compound and the degradation products formed in sequence and/or in parallel. However, due to the limitations of the modelling tool – the calculations can be carried out at once for maximum two degradation products, the four cycles of calculations had to be performed. Additionally, also due to the model limitations, it was not possible to carry out the calculations for the degradation product TFA fully in line with the transformation pattern determined during examination of the route of degradation of Flufenacet in soil. Therefore for that compound the transformation scheme had to be modified. As a separate step, verifying the results of other calculations, were performed calculations for the parent alone. The transformation pathways assumed in calculations are presented below on figure B.8.2.\_CP-1. In case of FOE 5043-Trifluoroethanesulfonic acid the abbreviation FOE TFESA was used in the block scheme. In case of Trifluoroacetic acid the abbreviation TFA was used in the block scheme.



**Figure B.8.2.\_CP-1:** The block schemes representing the transformation patterns assumed in calculations.

The assumed programme settings and scenario settings used in calculations were following:

- Calculation mode: Residues from different applications are considered separately;
- Application mode: Single annual application pattern (calculation period 1 year);
- soil density: 1.5 g/cm<sup>3</sup>;
- soil depth for calculation of 1-year PEC<sub>SOIL</sub> and accumulation PEC<sub>SOIL</sub> values: 5 cm;
- soil depth for calculation of background concentrations (tillage depth): 20 cm.

The application pattern assumed in calculations is presented below in the table B.8.2.\_CP-1.

**Table B.8.2.\_CP-1:** The application pattern assumed in calculations of PEC<sub>SOIL</sub>.

Crop	BBCH growth phase	Number of Applications	Crop interception factor – CI [%] <sup>2</sup>	Application rate [g Flufenacet/ha]
Winter cereals	11 – 13	1	0	240
Winter cereals	10 – 13	1	0	160
Winter cereals	0 – 22	1	0	120

The substance-specific input parameters used in calculations are presented below in the table B.8.2.\_CP-2. Due to the fact that the calculations were performed for the parent compound and degradation products forming from it, RMS decided to use the highest values of the kinetic formation fractions  $ff$ , instead of the observed soil maximum values to avoid the underestimation of the obtained results. That approach is in line with the recommendations of the manual for the modelling tool Escape.

In case of TFA, due to the complex transformation scheme resulting in two values of  $ff$  – from Flufenacet and from FOE Thiadone, RMS decided to use the average values instead of the highest one and calculate one summary value. The equation used to do that was following:

$$ff_{TOT\ TFA} = ff_{1\ TFA} + (ff_{2\ TFA} * ff_{THIA})$$

where:

$ff_{TOT\ TFA}$  – summary formation fraction of TFA;

$ff_{1\ TFA}$  – formation fraction for TFA formed from Flufenacet;

$ff_{2\ TFA}$  – formation fraction for TFA formed from FOE Thiadone;

$ff_{THIA}$  – formation fraction for FOE Thiadone (formed from Flufenacet).

**Table B.8.2.\_CP-2:** The substance-specific input parameters used in calculations.

Parameter	Compound						
	<i>Flufenacet</i>	<i>FOE Oxalate</i>	<i>FOE Sulfonic acid</i>	<i>FOE Methylsulfone</i>	<i>FOE Thiadone</i>	<i>FOE TFESA</i>	<i>TFA</i>
<i>Molecular weight – M [g/mol]</i>	363.3	225.2	275.3	273.3	170.1	164.1	114.0
<i>Kinetic formation fraction – ff [%]</i>	Not applicable – parent compound	48.4	27.2	9.6	91.3	65.5	91.1
<i>Degradation parameters</i>	DT <sub>50</sub>	57.6	18.9	318.0	174.0	15.9	20.9
	Kinetic model	SFO	SFO	SFO	SFO	SFO	SFO
	Type of data	Longest not normalised lab value	Longest not normalised lab value	Longest not normalised lab value	Longest not normalised lab value	Longest not normalised lab value	Longest not normalised lab value

The results of the calculations are presented below, individually for each application pattern.

- a) the results obtained for a single use in winter cereals and application rate 240 g/ha:

The key results of the calculations are presented below in the table B.8.2.\_CP-3. The detailed results are provided further down the report in tables B.8.2.\_CP-4 and B.8.2.\_CP-5. RMS decided, for clarity, to split the results into two tables. One of them – table B.8.2.\_CP-4, is presenting the results obtained for the degradation products containing phenyl ring. The second one – table B.8.2.\_CP-5, is presenting those for the degradation products formed from thiadiazole moiety – table B.8.2.\_CP-5. Also for clarity reason RMS decided to repeat the results obtained for Flufenacet in each table with the detailed results.

The graphical presentation of the results given below can be found in the Appendix A3.

**Table B.8.2.\_CP-3:** The key results of the calculations – maximum PEC values obtained for Flufenacet and its major soil degradation products.

Crop scenario	Type of the value	Results obtained for the compound:						
		<i>Flufenacet</i>	<i>FOE Oxalate</i>	<i>FOE Sulfonic acid</i>	<i>FOE Methyl-sulfone</i>	<i>FOE Thiadone</i>	<i>FOE TFESA</i>	<i>TFA</i>
<i>Cereals, BBCH 10- 13 240 g/ha; CI = 0%</i>	1-year max. actual PEC <sub>SOIL</sub> [mg/kg]	0.3200	0.0186	0.0452	0.0134	0.0236	0.0160	0.0888
	Occurring on day after application of parent	0	45	173	137	41	77	431
	Background concentration [mg/kg]	0.0010	0.0001	0.0122	0.0016	0.0001	0.0001	0.5296
	Obtained after [years]	10	10	10	10	10	10	49
	Accumulation max. actual PEC <sub>SOIL</sub> [mg/kg]	0.3210	0.0187	0.0574	0.0150	0.0237	0.0161	0.6184

**Table B.8.2.\_CP-4:** The key results of the calculations – maximum PEC values obtained for Flufenacet and its major soil degradation products containing phenyl ring – FOE Oxalate, FOE Sulfonic acid and FOE Methylsulfone.

1-year PEC <sub>SOIL</sub> in 0 – 5-cm. layer calculated for:									
Time period	DAT	Flufenacet		FOE Oxalate		FOE Sulfonic acid		FOE Methylsulfone	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.3200	----	0.0186	----	0.0452	----	0.0134	----
Short-term	1	0.3162	0.3181	0.0186	0.0186	0.0452	0.0452	0.0134	0.0134
	2	0.3124	0.3126	0.0186	0.0186	0.0452	0.0452	0.0134	0.0134
	4	0.3050	0.3124	0.0186	0.0186	0.0452	0.0452	0.0134	0.0134
	7	0.2941	0.3069	0.0184	0.0186	0.0452	0.0452	0.0134	0.0134
Long-term	14	0.2704	0.2945	0.0180	0.0186	0.0451	0.0452	0.0133	0.0134
	21	0.2485	0.2828	0.0173	0.0185	0.0450	0.0452	0.0133	0.0134
	28	0.2285	0.2717	0.0166	0.0184	0.0449	0.0452	0.0132	0.0134
	42	0.1930	0.2512	0.0148	0.0180	0.0444	0.0452	0.0130	0.0134
	50	0.1753	0.2405	0.0138	0.0178	0.0441	0.0451	0.0128	0.0133
	100	0.0961	0.1861	0.0081	0.0159	0.0415	0.0448	0.0115	0.0131
	Assessment of the accumulation potential: background concentration in 0-20-cm soil layer for:								
Type of value:		Flufenacet		FOE Oxalate		FOE Sulfonic acid		FOE Methylsulfone	
Final background concentration in 0 – 20-cm layer [mg/kg]		0.0010		0.0001		0.0122		0.0016	
Obtained after [years]		10		10		10		10	
Assessment of the accumulation potential: accumulation PEC <sub>SOIL</sub> in 0 – 5-cm soil layer for:									
Time period	DAT	Flufenacet		FOE Oxalate		FOE Sulfonic acid		FOE Methylsulfone	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.3210	----	0.0187	----	0.0574	----	0.0150	----
Short-term	1	0.3172	0.3191	0.0187	0.0187	0.0574	0.0574	0.0150	0.0150
	2	0.3134	0.3172	0.0187	0.0187	0.0574	0.0574	0.0150	0.0150
	4	0.3060	0.3134	0.0187	0.0187	0.0574	0.0574	0.0150	0.0150
	7	0.2952	0.3079	0.0185	0.0187	0.0574	0.0574	0.0150	0.0150
Long-term	14	0.2714	0.2955	0.0181	0.0186	0.0573	0.0574	0.0149	0.0150
	21	0.2495	0.2838	0.0174	0.0186	0.0572	0.0574	0.0149	0.0150
	28	0.2295	0.2727	0.0166	0.0184	0.0570	0.0574	0.0148	0.0150
	42	0.1940	0.2522	0.0149	0.0181	0.0566	0.0573	0.0146	0.0150
	50	0.1763	0.2415	0.0138	0.0179	0.0562	0.0573	0.0144	0.0149
	100	0.0971	0.1871	0.0082	0.0160	0.0536	0.0569	0.0131	0.0147

**Table B.8.2.\_CP-5:** The key results of the calculations – maximum PEC values obtained for Flufenacet and its major soil degradation products formed from thiadiazole moiety – FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid(TFA).

1-year PEC <sub>SOIL</sub> in 0 – 5-cm. layer calculated for:									
Time period	DAT	Flufenacet		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid (TFA)	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.3200	----	0.0236	----	0.0160	----	0.0888	----
Short-term	1	0.3162	0.3181	0.0236	0.0236	0.0160	0.0160	0.0888	0.0888
	2	0.3124	0.3126	0.0236	0.0236	0.0160	0.0160	0.0888	0.0888
	4	0.3050	0.3124	0.0235	0.0236	0.0159	0.0160	0.0888	0.0888
	7	0.2941	0.3069	0.0233	0.0236	0.0159	0.0160	0.0888	0.0888
Long-term	14	0.2704	0.2945	0.0227	0.0235	0.0156	0.0159	0.0888	0.0888
	21	0.2485	0.2828	0.0217	0.0234	0.0151	0.0159	0.0888	0.0888
	28	0.2285	0.2717	0.0206	0.0232	0.0146	0.0158	0.0888	0.0888
	42	0.1930	0.2512	0.0182	0.0228	0.0133	0.0156	0.0887	0.0888
	50	0.1753	0.2405	0.0168	0.0224	0.0125	0.0155	0.0887	0.0888
	100	0.0961	0.1861	0.0097	0.0197	0.0077	0.0143	0.0885	0.0888
Assessment of the accumulation potential: background concentration in 0-20-cm soil layer for:									
Type of value:		Flufenacet		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid (TFA)	
Final background concentration in 0 – 20-cm layer [mg/kg]		0.0010		0.0001		0.0001		0.5296	
Obtained after [years]		10		10		10		49	
Assessment of the accumulation potential: accumulation PEC <sub>SOIL</sub> in 0 – 5-cm soil layer for:									
Time period	DAT	Flufenacet		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid (TFA)	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.3210	----	0.0237	----	0.0161	----	0.6184	----
Short-term	1	0.3172	0.3191	0.0237	0.0237	0.0161	0.0161	0.6184	0.6184
	2	0.3134	0.3172	0.0237	0.0237	0.0161	0.0161	0.6184	0.6184
	4	0.3060	0.3134	0.0236	0.0237	0.0160	0.0161	0.6184	0.6184
	7	0.2952	0.3079	0.0234	0.0237	0.0160	0.0161	0.6183	0.6184
Long-term	14	0.2714	0.2955	0.0228	0.0236	0.0157	0.0160	0.6183	0.6183
	21	0.2495	0.2838	0.0218	0.0235	0.0152	0.0160	0.6183	0.6183
	28	0.2295	0.2727	0.0207	0.0233	0.0147	0.0159	0.6183	0.6183
	42	0.1940	0.2522	0.0183	0.0229	0.0134	0.0157	0.6183	0.6183
	50	0.1763	0.2415	0.0169	0.0225	0.0126	0.0156	0.6183	0.6183
	100	0.0971	0.1871	0.0098	0.0198	0.0078	0.0143	0.6181	0.6183

b) the results obtained for a single use in winter cereals and application rate 160 g/ha:

The key results of the calculations are presented below in the table B.8.2.\_CP-6. The detailed results are provided further down the report in tables B.8.2.\_CP-7 and B.8.2.\_CP-8. RMS decided, for clarity, to split the results into two tables. In one of them – table B.8.2.\_CP-7 are presented the results obtained for the degradation products containing phenyl ring, in the second one table B.8.2.\_CP-8, those for the degradation products formed from thiadiazole moiety. Also for clarity reasons RMS decided to repeat in each table with the detailed results those obtained for the parent compound – Flufenacet.

The graphical presentation of the results given below can be found in the Appendix A3.

**Table B.8.2.\_CP-6:** The key results of the calculations – maximum PEC values obtained for Flufenacet and its major soil degradation products.

Crop scenario	Type of the value	Results obtained for the compound:						
		Flufenacet	FOE Oxalate	FOE Sulfonic acid	FOE Methyl-sulfone	FOE Thiadone	FOE TFESA	TFA
<i>Cereals, BBCH 11 - 13</i> <i>160 g/ha;</i> <i>CI = 0%</i>	1-year max. actual PEC <sub>soil</sub> [mg/kg]	0.2133	0.0124	0.0302	0.0089	0.0157	0.0107	0.0592
	Occurring on day after application of parent	0	45	173	137	41	77	431
	Background concentration [mg/kg]	0.0007	0.0001	0.0081	0.0011	0.0001	0.0001	0.3530
	Obtained after [years]	10	10	10	10	10	10	49
	Accumulation max. actual PEC <sub>soil</sub> [mg/kg]	0.2140	0.0125	0.0383	0.0100	0.0158	0.0107	0.4122

**Table B.8.2.\_CP-7:** The key results of the calculations – maximum PEC values obtained for Flufenacet and its major soil degradation products containing phenyl ring – FOE Oxalate, FOE Sulfonic acid and FOE Methylsulfone.

1-year PEC <sub>soil</sub> in 0 – 5-cm. layer calculated for:									
Time period	DAT	Flufenacet		FOE Oxalate		FOE Sulfonic acid		FOE Methylsulfone	
		Actual PEC <sub>soil</sub> [mg/kg]	TWA PEC <sub>soil</sub> [mg/kg]	Actual PEC <sub>soil</sub> [mg/kg]	TWA PEC <sub>soil</sub> [mg/kg]	Actual PEC <sub>soil</sub> [mg/kg]	TWA PEC <sub>soil</sub> [mg/kg]	Actual PEC <sub>soil</sub> [mg/kg]	TWA PEC <sub>soil</sub> [mg/kg]
Initial	0	0.2133	----	0.0124	----	0.0302	----	0.0089	----
Short-term	1	0.2108	0.2121	0.0124	0.0124	0.0302	0.0302	0.0089	0.0089
	2	0.2083	0.2108	0.0124	0.0124	0.0302	0.0302	0.0089	0.0089
	4	0.2033	0.2083	0.0124	0.0124	0.0302	0.0302	0.0089	0.0089
	7	0.1961	0.2046	0.0123	0.0124	0.0301	0.0302	0.0089	0.0089
Long-term	14	0.1803	0.1963	0.0120	0.0124	0.0301	0.0302	0.0089	0.0089
	21	0.1657	0.1885	0.0116	0.0123	0.0300	0.0302	0.089	0.0089
	28	0.1523	0.1811	0.0110	0.0122	0.0299	0.0301	0.0088	0.0089
	42	0.1287	0.1675	0.0099	0.0120	0.0296	0.0301	0.0086	0.0089
	50	0.1169	0.1603	0.0092	0.0119	0.0294	0.0301	0.0085	0.0089
	100	0.0640	0.1241	0.0054	0.0106	0.0276	0.0298	0.0076	0.0088
Assessment of the accumulation potential: background concentration in 0-20-cm soil layer for:									
Type of value:		Flufenacet		FOE Oxalate		FOE Sulfonic acid		FOE Methylsulfone	
Final background concentration in 0 – 20-cm layer [mg/kg]		0.0007		0.0001		0.0081		0.0011	
Obtained after [years]		10		10		10		10	
Assessment of the accumulation potential: accumulation PEC <sub>soil</sub> in 0 – 5-cm soil layer for:									
Time period	DAT	Flufenacet		FOE Oxalate		FOE Sulfonic acid		FOE Methylsulfone	
		Actual PEC <sub>soil</sub> [mg/kg]	TWA PEC <sub>soil</sub> [mg/kg]	Actual PEC <sub>soil</sub> [mg/kg]	TWA PEC <sub>soil</sub> [mg/kg]	Actual PEC <sub>soil</sub> [mg/kg]	TWA PEC <sub>soil</sub> [mg/kg]	Actual PEC <sub>soil</sub> [mg/kg]	TWA PEC <sub>soil</sub> [mg/kg]
Initial	0	0.2140	----	0.0125	----	0.0383	----	0.0100	----
Short-term	1	0.2114	0.2127	0.0125	0.0125	0.0383	0.0383	0.0100	0.0100
	2	0.2089	0.2115	0.0125	0.0125	0.0383	0.0383	0.0100	0.0100
	4	0.2040	0.1090	0.0124	0.0125	0.0383	0.0383	0.0100	0.0100
	7	0.1968	0.2053	0.0124	0.0125	0.0383	0.0383	0.0100	0.0100
Long-term	14	0.1809	0.1970	0.0121	0.0124	0.0382	0.0383	0.0100	0.0100
	21	0.1664	0.1892	0.0116	0.0124	0.0381	0.0383	0.0099	0.0100
	28	0.1530	0.1818	0.0111	0.0123	0.0380	0.0382	0.0099	0.0100
	42	0.1294	0.1681	0.0099	0.0121	0.0377	0.0382	0.0097	0.0100
	50	0.1176	0.1610	0.0092	0.0119	0.0375	0.0382	0.0096	0.0100
	100	0.0647	0.1247	0.0055	0.0106	0.0357	0.0379	0.0087	0.0098

**Table B.8.2.\_CP-8:** The key results of the calculations – maximum PEC values obtained for Flufenacet and its major soil degradation products formed from thiadiazole moiety – FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid(TFA).

1-year PEC <sub>SOIL</sub> in 0 – 5-cm. layer calculated for:									
Time period	DAT	Flufenacet		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid (TFA)	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.2133	----	0.0157	----	0.0107	----	0.0592	----
Short-term	1	0.2108	0.2121	0.0157	0.0157	0.0106	0.0106	0.0592	0.0592
	2	0.2083	0.2108	0.0157	0.0157	0.0106	0.0106	0.0592	0.0592
	4	0.2033	0.2083	0.0157	0.0157	0.0106	0.0106	0.0592	0.0592
	7	0.1961	0.2046	0.0156	0.0157	0.0106	0.0106	0.0592	0.0592
Long-term	14	0.1803	0.1963	0.0151	0.0157	0.0104	0.0106	0.0592	0.0592
	21	0.1657	0.1885	0.0145	0.0156	0.0101	0.0106	0.0592	0.0592
	28	0.1523	0.1811	0.0137	0.0155	0.0097	0.0105	0.0592	0.0592
	42	0.1287	0.1675	0.0121	0.0152	0.0089	0.0104	0.0592	0.0592
	50	0.1169	0.1603	0.0112	0.0150	0.0083	0.0103	0.0591	0.0592
	100	0.0640	0.1241	0.0064	0.0131	0.0052	0.0095	0.0590	0.0592
Assessment of the accumulation potential: background concentration in 0-20-cm soil layer for:									
Type of value:		Flufenacet		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid (TFA)	
Final background concentration in 0 – 20-cm layer [mg/kg]		0.0007		0.0001		0.0001		0.3530	
Obtained after [years]		10		10		10		49	
Assessment of the accumulation potential: accumulation PEC <sub>SOIL</sub> in 0 – 5-cm soil layer for:									
Time period	DAT	Flufenacet		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid (TFA)	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.2140	----	0.0158	----	0.0107	----	0.4122	----
Short-term	1	0.2114	0.2127	0.0158	0.0158	0.0107	0.0107	0.4122	0.4122
	2	0.2089	0.2115	0.0158	0.0158	0.0107	0.0107	0.4122	0.4122
	4	0.2040	0.1090	0.0157	0.0158	0.0107	0.0107	0.4122	0.4122
	7	0.1968	0.2053	0.0156	0.0158	0.0106	0.0107	0.4122	0.4122
Long-term	14	0.1809	0.1970	0.0152	0.0157	0.0104	0.0107	0.4122	0.4122
	21	0.1664	0.1892	0.0145	0.0157	0.0101	0.0107	0.4122	0.4122
	28	0.1530	0.1818	0.0138	0.0156	0.0098	0.0106	0.4122	0.4122
	42	0.1294	0.1681	0.0122	0.0152	0.0089	0.0105	0.4122	0.4122
	50	0.1176	0.1610	0.0113	0.0150	0.0084	0.0104	0.4122	0.4122
	100	0.0647	0.1247	0.0065	0.0132	0.0052	0.0096	0.4121	0.4122

c) the results obtained for a single use in winter cereals and application rate 120 g/ha:

The key results of the calculations are presented below in the table B.8.2.\_CP-9. The detailed results are provided further down the report in tables B.8.2.\_CP-10 and B.8.2.\_CP-11. RMS decided, for clarity, to split the results into two tables. In one of them – table B.8.2.\_CP-10 are presented the results obtained for the degradation products containing phenyl ring, in the second one table B.8.2.\_CP-11, those for the degradation products formed from thiadiazole moiety. Also for clarity reasons RMS decided to repeat in each table with the detailed results those obtained for the parent compound – Flufenacet.

The graphical presentation of the results given below can be found in the Appendix A3.

**Table B.8.2.\_CP-9:** The key results of the calculations – maximum PEC values obtained for Flufenacet and its major soil degradation products.

Crop scenario	Type of the value	Results obtained for the compound:						
		Flufenacet	FOE Oxalate	FOE Sulfonic acid	FOE Methyl-sulfone	FOE Thiadone	FOE TFESA	TFA
<i>Cereals, BBCH 00 - 22</i> <i>120 g/ha;</i> <i>CI = 0%</i>	1-year max. actual PEC <sub>soil</sub> [mg/kg]	0.1600	0.0093	0.0226	0.0067	0.0118	0.0080	0.0444
	Occurring on day after application of parent	0	45	173	137	41	77	431
	Background concentration [mg/kg]	0.0005	<0.0001	0.0061	0.0008	0.0001	<0.0001	0.2648
	Obtained after [years]	10	10	10	10	10	10	49
	Accumulation max. actual PEC <sub>soil</sub> [mg/kg]	0.1605	0.0094	0.0287	0.0075	0.0119	0.0080	0.3092

**Table B.8.2.\_CP-10:** The key results of the calculations – maximum PEC values obtained for Flufenacet and its major soil degradation products containing phenyl ring – FOE Oxalate, FOE Sulfonic acid and FOE Methylsulfone.

1-year PEC <sub>SOIL</sub> in 0 – 5-cm. layer calculated for:									
Time period	DAT	Flufenacet		FOE Oxalate		FOE Sulfonic acid		FOE Methylsulfone	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.1600	----	0.0093	----	0.0226	----	0.0067	----
Short-term	1	0.1581	0.1590	0.0093	0.0093	0.0226	0.0226	0.0067	0.0067
	2	0.1562	0.1581	0.0093	0.0093	0.0226	0.0226	0.0067	0.0067
	4	0.1525	0.1562	0.0093	0.0093	0.0226	0.0226	0.0067	0.0067
	7	0.1471	0.1534	0.0092	0.0093	0.0226	0.0226	0.0067	0.0067
Long-term	14	0.1352	0.1472	0.0090	0.0093	0.0226	0.0226	0.0067	0.0067
	21	0.1243	0.1414	0.0087	0.0092	0.0225	0.0226	0.0066	0.0067
	28	0.1142	0.1358	0.0083	0.0092	0.0224	0.0226	0.0066	0.0067
	42	0.0965	0.1256	0.0074	0.0090	0.0222	0.0226	0.0065	0.0067
	50	0.0877	0.1202	0.0069	0.0089	0.0220	0.0226	0.0064	0.0067
	100	0.0480	0.0930	0.0041	0.0097	0.0207	0.0224	0.0057	0.0066
	Assessment of the accumulation potential: background concentration in 0-20-cm soil layer for:								
Type of value:		Flufenacet		FOE Oxalate		FOE Sulfonic acid		FOE Methylsulfone	
Final background concentration in 0 – 20-cm layer [mg/kg]		0.0005		<0.0001		0.0061		0.0008	
Obtained after [years]		10		10		10		10	
Assessment of the accumulation potential: accumulation PEC <sub>SOIL</sub> in 0 – 5-cm soil layer for:									
Time period	DAT	Flufenacet		FOE Oxalate		FOE Sulfonic acid		FOE Methylsulfone	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.1605	----	0.0094	----	0.0287	----	0.0075	----
Short-term	1	0.1586	0.1595	0.0094	0.0094	0.0287	0.0287	0.0075	0.0075
	2	0.1567	0.1586	0.0093	0.0094	0.0287	0.0287	0.0075	0.0075
	4	0.1530	0.1567	0.0093	0.0093	0.0287	0.0287	0.0075	0.0075
	7	0.1476	0.1539	0.0093	0.0093	0.0287	0.0287	0.0075	0.0075
Long-term	14	0.1357	0.1478	0.0090	0.0093	0.0287	0.0287	0.0075	0.0075
	21	0.1248	0.1491	0.0087	0.0093	0.0286	0.0287	0.0074	0.0075
	28	0.1147	0.1363	0.0083	0.0092	0.0285	0.0287	0.0074	0.0075
	42	0.0970	0.1261	0.0074	0.0091	0.0283	0.0287	0.0073	0.0075
	50	0.0882	0.1207	0.0069	0.0089	0.0281	0.0286	0.0072	0.0075
	100	0.0485	0.0935	0.0041	0.0080	0.0268	0.0285	0.0065	0.0074

**Table B.8.2.\_CP-11:** The key results of the calculations – maximum PEC values obtained for Flufenacet and its major soil degradation products formed from thiadiazole moiety – FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid(TFA).

1-year PEC <sub>SOIL</sub> in 0 – 5-cm. layer calculated for:									
Time period	DAT	Flufenacet		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid (TFA)	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.1600	----	0.0118	----	0.0080	----	0.0444	----
Short-term	1	0.1581	0.1590	0.0118	0.0118	0.0080	0.0080	0.0444	0.0444
	2	0.1562	0.1581	0.0118	0.0118	0.0080	0.0080	0.0444	0.0444
	4	0.1525	0.1562	0.0118	0.0118	0.0080	0.0080	0.0444	0.0444
	7	0.1471	0.1534	0.0117	0.0118	0.0079	0.0080	0.0444	0.0444
Long-term	14	0.1352	0.1472	0.0113	0.0118	0.0078	0.0080	0.0444	0.0444
	21	0.1243	0.1414	0.0109	0.0117	0.0076	0.0079	0.0444	0.0444
	28	0.1142	0.1358	0.0103	0.0116	0.0073	0.0079	0.0444	0.0444
	42	0.0965	0.1256	0.0091	0.0114	0.0067	0.0078	0.0444	0.0444
	50	0.0877	0.1202	0.0084	0.0112	0.0062	0.0078	0.0444	0.0444
	100	0.0480	0.0930	0.0048	0.0098	0.0039	0.0071	0.0433	0.0444
Assessment of the accumulation potential: background concentration in 0-20-cm soil layer for:									
Type of value:		Flufenacet		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid (TFA)	
Final background concentration in 0 – 20-cm layer [mg/kg]		0.0005		0.0001		<0.0001		0.2648	
Obtained after [years]		10		10		10		49	
Assessment of the accumulation potential: accumulation PEC <sub>SOIL</sub> in 0 – 5-cm soil layer for:									
Time period	DAT	Flufenacet		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid (TFA)	
		Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]	Actual PEC <sub>SOIL</sub> [mg/kg]	TWA PEC <sub>SOIL</sub> [mg/kg]
Initial	0	0.1605	----	0.0119	----	0.0080	----	0.3092	----
Short-term	1	0.1586	0.1595	0.0119	0.0119	0.0080	0.0080	0.3092	0.3092
	2	0.1567	0.1586	0.0118	0.0119	0.0080	0.0080	0.3092	0.3092
	4	0.1530	0.1567	0.0118	0.0119	0.0080	0.0080	0.3092	0.3092
	7	0.1476	0.1539	0.0117	0.0118	0.0080	0.0080	0.3092	0.3092
Long-term	14	0.1357	0.1478	0.0114	0.0118	0.0078	0.0080	0.3092	0.3092
	21	0.1248	0.1491	0.0109	0.0117	0.0076	0.0080	0.3092	0.3092
	28	0.1147	0.1363	0.0104	0.0117	0.0073	0.0080	0.3092	0.3092
	42	0.0970	0.1261	0.0092	0.0114	0.0067	0.0079	0.3091	0.3092
	50	0.0882	0.1207	0.0085	0.0113	0.0063	0.0078	0.3091	0.3092
	100	0.0485	0.0935	0.0049	0.0099	0.0039	0.0072	0.3090	0.3092

### Conclusions of the calculations:

On the basis of the obtained results it was stated that neither Flufenacet nor its following major soil degradation products: FOE Oxalate, FOE Methylsulfone, FOE Thiadone and FOE 5043-Trifluoroethanesulfonic acid, displayed any accumulation potential in soil. In case of FOE Sulfonic acid such potential was demonstrated by the results of the calculations, although it was not considerable.

The considerable accumulation potential was demonstrated for another major soil transformation product of Flufenacet – Trifluoroacetic acid (TFA). It shall be indicated however that that compound occurs in the environment as a common pollutant coming from other sources. Therefore, in order to assess the risk related to TFA generated as a metabolite of Flufenacet, the calculated here max. accumulation PEC<sub>SOIL</sub> values should be compared to the background values for that compound recorded in soil and reported in various monitoring studies.

**Calculations of the PEC<sub>SOIL</sub> values for representative formulation:**

Additionally the RMS carried out the calculations of the PEC values for the representative formulation. The calculations were performed using the same tool as used to calculate the PEC values for the active substance and its major soil degradation products – ESCAPE ver. 1.1. In the assessment the standard FOCUS assumptions were used:

- thickness of the soil layer: 5 cm;
- soil density: 1.5 g/cm<sup>3</sup>.

The results of the calculations, together with some specific assumptions concerning the entity for which the calculations were performed, are presented below in the table B.8.2.\_CP-12. Only the ini. PEC<sub>SOIL</sub> values are presented, as only they are relevant for the formulation. At the same time it shall be indicated that due to the nature of the representative formulation – it contains two active substances, the results are of rather informative value and limited usefulness in the current assessment and they were provided for completeness.

**Table B.8.2.\_CP-12:** The results of the calculation of PEC<sub>SOIL</sub> values for the representative formulation

Crop scenario <sup>1)</sup>	Type of formulation <sup>2)</sup>	Density of formulation	Application rate of formulation		Calculated on the basis of:	Crop interception factor CI [%]	max. PEC <sub>SOIL</sub> of formulation [mg/kg]
			[L/ha]	[g/ha]			
<i>Cereals, BBCH 10 – 13; 240 g/ha; CI = 0%</i>	400 g/L FFA + 200 g/L DFF SC	1.251 g/cm <sup>3</sup> (T = 20°C)	0.6	750.6	formulation's density	0	<b>1.0008</b>
<i>Cereals, BBCH 11 – 13; 160 g/ha; CI = 0%</i>	400 g/L FFA + 200 g/L DFF SC	1.251 g/cm <sup>3</sup> (T = 20°C)	0.4	500.4	formulation's density	0	<b>0.6672</b>
<i>Cereals, BBCH 00 – 22; 120 g/ha; CI = 0%</i>	400 g/L FFA + 200 g/L DFF SC	1.251 g/cm <sup>3</sup> (T = 20°C)	0.3	375.3	formulation's density	0	<b>0.5004</b>

**Footnotes to the table:**

- 1) The given application rate is for Flufenacet;
- 2) FFA stands for Flufenacet and DFF for Diflufenican.

### B.8.3 - Predicted Environmental Concentrations in Ground Water (PEC<sub>GW</sub>)

To address this data point the Applicant submitted two studies. Their evaluation is presented below.

#### *Study 1*

**Report:** Reinken G., Porschewski R., (2014): “Flufenacet Core PEC<sub>GW</sub> FOCUS EU: Modelling Core Info Document for Groundwater Risk Assessment In Europe.”; Bayer CropScience AG, Environmental Safety, Alfred-Nobel-Strasse 50, 40789 Monheim, Germany; Study Report No. EnSa-13-1006; 25. 02. 2014; study reference number: M478214-01-1;

**Guidelines:** Not specified, it was stated however that the assessment of the endpoints for Flufenacet and its major soil degradation products to select those suitable for calculating PEC<sub>GW</sub> was performed to comply with the recommendations for modelling input selection given by the EU Commission, FOCUS and EFSA.

**GLP:** No, not applicable, modelling study

**RMS comments:** The study was performed as a supportive study to the main study presenting the results of the model exposure assessment for the GW compartment performed by the Applicant for Flufenacet and its major soil degradation products. It provides, for each compound of interest, the list of determined reliable DT<sub>50</sub> values, the analysis of the data set aimed on the identification of potential outliers and determination, with justification, of the value considered suitable in calculation of PEC<sub>GW</sub> values. It also provides the detailed analysis of the data on soil sorption for each of the compounds of concern. Finally the justification for selection of PUF values used in modelling exposure assessment is also provided. The study was evaluated and summarised, in its part related to the degradation kinetics of the compounds of concern, as **Study 24** in the document Vol. 3. Annex B8 (AS) – Environmental Fate and Behaviour under the data point B.8.1.1.2.1.1 – Rate of Degradation, Laboratory Studies, Aerobic Degradation, on pages 450 – 464. In that summary RMS checked and, when necessary, updated both DT<sub>50</sub> values and kinetic formation fraction values, *ff*, recommended to be used as input parameters. Also changed as a result of the performed evaluation, were some of the K<sub>FOC</sub>/K<sub>FOM</sub> and 1/*n* values. Finally the PUF values proposed by the Applicant were also checked and updated to comply with the current recommendations. All changes introduced by the RMS are listed below in the brief summary of the study.

#### **Summary:**

The study provided the input parameters – DT<sub>50</sub>, *ff*, K<sub>FOC</sub>, K<sub>FOM</sub>, 1/*n* and PUF values, for Flufenacet and its major soil degradation products – FOE Oxalate, FOE Sulfonic Acid, FOE Methylsulfone, FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid (TFA) recommended for GW modelling. RMS evaluated the study with aim to verify the correctness of the Applicant’s proposal. The results of that comparative analysis are presented below in the table B.8.3.\_CP-1. The values finally selected as input parameters for modelling are given in bold.

**Table B.8.3.\_CP-1:** The results of the comparative analysis of the substance-specific input parameters proposed by the Applicant and RMS to be used in PEC<sub>GW</sub> calculations.

Compound <sup>1)</sup>	Input parameters									
	Degradation in soil				Soil sorption				PUF	
	Applicant		RMS		Applicant		RMS		Applicant	RMS
	DT <sub>50</sub> <sup>2)</sup>	ff <sup>4)</sup>	DT <sub>50</sub> <sup>2)</sup>	ff <sup>4)</sup>	K <sub>roc</sub> <sup>7)</sup>	1/n <sup>8)</sup>	K <sub>roc</sub> <sup>7)</sup>	1/n <sup>8)</sup>		
<b>Flufenacet</b>	18.3	----	<b>17.87</b>	----	215	<b>0.916</b>	<b>245.9</b>	<b>0.916</b>	0.50	<b>0.744</b>
<b>FOE OXA</b>	13.7	0.414	<b>11.08</b>	<b>0.426</b>	11.0	0.91	<b>10.60</b>	<b>0.912</b>	0.50	<b>0.8</b>
<b>FOE SA</b>	20.5 <sup>3)</sup>	0.192	<b>45.11</b>	<b>0.195</b>	10.3	1.04	<b>11.10</b>	<b>0.995</b>	<b>0.46</b>	<b>0.46</b>
<b>FOE MET</b>	67.7	0.066	<b>81.70</b>	<b>0.070</b>	74.1	0.89	<b>61.03</b>	<b>0.860</b>	1.00	<b>0.8</b>
<b>FOE THIA</b>	1.6	<b>0.570</b>	<b>1.95</b>	<b>0.570</b>	43.7	0.76	<b>42.10</b>	<b>0.764</b>	0.50	<b>0.8</b>
<b>FOE TFESA</b>	9.1	<b>0.469</b>	<b>6.41</b>	<b>0.469</b>	0	<b>1.0</b>	<b>0.0001</b>	<b>1.0</b>	1.00	<b>0.8</b>
<b>TFA</b>	<b>1000</b>	<b>0.430<sup>5)</sup></b> <b>0.531<sup>6)</sup></b>	<b>1000</b>	<b>0.430<sup>5)</sup></b> <b>0.531<sup>6)</sup></b>	0	<b>1.0</b>	<b>0.0001</b>	<b>1.0</b>	<b>0.59</b>	<b>0.59</b>

**Footnotes to the table:**

- 1) The following codenames were used to denominate the test compounds: **FOE OXA** for FOE Oxalate, **FOE SA** for FOE Sulfonic acid, **FOE MET** for FOE Methylsulfone, **FOE THIA** for FOE Thiadone, **FOE TFESA** for FOE 5043-trifluoroethanesulfonic acid, and **TFA** for Trifluoroacetic acid;
- 2) All values are normalised lab geomean values, except that marked <sup>3)</sup>;
- 3) Normalised geomean field value;
- 4) All values are arithmetic means;
- 5) For formation from Flufenacet;
- 6) For formation from FOE Thiadone;
- 7) All values, except those for FOE TFESA and TFA, are geometric means;
- 8) All values, except those for FOE TFESA and TFA, are arithmetic means.

**Study 2**

**Report:** Reinken G., Bolekhan A., (2014): “Flufenacet (FOE 5043) and metabolites: PEC<sub>GW</sub> FOCUS PEARL, PELMO EUR. Autumn use in winter cereals in Europe; Flufenacet (FOE 5043), FOE sulfonic acid, FOE oxalate, FOE methylsulfone, FOE-thiadone, FOE 5043-trifluoroethanesulfonic acid, Trifluoroacetic acid.”; Bayer CropScience AG, Environmental Safety, Alfred-Nobel-Strasse 50, 40789 Monheim, Germany; Study Report No. EnSa-14-0073; 14. 02. 2014; study reference number: M478934-01-1;

**Guidelines:** The applicant stated that the calculations were performed in line with the following Guidelines:

- FOCUS 2000: FOCUS groundwater scenarios in the EU pesticide registration process. Report of the FOCUS Ground Water Scenarios Workshop, SANCO/321/2000 rev. 2, 202 pp.;
- FOCUS, 2009: Assessing Potential for Movement of Active Substances and their Metabolites to Ground Water in the EU: Report of the FOCUS Ground Water Work Group, SANCO/13144/2010, version 1, 604 pp.;
- FOCUS, 2012: Generic Guidance for Tier 1 FOCUS Groundwater Assessments, Version 2.1;

**GLP:** No, not applicable, modelling study

**RMS comments:** The study was performed in line with the provisions of the evoked Guidelines. The most recent version of the FOCUS GW tools were used, in line with the current regulatory recommendations. The calculations were carried out for the crop scenarios that covered the uses proposed in the EU-representative GAP. The calculations however were not accepted, because the values used as input parameters had to be changed for all evaluated compounds (please see the summary of the **Study 1** above). For that reason RMS decided to repeat the calculations and not to summarise the whole Applicant's report. However, below is provided a short summary presenting the comparative analysis of the application pattern assumed in calculations by the Applicant and by the RMS.

**Summary:**

The study report presented the results of the calculations of PEC<sub>GW</sub> values performed for Flufenacet and its major soil degradation products – FOE Oxalate, FOE Sulfonic acid, FOE Methylsulfone, FOE Thiadone, FOE 5043-trifluoroethanesulfonic acid and Trifluoroacetic acid (TFA). The calculations were carried out using two modelling tools recommended by FOCUS: FOCUS PELMO 5.5.3. and FOCUS PEARL 4.4.4.

Due to the fact that the substance-specific input parameters used in calculations had to be changed as a result of the evaluation performed by the RMS, the results of the calculations – the PEC<sub>GW</sub> values determined for each compound, are not presented here. However, below, in the table B.8.3.\_CP-2 are provided the results of the

comparative analysis of the application pattern assumed by the Applicant and the RMS. The values finally selected as input parameters for modelling are given in bold.

**Table B.8.3.\_CP-2:** The results of the comparative analysis of the application patterns proposed by the Applicant and RMS to be used in PEC<sub>GW</sub> calculations.

Application parameter	Data on application for the GAP-defined use:					
	Single, post-emergence use in Winter cereals (BBCH 10-13) at 240 g Flufenacet/ha		Single, post-emergence use in Winter cereals (BBCH 11-13) at 160 g Flufenacet/ha		Single, pre-emergence use in Winter cereals (BBCH 00-22) at 120 g Flufenacet/ha	
	defined by the Applicant	defined by the RMS	defined by the Applicant	defined by the RMS	defined by the Applicant	defined by the RMS
<b>FOCUS Crop</b>	Winter cereals	Winter cereals	Winter cereals	Winter cereals	Winter cereals	Winter cereals
<b>Number of applications</b>	1	1	1	1	1	1
<b>Application timing – 1<sup>st</sup> date of application</b>	1 day after emergence	1 day after emergence	2 days after emergence	2 days after emergence	10 days before emergence	10 days before emergence
<b>Type of application</b>	To the soil surface	To the soil surface	To the soil surface	To the soil surface	To the soil surface	To the soil surface
<b>Crop interception factor CI [%]</b>	25	0	25	0	0	0
<b>Application rate [g a. s./ha]</b>	240	<b>240</b>	160	<b>160</b>	<b>120</b>	<b>120</b>
<b>Amount reaching soil [g a. s./ha]</b>	180	<b>240</b>	120	<b>160</b>	<b>120</b>	<b>120</b>

Additionally, because for the uses in Winter cereals at 160 g/ha and 120 g/ha the application period was not clearly specified (unlike for the use at application rate 240 g/ha, limited only to Autumn), it was possible that the compound would be used both in autumn and at spring. Therefore RMS decided to perform two additional sets of simulations to cover also possible uses early at spring.

#### Calculations performed by the RMS:

To address the issue of the potential risk to the Groundwater compartment resulting from the use of Flufenacet in line with the proposed EU-representative GAP the Applicant submitted following two study reports, briefly characterised above:

- 1) Reinken G., Proschewski R., (2014): “Flufenacet Core PECgw FOCUS EU: Modelling Core Info Document for Groundwater Risk Assessment In Europe.”; Bayer CropScience AG, Environmental Safety, Alfred-Nobel-Strasse 50, 40789 Monheim, Germany; Study Report No. EnSa-13-1006; 25. 02. 2014; study reference number: M478214-01-1; (**Study 1**);
- 2) Reinken G., Bolekhan A., (2014): “Flufenacet (FOE 5043) and metabolites: PECgw FOCUS PEARL, PELMO EUR. Autumn use in winter cereals in Europe; Flufenacet (FOE 5043), FOE sulfonic acid, FOE oxalate, FOE methylsulfone, FOE-thiadone, FOE 5043-trifluoroethanesulfonic acid, Trifluoroacetic acid.”; Bayer CropScience AG, Environmental Safety, Alfred-Nobel-Strasse 50, 40789 Monheim, Germany; Study Report No. EnSa-14-0073; 14. 02. 2014; study reference number: M478934-01-1; (**Study 2**);

RMS analysed both reports with aim to verify the compliance of the data and findings they provided with:

- the results of the determination of the physicochemical properties of each compound encompassed by the calculations, presented in section B2 of the RAR (draft version available at the time of generating this section of the RAR);
- the results of the determination of the degradation kinetics of Flufenacet and its degradation products in soil presented in the document Vol. 3 B8\_CA of this Renewal Assessment Report;
- the results of the determination of the mobility of Flufenacet and its degradation products in soil, in particular the determined Freundlich adsorption parameters ( $K_{fOC}$ ,  $K_{fOM}$  and  $1/n$  values) presented in the document Vol. 3 B8\_CA of this Renewal Assessment Report;
- provisions of the relevant Guidance Documents, in particular:

- FOCUS 2000: FOCUS groundwater scenarios in the EU pesticide registration process. Report of the FOCUS Ground Water Scenarios Workshop, SANCO/321/2000 rev. 2, 202 pp.;
- FOCUS, 2009: Assessing Potential for Movement of Active Substances and their Metabolites to Ground Water in the EU: Report of the FOCUS Ground Water Work Group, SANCO/13144/2010, version 1, 604 pp.;
- FOCUS, 2014: Generic Guidance for Tier 1 FOCUS Ground Water Assessments. Version 2.2, May 2014

The verification of the physicochemical properties of each compound of concern used as input parameters in modelling, demonstrated that they were in line with the values found acceptable by the RMS and presented in section B2 of the draft RAR.

The verification of the parameters characterising the degradation kinetics of Flufenacet and its degradation products in soil showed that the values proposed by the Applicant and used in the model exposure assessment for the GW compartment could not be considered acceptable. That was due to the fact that the RMS changed them as a result of the repeated analysis/verification. The detailed information is provided under the relevant point in the document Vol. 3 B8\_CA of this renewal report. Also modified by the RMS were the Freundlich sorption parameters for Flufenacet.

As a result, RMS stated that the calculations had to be repeated using the refined values.

In the study report EnSa-13-1006 it was indicated that as a reference document the earlier version of the “Generic Guidance for Tier 1 FOCUS Ground Water Assessment” – ver. 2.1 issued in 2012, was used (as that version was available when the reports were generated). RMS however decided to use as a reference the most recent version of that Guidance Document. The reason for that was the fact that the calculations had to be repeated because of the substantial changes that underwent some key substance-specific parameters, such as  $DT_{50}$ ,  $K_{foc}$  and  $1/n$  values.

In line with that document RMS updated crop-related substance parameters – TSCF/PUF. Doing that RMS took into account the findings of the respective studies examining the PUF values for the selected degradation products of Flufenacet.

The analysis of the proposed application pattern used by the Applicant in calculations showed that the proposed application dates for each use were acceptable. However, due to the fact that for the uses in Winter cereals at 160 g/ha and at 120 g/ha, unlike for that with application rate 240 g/ha, the limits of the application period were determined only by the crop’s growth stage, the use of the compound at spring as well as in autumn could not be excluded. That problem concerned in particular the use in Winter cereals at 120 g/ha, in which the proposed application timing, in terms of BBCH for the treated crop, was 00-22.

All that taken into account RMS decided to perform two additional sets of modelling calculations assuming application at early spring.

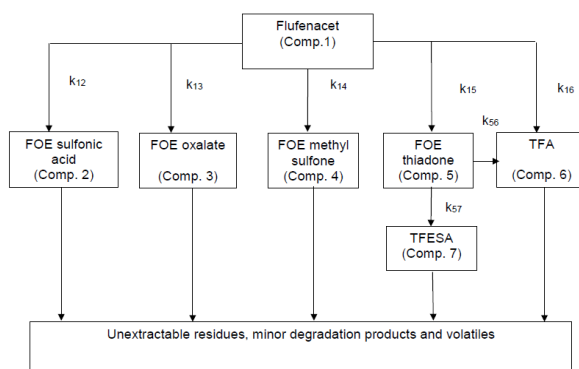
In calculations the Applicant proposed to use, for the post-emergence applications in Winter cereals – at 240 g/ha and 160 g/ha, the crop interception factor  $CI = 25\%$ . RMS however decided to change that value, in line with the recommendations of the “Generic Guidance for Tier 1 FOCUS Ground Water Assessments. Version 2.2, May 2014”, to  $CI = 0\%$ .

The repeated calculations performed by the RMS are characterised below.

The aim of the GW model exposure assessment was to determine the leaching potential and risk posed by Flufenacet and its major soil degradation products – FOE Oxalate, FOE Sulfonic acid, FOE Methylsulfone, FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid, to the Groundwater compartment.

The calculations were carried out using two modelling tools recommended by FOCUS: FOCUS PELMO 4.4.3. (compatible with FOCUS PELMO 5.5.3 used by the Applicant) and FOCUS PEARL 4.4.4. The calculations using FOCUS MACRO model were not performed due to the fact that for all compounds of concern the  $K_{foc}$  values were well below 1000 mL/g. Therefore the estimation of the risk to GW compartment resulting from the macropore flow was considered not necessary, being covered by the results of the calculations performed using two models listed above.

The calculations were performed for the following general transformation pattern of Flufenacet in aerobic soil (presented below on figure B.8.3.\_CP-1):

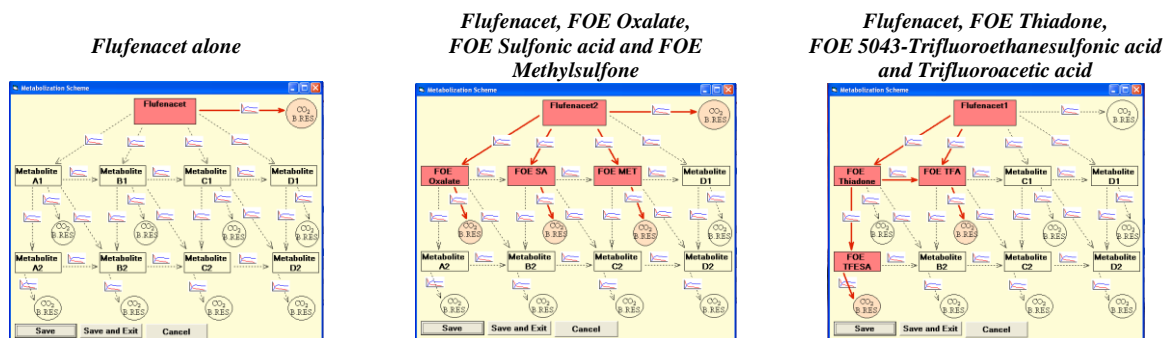


**Figure B.8.3.\_CP-1:** The general transformation pattern of Flufenacet in aerobic soil used in the assessment (copied from the study report EnSa-13-1006).

The examination of the transformation pattern of Flufenacet in soil demonstrated that its initial step consisted on the cleavage of the molecule on the bridging oxygen attached to the thiadiazole ring, as shown on the figure B.8.1.1.\_CP-1. The resulting moieties entered two separate transformation pathways. Therefore the RMS, in order to simplify the calculations and not to introduce the “ghost” compartment for the moiety containing phenyl ring, decided to perform the calculations separately for the part of the Flufenacet containing phenyl ring and that containing thiadiazole moiety. Additionally, in order to verify the calculations for the parent compound – Flufenacet, third batch of calculations was performed assuming the simplified transformation scheme of the parent compound – to the sink compartment. It was assumed that the total formation fractions for the initial cleavage of the O-C bond within the aliphatic chain were:

- for the moiety containing phenyl ring  $ff = 1$ ;
- for the moiety containing thiadiazole group  $ff = 1$ .

The schematic transformation pathways assumed in calculations are presented below on figure B.8.3.\_CP-2. It shall be indicated that although on that figure are presented the transformation patterns assumed in FOCUS PELMO modelling tool, the second modelling tool – FOCUS PEARL, was parametrised in exactly the same way with regard to the transformation patterns.



**Figure B.8.3.\_CP-2:** The transformation schemes assumed in modelling, as provided by FOCUS PELMO (identical in FOCUS PEARL).

The substance-specific input parameters used in calculations are presented below in tables B.8.3.\_CP-3 – B.8.3.\_CP-6. Only the key parameters introduced by the RMS are listed. All remaining parameters not listed in the tables were left as they were pre-defined (FOCUS defaults).

Table B.8.3.\_CP-3: The substance-specific input parameters for Flufenacet.

Parameter		Value	Remarks
<i>Physico-chemical properties</i>	Molar weight [g/mol]	363.3	as defined by the Applicant
	Vapour pressure at T = 20°C [Pa]	0.00009	as defined by the Applicant a
	Water solubility at T = 20°C [mg/L]	56	as defined by the Applicant
	pKa	20	FOCUS default
<i>Soil degradation-related parameters</i>	DT <sub>50</sub> [days]	17.87	normalised lab geomean value, determined by RMS
	rate constant <i>k</i> [days <sup>-1</sup> ]	0.0387	normalised lab geomean value, determined by RMS
	Values determined at (temperature, soil moisture)	T = 20°C, pF2	FOCUS defaults
	Q <sub>10</sub> (FOCUS PELMO)	2.58	FOCUS default
	E <sub>a</sub> [kJ/mol] (FOCUS PEARL)	65.4	FOCUS default
	Walker's exponent $\beta$	0.7	FOCUS default
<i>Soil sorption-related parameters</i>	K <sub>foc</sub> [mL/g] (FOCUS PELMO)	245.9	geomean value determined by RMS
	K <sub>fom</sub> [mL/g] (FOCUS PEARL)	142.63	value recalculated from K <sub>foc</sub> using the equation: $K_{foc} = 1.724 K_{fom}$
	1/n	0.916	arithmetic mean value determined by RMS
<i>Plant uptake-related parameters</i>	PUF	0.744	TSCF value calculated using recommendations given by FOCUS and log P <sub>ow</sub> = 3.5

Table B.8.3.\_CP-4: The substance-specific input parameters for FOE Oxalate and FOE Sulfonic acid.

Parameter		Input for the compound:			
		FOE Oxalate		FOE Sulfonic acid	
		Value	Remarks	Value	Remarks
<i>Physico-chemical properties</i>	Molar weight [g/mol]	225.2	as defined by the Applicant	275.3	as defined by the Applicant
	Vapour pressure at T = 20°C [Pa]	4.5 E-7	as defined by the Applicant	1.35 E-7	Value recalculated from that determined at 25°C
	Water solubility at T = 20°C [mg/L]	120000	as defined by the Applicant		as defined by the Applicant
	pKa	1.6	experimental value	1.0	experimental value
<i>Soil degradation-related parameters</i>	DT <sub>50</sub> [days]	11.08	normalised lab geomean value, determined by RMS	45.11	normalised lab geomean value, determined by RMS
	rate constant <i>k</i> [days <sup>-1</sup> ]	0.0639	normalised lab geomean value, determined by RMS	0.0154	normalised lab geomean value, determined by RMS
	Values determined at (temperature, soil moisture)	T = 20°C, pF2	FOCUS defaults	T = 20°C, pF2	FOCUS defaults
	Q <sub>10</sub> (FOCUS PELMO)	2.58	FOCUS default	2.58	FOCUS default
	E <sub>a</sub> [kJ/mol] (FOCUS PEARL)	65.4	FOCUS default	65.4	FOCUS default
	Walker's exponent $\beta$	0.7	FOCUS default	0.7	FOCUS default
	Kinetic formation fraction <i>ff</i>	0.426	arithmetic mean value, determined by RMS	0.195	arithmetic mean value, determined by RMS
	Precursor	Flufenacet	----	Flufenacet	----
<i>Soil sorption-related parameters</i>	Precursor's rate constant <i>k<sub>a</sub></i> (FOCUS PELMO)	0.0164862	calculated using the equation: $k_a = ff \cdot k$	0.0075465	calculated using the equation: $k_a = ff \cdot k$
	K <sub>foc</sub> [mL/g] (FOCUS PELMO)	10.60	geomean value	11.10	geomean value
	K <sub>fom</sub> [mL/g] (FOCUS PEARL)	6.15	value recalculated from K <sub>foc</sub> using the equation: $K_{foc} = 1.724 K_{fom}$	6.44	value recalculated from K <sub>foc</sub> using the equation: $K_{foc} = 1.724 K_{fom}$
<i>Plant uptake-related parameters</i>	1/n	0.912	arithmetic mean	0.995	arithmetic mean
	PUF	0.8	FOCUS default value (TSCF) proposed after calculation of TSCF = 0.983 using log P <sub>ow</sub> = 2.2	0.46	experimental PUF value determined and proposed by the Applicant

Table B.8.3.\_CP-5: The substance-specific input parameters for FOE Methylsulfone and FOE Thiadone.

Parameter		Input for the compound:			
		FOE Methylsulfone		FOE Thiadone	
		Value	Remarks	Value	Remarks
Physico-chemical properties	Molar weight [g/mol]	273.3	as defined by the Applicant	170.1	as defined by the Applicant
	Vapour pressure at T = 20°C [Pa]	0.00086	as defined by the Applicant	2.05	as defined by the Applicant
	Water solubility at T = 20°C [mg/L]	4100	as defined by the Applicant	100000	as defined by the Applicant
	pKa	1.0	experimental value	5.73	experimental value
Soil degradation-related parameters	DT <sub>50</sub> [days]	81.70	normalised lab median value, determined by RMS	1.95	normalised lab geomean value, determined by RMS
	rate constant <i>k</i> [days <sup>-1</sup> ]	0.00848	normalised lab median value, determined by RMS	0.3557	normalised lab geomean value, determined by RMS
	Values determined at (temperature, soil moisture)	T = 20°C, pF2	FOCUS defaults	T = 20°C, pF2	FOCUS defaults
	Q <sub>10</sub> (FOCUS PELMO)	2.58	FOCUS default	2.58	FOCUS default
	E <sub>a</sub> [kJ/mol] (FOCUS PEARL)	65.4	FOCUS default	65.4	FOCUS default
	Walker's exponent $\beta$	0.7	FOCUS default	0.7	FOCUS default
	Kinetic formation fraction <i>ff</i>	0.070	arithmetic mean value, determined by RMS	0.570	arithmetic mean value, determined by RMS
	Precursor	Flufenacet	----	Flufenacet	----
Soil sorption-related parameters	Precursors rate constant <i>k<sub>a</sub></i> (FOCUS PELMO)	0.002709	calculated using the equation: $k_a = ff \cdot k$	0.022059	calculated using the equation: $k_a = ff \cdot k$
	K <sub>iOC</sub> [mL/g] (FOCUS PELMO)	61.03	geomean value	42.10	geomean value
	K <sub>iOM</sub> [mL/g] (FOCUS PEARL)	35.40	value recalculated from K <sub>iOC</sub> using the equation: $K_{iOC} = 1.724 K_{iOM}$	24.42	value recalculated from K <sub>iOC</sub> using the equation: $K_{iOC} = 1.724 K_{iOM}$
	1/n	0.860	arithmetic mean	0.764	arithmetic mean
Plant uptake-related parameters	PUF	0.8	FOCUS default value (TSCF) proposed after calculation of TSCF = 0.999 using log P <sub>OW</sub> = 1.7	0.8	FOCUS default value (TSCF) proposed after calculation of TSCF = 0.874 using log P <sub>OW</sub> = 0.62

**Table B.8.3.\_CP-6:** The substance-specific input parameters for FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid.

Parameter		Input for the compound:			
		FOE 5043-Trifluoroethanesulfonic acid		Trifluoroacetic acid	
		Value	Remarks	Value	Remarks
<b>Physico-chemical properties</b>	Molar weight [g/mol]	164.1	as defined by the Applicant	114.0	as defined by the Applicant
	Vapour pressure at T = 20°C [Pa]	1 E-8	as defined by the Applicant	1.0 E-6	as defined by the Applicant
	Water solubility at T = 20°C [mg/L]	160000	as defined by the Applicant	500000	as defined by the Applicant
	pKa	1	experimental value	1.3	experimental value
<b>Soil degradation-related parameters</b>	DT <sub>50</sub> [days]	6.41	normalised lab geomean value, determined by RMS	1000	default value
	rate constant <i>k</i> [days <sup>-1</sup> ]	0.1082	normalised lab geomean value, determined by RMS	not calculated	----
	Values determined at (temperature, soil moisture)	T = 20°C, pF2	FOCUS defaults	T = 20°C, pF2	FOCUS defaults
	Q <sub>10</sub> (FOCUS PELMO)	2.58	FOCUS default	2.58	FOCUS default
	E <sub>a</sub> [kJ/mol] (FOCUS PEARL)	65.4	FOCUS default	65.4	FOCUS default
	Walker's exponent $\beta$	0.7	FOCUS default	0.7	FOCUS default
	Kinetic formation fraction <i>ff</i>	0.469	arithmetic mean value, determined by RMS	1) 0.43 2) 0.581	arithmetic mean values, determined by RMS
	Precursor	FOE thiadone	----	1) Flufenacet 2) Thiadone	----
<b>Soil sorption-related parameters</b>	K <sub>ROC</sub> [mL/g] (FOCUS PELMO)	0.0001	default value, set because the experimental K <sub>ROC</sub> = 0	0.0001	default value, set because the experimental K <sub>ROC</sub> = 0
	K <sub>DOM</sub> [mL/g] (FOCUS PEARL)	0.0001	default value, set because the experimental K <sub>ROC</sub> = 0	0.0001	default value, set because the experimental K <sub>ROC</sub> = 0
	1/n	1.0	default value	1.0	default value
<b>Plant uptake-related parameters</b>	PUF	0.8	FOCUS default value (TSCF) proposed because log P <sub>OW</sub> = -2.95	0.59	experimental PUF value determined and proposed by the Applicant

The application patterns assumed for each GAP-defined use are presented below in the table B.8.3.\_CA-7.

**Table B.8.3.\_CP-7:** The Application pattern assumed in calculations.

Application pattern defined in the GAP	Application pattern defined in model calculations:					
	FOCUS Crop	Number of applications and Application time	Type of Application	Crop interception factor CI [%]	Application rate [g/ha]	
					GAP-defined	Corrected for CI (model input)
<b>Winter Cereals, Autumn, early post-emergence, BBCH 10-13), 240 g a. s./ha</b>	Winter cereals	Single application, 1 day after emergence	To the soil surface	0	240	<b>240</b>
<b>Winter Cereals, post-emergence, BBCH 11-13, 160 g a. s./ha</b>	Winter cereals	Single application, 2 days after emergence (Autumn uses)	To the soil surface	0	160	<b>160</b>
	Winter cereals	Spring uses: single application on: 15/03: Chat., Pia., Por., Sev., Thi.; 01/04: Ham., Krem., Oke.; 15/04: Jok.	To the soil surface	0	160	<b>160</b>
<b>Winter Cereals, pre- and post-emergence, BBCH 00-22, 120 g a. s./ha</b>	Winter cereals	10 days before emergence (Autumn uses)	To the soil surface	0	120	<b>120</b>
	Winter cereals	Spring uses: single application on: 15/03: Chat., Pia., Por., Sev., Thi.; 01/04: Ham., Krem., Oke.; 15/04: Jok.	To the soil surface	0	120	<b>120</b>

The results of the calculations are presented in the tables below, individually for each use. The following abbreviations were used to denominate the degradation products for which assessment was performed:

- FOE OXA: FOE Oxalate;
- FOE SA: FOE Sulfonic acid;
- FOE MET: FOE Methylsulfone;
- FOE THIA: FOE Thiadone;
- FOE TFESA: FOE 5043-Trifluoroethanesulfonic acid;
- TFA: Trifluoroacetic acid.

**Table B.8.3.\_CP-8:** The results of calculations obtained for the use in Winter Cereals in autumn and at application rate 240g Flufenacet/ha.

Modelling tool	FOCUS Scenario	Results – 80 <sup>th</sup> percentile PEC <sub>GW</sub> [µg/L] for the compound:						
		Flufenacet	FOE OXA	FOE SA	FOE MET	FOE THIA	FOE TFESA	TFA
FOCUS PEARL 4.4.4.	<i>Châteaudun</i>	<0.0001	0.0680	2.0485	0.0395	<0.0001	0.0788	22.4267
	<i>Hamburg</i>	<0.0001	0.5403	3.6530	0.1590	<0.0001	0.5185	14.2007
	<i>Jokioinen</i>	<0.0001	0.5581	4.9120	0.0644	<0.0001	1.3008	20.9169
	<i>Kremsmünster</i>	<0.0001	0.1713	2.2715	0.1066	<0.0001	0.0843	11.1477
	<i>Okehampton</i>	<0.0001	0.7009	2.8135	0.1637	<0.0001	0.4407	9.7383
	<i>Piacenza</i>	<0.0001	0.1010	1.3799	0.0811	<0.0001	0.0663	13.8053
	<i>Porto</i>	<0.0001	0.4724	1.7835	0.0843	<0.0001	0.3424	7.5005
	<i>Sevilla</i>	<0.0001	0.0005	0.2023	<0.0001	<0.0001	0.0007	9.0195
FOCUS PELMO 4.4.3.	<i>Thiva</i>	<0.0001	0.0084	0.8712	0.0147	<0.0001	0.0096	19.8584
	<i>Châteaudun</i>	<0.001	0.056	1.713	0.025	<0.001	0.086	16.810
	<i>Hamburg</i>	<0.001	0.733	3.550	0.156	<0.001	0.840	10.902
	<i>Jokioinen</i>	<0.001	0.787	4.396	0.075	<0.001	1.574	14.859
	<i>Kremsmünster</i>	<0.001	0.177	2.216	0.100	<0.001	0.144	9.988
	<i>Okehampton</i>	<0.001	0.848	2.945	0.159	<0.001	0.582	9.198
	<i>Piacenza</i>	<0.001	0.262	1.724	0.088	<0.001	0.267	10.928
	<i>Porto</i>	<0.001	0.989	2.201	0.123	<0.001	0.756	6.564
	<i>Sevilla</i>	<0.001	0.017	0.296	<0.001	<0.001	0.040	10.733
	<i>Thiva</i>	<0.001	0.024	0.764	0.007	<0.001	0.039	14.622

**Table B.8.3.\_CP-9:** The results of calculations obtained for the use in Winter Cereals in autumn and at application rate 160 g Flufenacet/ha.

Modelling tool	FOCUS Scenario	Results – 80 <sup>th</sup> percentile PEC <sub>GW</sub> [µg/L] for the compound:						
		Flufenacet	FOE OXA	FOE SA	FOE MET	FOE THIA	FOE TFESA	TFA
FOCUS PEARL 4.4.4.	<i>Châteaudun</i>	<0.0001	0.0319	1.3486	0.0204	<0.0001	0.0512	14.9187
	<i>Hamburg</i>	<0.0001	0.3314	2.4278	0.0908	<0.0001	0.3406	9.4560
	<i>Jokioinen</i>	<0.0001	0.3419	3.2612	0.0339	<0.0001	0.8550	13.8753
	<i>Kremsmünster</i>	<0.0001	0.1063	1.5073	0.0611	<0.0001	0.0550	7.4321
	<i>Okehampton</i>	<0.0001	0.4388	1.8649	0.0944	<0.0001	0.2918	6.4439
	<i>Piacenza</i>	<0.0001	0.0641	0.9147	0.0462	<0.0001	0.0429	9.1896
	<i>Porto</i>	<0.0001	0.2889	1.1708	0.0475	<0.0001	0.2225	5.0259
	<i>Sevilla</i>	<0.0001	0.0003	0.1355	<0.0001	<0.0001	0.0005	6.0499
FOCUS PELMO 4.4.3.	<i>Thiva</i>	<0.0001	0.0050	0.5788	0.0071	<0.0001	0.0062	13.2606
	<i>Châteaudun</i>	<0.001	0.030	1.139	0.013	<0.001	0.054	11.156
	<i>Hamburg</i>	<0.001	0.452	2.337	0.089	<0.001	0.555	7.226
	<i>Jokioinen</i>	<0.001	0.487	2.921	0.040	<0.001	1.028	9.933
	<i>Kremsmünster</i>	<0.001	0.110	1.471	0.058	<0.001	0.092	6.654
	<i>Okehampton</i>	<0.001	0.527	1.951	0.094	<0.001	0.384	6.105
	<i>Piacenza</i>	<0.001	0.163	1.135	0.051	<0.001	0.177	7.267
	<i>Porto</i>	<0.001	0.615	1.495	0.070	<0.001	0.496	4.349
	<i>Sevilla</i>	<0.001	0.010	0.202	<0.001	<0.001	0.026	7.141
	<i>Thiva</i>	<0.001	0.014	0.497	0.003	<0.001	0.025	9.677

**Table B.8.3.\_CP-10:** The results of calculations obtained for the use in Winter Cereals in autumn and at application rate 120 g Flufenacet/ha.

Modelling tool	FOCUS Scenario	Results – 80 <sup>th</sup> percentile PEC <sub>GW</sub> [µg/L] for the compound:						
		Flufenacet	FOE OXA	FOE SA	FOE MET	FOE THIA	FOE TFESA	TFA
FOCUS PEARL 4.4.4.	<i>Châteaudun</i>	<0.0001	0.0413	1.0941	0.0134	<0.0001	0.0482	11.4205
	<i>Hamburg</i>	<0.0001	0.2892	1.8507	0.0627	<0.0001	0.3108	7.2430
	<i>Jokioinen</i>	<0.0001	0.2622	2.5267	0.0215	<0.0001	0.7172	11.0793
	<i>Kremsmünster</i>	<0.0001	0.0866	1.1617	0.0410	<0.0001	0.0558	5.5921
	<i>Okehampton</i>	<0.0001	0.3628	1.4783	0.0657	<0.0001	0.2290	5.3218
	<i>Piacenza</i>	<0.0001	0.0511	0.7227	0.0316	<0.0001	0.0500	6.9839
	<i>Porto</i>	<0.0001	0.2826	0.9804	0.0340	<0.0001	0.2021	3.9382
	<i>Sevilla</i>	<0.0001	0.0001	0.0902	<0.0001	<0.0001	0.0006	4.8563
FOCUS PELMO 4.4.3.	<i>Thiva</i>	<0.0001	0.0053	0.5133	0.0049	<0.0001	0.0085	10.3094
	<i>Châteaudun</i>	<0.001	0.035	0.880	0.009	<0.001	0.048	8.645
	<i>Hamburg</i>	<0.001	0.454	1.897	0.062	<0.001	0.498	6.033
	<i>Jokioinen</i>	<0.001	0.370	2.235	0.026	<0.001	0.811	7.568
	<i>Kremsmünster</i>	<0.001	0.090	1.163	0.039	<0.001	0.082	5.102
	<i>Okehampton</i>	<0.001	0.428	1.526	0.064	<0.001	0.312	4.752
	<i>Piacenza</i>	<0.001	0.145	0.966	0.036	<0.001	0.163	5.545
	<i>Porto</i>	<0.001	0.589	1.204	0.050	<0.001	0.409	3.626
	<i>Sevilla</i>	<0.001	0.062	0.416	<0.001	<0.001	0.051	5.507
	<i>Thiva</i>	<0.001	0.021	0.517	0.003	<0.001	0.032	7.962

**Table B.8.3.\_CP-11:** The results of calculations obtained for the use in Winter Cereals at spring and at application rate 160 g Flufenacet/ha.

Modelling tool	FOCUS Scenario	Results – 80 <sup>th</sup> percentile PEC <sub>GW</sub> [µg/L] for the compound:						
		Flufenacet	FOE OXA	FOE SA	FOE MET	FOE THIA	FOE TFESA	TFA
FOCUS PEARL 4.4.4.	<i>Châteaudun</i>	<0.0001	0.0121	0.9863	0.0147	<0.0001	0.0036	15.3016
	<i>Hamburg</i>	<0.0001	0.1436	2.3552	0.0794	<0.0001	0.1016	10.8856
	<i>Jokioinen</i>	<0.0001	0.1290	2.7188	0.0285	<0.0001	0.1862	13.9942
	<i>Kremsmünster</i>	<0.0001	0.0829	1.4960	0.0546	<0.0001	0.0326	7.6491
	<i>Okehampton</i>	<0.0001	0.0986	1.4263	0.0737	<0.0001	0.0317	6.4081
	<i>Piacenza</i>	<0.0001	0.0264	0.7279	0.0370	<0.0001	0.0079	9.6696
	<i>Porto</i>	<0.0001	0.0184	0.7583	0.0288	<0.0001	0.0070	7.1608
	<i>Sevilla</i>	<0.0001	0.0005	0.2407	<0.0001	<0.0001	0.0009	11.5395
FOCUS PELMO 4.4.3.	<i>Thiva</i>	<0.0001	0.0016	0.4601	0.0046	<0.0001	0.0014	17.6164
	<i>Châteaudun</i>	<0.001	0.006	0.672	0.007	<0.001	0.002	9.638
	<i>Hamburg</i>	<0.001	0.076	1.548	0.070	<0.001	0.036	5.829
	<i>Jokioinen</i>	<0.001	0.141	2.210	0.031	<0.001	0.151	7.271
	<i>Kremsmünster</i>	<0.001	0.080	1.450	0.050	<0.001	0.032	6.061
	<i>Okehampton</i>	<0.001	0.094	1.251	0.067	<0.001	0.035	4.053
	<i>Piacenza</i>	<0.001	0.021	0.837	0.037	<0.001	0.014	6.882
	<i>Porto</i>	<0.001	0.031	0.609	0.040	<0.001	0.015	3.749
	<i>Sevilla</i>	<0.001	0.001	0.156	<0.001	<0.001	0.001	5.365
	<i>Thiva</i>	<0.001	<0.001	0.175	0.001	<0.001	<0.001	5.964

**Table B.8.3.\_CP-12:** The results of calculations obtained for the use in Winter Cereals at spring and at application rate 120 g Flufenacet/ha.

Modelling tool	FOCUS Scenario	Results – 80 <sup>th</sup> percentile PEC <sub>GW</sub> [µg/L] for the compound:						
		Flufenacet	FOE OXA	FOE SA	FOE MET	FOE THIA	FOE TFESA	TFA
FOCUS PEARL 4.4.4.	<i>Châteaudun</i>	<0.0001	0.0085	0.7389	0.0092	<0.0001	0.0027	11.4799
	<i>Hamburg</i>	<0.0001	0.1028	1.7648	0.0537	<0.0001	0.0760	8.1665
	<i>Jokioinen</i>	<0.0001	0.0919	2.0373	0.0176	<0.0001	0.1396	10.4972
	<i>Kremsmünster</i>	<0.0001	0.0597	1.1211	0.0363	<0.0001	0.0244	5.7373
	<i>Okehampton</i>	<0.0001	0.0718	1.0690	0.0503	<0.0001	0.0237	4.8073
	<i>Piacenza</i>	<0.0001	0.0190	0.5452	0.0250	<0.0001	0.0059	7.2530
	<i>Porto</i>	<0.0001	0.0131	0.5682	0.0189	<0.0001	0.0053	5.3731
	<i>Sevilla</i>	<0.0001	0.0003	0.1806	<0.0001	<0.0001	0.0007	8.6689
FOCUS PELMO 4.4.3.	<i>Thiva</i>	<0.0001	0.0011	0.3450	0.0027	<0.0001	0.010	13.2204
	<i>Châteaudun</i>	<0.001	0.004	0.503	0.005	<0.001	0.002	7.226
	<i>Hamburg</i>	<0.001	0.055	1.160	0.047	<0.001	0.027	4.374
	<i>Jokioinen</i>	<0.001	0.102	1.656	0.019	<0.001	0.113	5.456
	<i>Kremsmünster</i>	<0.001	0.058	1.087	0.033	<0.001	0.024	4.546
	<i>Okehampton</i>	<0.001	0.068	0.938	0.046	<0.001	0.026	3.039
	<i>Piacenza</i>	<0.001	0.015	0.626	0.025	<0.001	0.010	5.155
	<i>Porto</i>	<0.001	0.023	0.456	0.026	<0.001	0.011	2.808
	<i>Sevilla</i>	<0.001	0.001	0.117	<0.001	<0.001	0.001	4.026
	<i>Thiva</i>	<0.001	<0.001	0.131	0.001	<0.001	<0.001	4.471

**Conclusions:**

The presented above results of the calculations of PEC<sub>GW</sub> values for Flufenacet and its major soil degradation products demonstrated that for all uses covered by the EU-representative GAP neither **Flufenacet** nor **FOE Thiadone** – one of its major degradation products, should pose any risk for the Groundwater compartment – the calculated PEC<sub>GW</sub> values for these two compounds were well below the regulatory threshold value of 0.1 µg/L. For the remaining degradation products leaching above the trigger value of 0.1 µg/L was observed at least in some scenarios and one of the evaluated uses. For each individual compound situation is outlined below.

In case of **FOE Oxalate** the following observations were made:

- for the use in Winter cereals in Autumn at application rate 240 g/ha the PEC<sub>GW</sub> > 0.1 µg/L were obtained with FOCUS PELMO in scenarios Hamburg (0.733 µg/L), Jokioinen (0.787 µg/L), Kremsmünster (0.177 µg/L), Okehampton (0.848 µg/L), Piacenza (0.262 µg/L) and Porto (0.989 µg/L), and with FOCUS PEARL in scenarios Hamburg (0.5403 µg/L), Jokioinen (0.5581 µg/L), Kremsmünster (0.1713 µg/L), Okehampton (0.7009 µg/L), Piacenza (0.1010 µg/L) and Porto (0.4724 µg/L); in FOCUS PEARL none of these values was > 0.75 µg/L while FOCUS PELMO returned PEC<sub>GW</sub> > 0.75 µg/L for scenarios Jokioinen (0.787 µg/L), Okehampton (0.848 µg/L) and Porto (0.989 µg/L);
- for use in Winter cereals in Autumn at application rate 160 g/ha the PEC<sub>GW</sub> > 0.1 µg/L were obtained with FOCUS PELMO in scenarios Hamburg (0.452 µg/L), Jokioinen (0.487 µg/L), Kremsmünster (0.110 µg/L), Okehampton (0.527 µg/L), Piacenza (0.163 µg/L) and Porto (0.615 µg/L), and with FOCUS PEARL in scenarios Hamburg (0.3314 µg/L), Jokioinen (0.3419 µg/L), Kremsmünster (0.1063 µg/L), Okehampton (0.4388 µg/L) and Porto (0.2889 µg/L); none of the calculated PEC<sub>GW</sub> > 0.75 µg/L in both FOCUS PELMO and FOCUS PEARL models;
- for use in Winter cereals in Autumn at application rate 120 g/ha the PEC<sub>GW</sub> > 0.1 µg/L were obtained with FOCUS PELMO in scenarios Hamburg (0.454 µg/L), Jokioinen (0.370 µg/L), Okehampton (0.428 µg/L), Piacenza (0.145 µg/L) and Porto (0.589 µg/L), and with FOCUS PEARL in scenarios Hamburg (0.2892 µg/L), Jokioinen (0.2622 µg/L), Okehampton (0.3628 µg/L) and Porto (0.2826 µg/L) in FOCUS PEARL; none of the calculated PEC<sub>GW</sub> > 0.75 µg/L in both FOCUS PELMO and FOCUS PEARL models;
- for use in Winter cereals at Spring at application rate 160 g/ha the PEC<sub>GW</sub> > 0.1 µg/L were obtained with FOCUS PELMO in scenario Jokioinen (0.141 µg/L), and with FOCUS PEARL in scenarios Hamburg (0.1436 µg/L) and Jokioinen (0.1290 µg/L); none of the calculated PEC<sub>GW</sub> > 0.75 µg/L in both FOCUS PELMO and FOCUS PEARL models;

- for use in Winter cereals at Spring at application rate 120 g/ha the  $PEC_{GW} > 0.1 \mu\text{g/L}$  were obtained with FOCUS PELMO in scenario Jokioinen (0.102  $\mu\text{g/L}$ ), and with FOCUS PEARL in scenario Hamburg (0.1028  $\mu\text{g/L}$ ); none of the calculated  $PEC_{GW} > 0.75 \mu\text{g/L}$  in both FOCUS PELMO and FOCUS PEARL models;

The compound will require an assessment of its toxicological and ecotoxicological relevance.

In case of **FOE Sulfonic acid** the following observations were made:

- for the use in Winter cereals in Autumn at application rate 240 g/ha all calculated  $PEC_{GW} > 0.1 \mu\text{g/L}$  and only in scenario Sevilla  $PEC_{GW} < 0.75 \mu\text{g/L}$  – 0.2023  $\mu\text{g/L}$  in calculations with FOCUS PEARL and 0.296  $\mu\text{g/L}$  in calculations with FOCUS PELMO; in all remaining scenarios and for both models the calculated  $PEC_{GW} > 0.75 \mu\text{g/L}$ , being in range 0.8712 – 4.9120  $\mu\text{g/L}$  in FOCUS PEARL and 0.764 – 4.396  $\mu\text{g/L}$  in FOCUS PELMO; the highest  $PEC_{GW}$  value was obtained for both models in scenario Jokioinen;
- for use in Winter cereals in Autumn at application rate 160 g/ha all calculated  $PEC_{GW} > 0.1 \mu\text{g/L}$ ; in only two scenarios the  $PEC_{GW} < 0.75 \mu\text{g/L}$  – in Sevilla (0.1355  $\mu\text{g/L}$  in FOCUS PEARL and 0.202  $\mu\text{g/L}$  in FOCUS PELMO) and Thiva (0.5788  $\mu\text{g/L}$  in FOCUS PEARL and 0.497  $\mu\text{g/L}$  in FOCUS PELMO); in all remaining scenarios and for both models the calculated  $PEC_{GW} > 0.75 \mu\text{g/L}$ , being in range 0.9147 – 3.2612  $\mu\text{g/L}$  in FOCUS PEARL and 1.135 – 2.921  $\mu\text{g/L}$  in FOCUS PELMO; the highest  $PEC_{GW}$  value was obtained for both models in scenario Jokioinen;
- for use in Winter cereals in Autumn at application rate 120 g/ha the  $PEC_{GW} < 0.1 \mu\text{g/L}$  was obtained with FOCUS PEARL in scenario Sevilla, for all remaining scenarios  $PEC_{GW} > 0.1 \mu\text{g/L}$ ; in case of calculations performed using FOCUS PELMO all  $PEC_{GW} > 0.1 \mu\text{g/L}$ ; the values above 0.1  $\mu\text{g/L}$  but below 0.75  $\mu\text{g/L}$  were observed for calculations performed using FOCUS PEARL in scenarios Piacenza (0.7227  $\mu\text{g/L}$ ) and Thiva (0.5133  $\mu\text{g/L}$ ) and for those with FOCUS PELMO in scenarios Sevilla (0.416  $\mu\text{g/L}$ ) and Thiva (0.517  $\mu\text{g/L}$ ); all remaining  $PEC_{GW} > 0.75 \mu\text{g/L}$  being in range 0.9804 – 2.5267  $\mu\text{g/L}$  for FOCUS PEARL and 0.880 – 2.235  $\mu\text{g/L}$  for FOCUS PELMO; the highest  $PEC_{GW}$  values were obtained in scenario Jokioinen;
- for use in Winter cereals at Spring at application rate 160 g/ha all calculated  $PEC_{GW} > 0.1 \mu\text{g/L}$ ; the  $PEC_{GW} < 0.75 \mu\text{g/L}$  were obtained using FOCUS PEARL in scenarios Piacenza (0.7279  $\mu\text{g/L}$ ), Sevilla (0.2407  $\mu\text{g/L}$ ) and Thiva (0.4601  $\mu\text{g/L}$ ) while with FOCUS PELMO in scenarios Châteaudun (0.672  $\mu\text{g/L}$ ), Porto (0.609  $\mu\text{g/L}$ ), Sevilla (0.156  $\mu\text{g/L}$ ) and Thiva (0.175  $\mu\text{g/L}$ ); in the remaining scenarios for each model the calculated  $PEC_{GW} > 0.75 \mu\text{g/L}$ , being in range 0.7583 – 2.7188  $\mu\text{g/L}$  in FOCUS PEARL and 0.837 – 2.210  $\mu\text{g/L}$  in FOCUS PELMO; the highest  $PEC_{GW}$  value was obtained for both models in scenario Jokioinen;
- for use in Winter cereals at Spring at application rate 120 g/ha all calculated  $PEC_{GW} > 0.1 \mu\text{g/L}$ ; the  $PEC_{GW} < 0.75 \mu\text{g/L}$  were obtained using FOCUS PEARL in scenarios Châteaudun (0.7389  $\mu\text{g/L}$ ), Piacenza (0.5452  $\mu\text{g/L}$ ), Porto (0.5682  $\mu\text{g/L}$ ), Sevilla (0.1806  $\mu\text{g/L}$ ) and Thiva (0.3450  $\mu\text{g/L}$ ), as well as with FOCUS PELMO – in scenarios Châteaudun (0.503  $\mu\text{g/L}$ ), Piacenza (0.626  $\mu\text{g/L}$ ), Porto (0.456  $\mu\text{g/L}$ ), Sevilla (0.117  $\mu\text{g/L}$ ) and Thiva (0.131  $\mu\text{g/L}$ ); Châteaudun; in the remaining scenarios and for both models the calculated  $PEC_{GW} > 0.75 \mu\text{g/L}$ , being in range 1.0690 – 2.0373  $\mu\text{g/L}$  in FOCUS PEARL and 0.938 – 1.656  $\mu\text{g/L}$  in FOCUS PELMO; the highest  $PEC_{GW}$  value was obtained for both models in scenario Jokioinen;

The compound will require an assessment of its toxicological and ecotoxicological relevance.

In case of **FOE Methylsulfone** the following observations were made:

- for the use in Winter cereals in Autumn at application rate 240 g/ha the  $PEC_{GW} \geq 0.1 \mu\text{g/L}$  were obtained with FOCUS PELMO in scenarios Hamburg (0.156  $\mu\text{g/L}$ ), Kremsmünster (0.100  $\mu\text{g/L}$ ), Okehampton (0.159  $\mu\text{g/L}$ ) and Porto (0.123  $\mu\text{g/L}$ ), and with FOCUS PEARL in scenarios Hamburg (0.1590  $\mu\text{g/L}$ ), Kremsmünster (0.1066  $\mu\text{g/L}$ ) and Okehampton (0.7009  $\mu\text{g/L}$ ), Piacenza (0.1010  $\mu\text{g/L}$ ) and Porto (0.4724  $\mu\text{g/L}$ ) in FOCUS PEARL; none of these values was  $> 0.75 \mu\text{g/L}$ ; for the remaining scenarios in each model the calculated  $PEC_{GW} < 0.1 \mu\text{g/L}$ ;
- for use in Winter cereals in Autumn at application rate 160 g/ha all  $PEC_{GW} < 0.1 \mu\text{g/L}$  for both models; the highest values were obtained for the scenario Okehampton – 0.0944  $\mu\text{g/L}$  in FOCUS PEARL and 0.094  $\mu\text{g/L}$  in FOCUS PELMO;

- for use in Winter cereals in Autumn at application rate 120 g/ha all  $PEC_{GW} < 0.1 \mu\text{g/L}$  for both models; the highest values were obtained for the scenario Okehampton –  $0.0657 \mu\text{g/L}$  in FOCUS PEARL and  $0.064 \mu\text{g/L}$  in FOCUS PELMO;
- for use in Winter cereals at Spring at application rate 160 g/ha all  $PEC_{GW} < 0.1 \mu\text{g/L}$  for both models; the highest values were obtained for the scenario Hamburg –  $0.0794 \mu\text{g/L}$  in FOCUS PEARL and  $0.070 \mu\text{g/L}$  in FOCUS PELMO;
- for use in Winter cereals at Spring at application rate 120 g/ha all  $PEC_{GW} < 0.1 \mu\text{g/L}$  for both models; the highest values were obtained for the scenario Hamburg –  $0.0537 \mu\text{g/L}$  in FOCUS PEARL and  $0.047 \mu\text{g/L}$  in FOCUS PELMO;

The compound may require an assessment of its toxicological and ecotoxicological relevance.

In case of **FOE 5043-Trifluoroethanesulfonic acid** the following observations were made:

- for the use in Winter cereals in Autumn at application rate 240 g/ha the  $PEC_{GW} > 0.1 \mu\text{g/L}$  were obtained with FOCUS PELMO in scenarios Hamburg ( $0.840 \mu\text{g/L}$ ), Jokioinen ( $1.574 \mu\text{g/L}$ ), Kremsmünster ( $0.144 \mu\text{g/L}$ ), Okehampton ( $0.582 \mu\text{g/L}$ ), Piacenza ( $0.267 \mu\text{g/L}$ ) and Porto ( $0.756 \mu\text{g/L}$ ), and with FOCUS PEARL in scenarios Hamburg ( $0.5185 \mu\text{g/L}$ ), Jokioinen ( $1.3008 \mu\text{g/L}$ ), Okehampton ( $0.4407 \mu\text{g/L}$ ) and Porto ( $0.3424 \mu\text{g/L}$ ); FOCUS PEARL returned  $PEC_{GW} > 0.75 \mu\text{g/L}$  for scenario Jokioinen, while FOCUS PELMO returned  $PEC_{GW} > 0.75 \mu\text{g/L}$  for scenarios Hamburg, Jokioinen and Porto;
- for use in Winter cereals in Autumn at application rate 160 g/ha the  $PEC_{GW} > 0.1 \mu\text{g/L}$  were obtained with FOCUS PELMO in scenarios Hamburg ( $0.555 \mu\text{g/L}$ ), Jokioinen ( $1.028 \mu\text{g/L}$ ), Okehampton ( $0.384 \mu\text{g/L}$ ), Piacenza ( $0.177 \mu\text{g/L}$ ) and Porto ( $0.496 \mu\text{g/L}$ ), and with FOCUS PEARL in scenarios Hamburg ( $0.3406 \mu\text{g/L}$ ), Jokioinen ( $0.8550 \mu\text{g/L}$ ), Okehampton ( $0.2918 \mu\text{g/L}$ ) and Porto ( $0.2225 \mu\text{g/L}$ ); the  $PEC_{GW} > 0.75 \mu\text{g/L}$  were returned by both FOCUS PEARL and FOCUS PELMO only for scenario Jokioinen;
- for use in Winter cereals in Autumn at application rate 120 g/ha the  $PEC_{GW} > 0.1 \mu\text{g/L}$  were obtained with FOCUS PELMO in scenarios Hamburg ( $0.498 \mu\text{g/L}$ ), Jokioinen ( $0.811 \mu\text{g/L}$ ), Okehampton ( $0.312 \mu\text{g/L}$ ), Piacenza ( $0.163 \mu\text{g/L}$ ) and Porto ( $0.409 \mu\text{g/L}$ ), and with FOCUS PEARL in scenarios Hamburg ( $0.3108 \mu\text{g/L}$ ), Jokioinen ( $0.7172 \mu\text{g/L}$ ), Okehampton ( $0.2290 \mu\text{g/L}$ ) and Porto ( $0.2021 \mu\text{g/L}$ ); the  $PEC_{GW} > 0.75 \mu\text{g/L}$  were returned only by FOCUS PELMO for scenario Jokioinen;
- for use in Winter cereals at Spring at application rate 160 g/ha the  $PEC_{GW} > 0.1 \mu\text{g/L}$  were obtained with FOCUS PELMO in scenario Jokioinen ( $0.151 \mu\text{g/L}$ ), and with FOCUS PEARL in scenarios Hamburg ( $0.1016 \mu\text{g/L}$ ) and Jokioinen ( $0.1862 \mu\text{g/L}$ ); for this use there was no  $PEC_{GW} > 0.75 \mu\text{g/L}$ ;
- for use in Winter cereals at Spring at application rate 120 g/ha the  $PEC_{GW} > 0.1 \mu\text{g/L}$  were obtained with FOCUS PELMO in scenario Jokioinen ( $0.113 \mu\text{g/L}$ ), as well as with FOCUS PEARL in which for scenario Jokioinen  $PEC_{GW} = 0.1396 \mu\text{g/L}$ ; for this use there was no  $PEC_{GW} > 0.75 \mu\text{g/L}$ ;

The compound will require an assessment of its toxicological and ecotoxicological relevance.

In case of **Trifluoroacetic acid (TFA)** the following observations were made:

- for the use in Winter cereals in Autumn at application rate 240 g/ha all  $PEC_{GW}$  were  $> 0.75 \mu\text{g/L}$ ; additionally the  $PEC_{GW} > 10 \mu\text{g/L}$  were obtained in scenarios Châteaudun ( $22.4267 \mu\text{g/L}$ ), Hamburg ( $14.2007 \mu\text{g/L}$ ), Jokioinen ( $20.9169 \mu\text{g/L}$ ), Kremsmünster ( $11.1477 \mu\text{g/L}$ ), Piacenza ( $13.8053 \mu\text{g/L}$ ) and Thiva ( $19.8584 \mu\text{g/L}$ ) when FOCUS PEARL was used, and in scenarios Châteaudun ( $16.810 \mu\text{g/L}$ ), Hamburg ( $10.902 \mu\text{g/L}$ ), Jokioinen ( $14.859 \mu\text{g/L}$ ), Piacenza ( $10.928 \mu\text{g/L}$ ), Sevilla ( $10.733 \mu\text{g/L}$ ) and Thiva ( $14.622 \mu\text{g/L}$ ) when FOCUS PELMO was used; the lowest  $PEC_{GW}$  values –  $7.5005 \mu\text{g/L}$  using FOCUS PEARL and  $6.564 \mu\text{g/L}$  using FOCUS PELMO, were recorded in scenario Porto;
- for use in Winter cereals in Autumn at application rate 160 g/ha all  $PEC_{GW}$  were  $> 0.75 \mu\text{g/L}$ , with the values  $> 10 \mu\text{g/L}$  obtained in scenarios Châteaudun ( $14.9187 \mu\text{g/L}$ ), Jokioinen ( $13.8753 \mu\text{g/L}$ ) and Thiva ( $13.2606 \mu\text{g/L}$ ) with FOCUS PEARL, while calculations with FOCUS PELMO returned  $PEC_{GW} > 10 \mu\text{g/L}$  only for scenario Châteaudun ( $11.156 \mu\text{g/L}$ ); the lowest  $PEC_{GW}$  values –  $5.0259 \mu\text{g/L}$  using FOCUS PEARL and  $3.349 \mu\text{g/L}$  using FOCUS PELMO, were recorded in scenario Porto;
- for use in Winter cereals in Autumn at application rate 120 g/ha all  $PEC_{GW}$  were  $> 0.75 \mu\text{g/L}$ , with the values  $> 10 \mu\text{g/L}$  obtained in scenarios Châteaudun ( $11.4205 \mu\text{g/L}$ ), Jokioinen ( $11.0793 \mu\text{g/L}$ ) and Thiva ( $10.3094 \mu\text{g/L}$ ) with FOCUS PEARL, while calculations with FOCUS PELMO returned no values

PEC<sub>GW</sub> > 10 µg/L; the lowest PEC<sub>GW</sub> values – 3.9382 µg/L using FOCUS PEARL and 3.626 µg/L using FOCUS PELMO, were recorded in scenario Porto;

- for use in Winter cereals at Spring at application rate 160 g/ha all PEC<sub>GW</sub> were > 0.75 µg/L, with the values > 10 µg/L obtained in scenarios Châteaudun (15.3016 µg/L), Jokioinen (10.88.56 µg/L), Kremsmünster (13.9942 µg/L), Sevilla (11.5395 µg/L) and Thiva (17.6164 µg/L) with FOCUS PEARL, while calculations with FOCUS PELMO returned no values PEC<sub>GW</sub> > 10 µg/L; the lowest PEC<sub>GW</sub> values were obtained for FOCUS PEARL in scenario Okehampton – 6.4081 µg/L, and for FOCUS PELMO in scenario Porto – 3.749 µg/L;
- for use in Winter cereals at Spring at application rate 120 g/ha all PEC<sub>GW</sub> were > 0.75 µg/L, with the values > 10 µg/L obtained in scenarios Châteaudun (11.4799 µg/L), Jokioinen (10.4972 µg/L) and Thiva (13.2204 µg/L) with FOCUS PEARL, while calculations with FOCUS PELMO returned no values PEC<sub>GW</sub> > 10 µg/L; the lowest PEC<sub>GW</sub> values were obtained for FOCUS PEARL in scenario Okehampton – 4.8073 µg/L, and for FOCUS PELMO in scenario Porto – 2.808 µg/L;

The compound will require an assessment of its toxicological and ecotoxicological relevance. Additionally, as TFA in the environment comes from other sources, the comparison of the obtained values with the background concentrations may be necessary to appropriately evaluate the risk.

#### B.8.4 – Fate and Behaviour in Water and Sediment

The determination of transformation pathways and persistence of Flufenacet in the aquatic environment was performed by examining potentially relevant abiotic and biologically-mediated processes.

The examination of abiotic degradation of Flufenacet in the aquatic environment comprised the following processes:

- abiotic aqueous hydrolysis;
- direct aqueous photolysis;
- indirect aqueous photolysis.

The **abiotic hydrolysis of Flufenacet** was examined at three different pH values – pH = 5, pH = 7 and pH = 9 (environmentally relevant pH range) and T = 25°C. The results of that examination, presented in one study report, demonstrated that Flufenacet was hydrolytically stable within the whole examined pH range. The determined in that experiment half-lives at T = 25°C were: DT<sub>50</sub> > 1000 days for pH 5-7 and DT<sub>50</sub> = 655 days for pH = 9.

Additionally the results presented in the open source paper, identified as a relevant for the evaluation of Flufenacet, showed that the pH of the aqueous solution, and hence the hydrolysis, had only minimal influence on the rate of dissipation/degradation of Flufenacet in water (for biologically viable test systems). The results of that study were considered however only indicative and were not used to derive the regulatory endpoints.

Also stable to abiotic hydrolysis in the aquatic environment, for the same environmentally relevant conditions, was demonstrated to be the major soil and aquatic degradation product of Flufenacet – FOE Thiadone. The determined half-lives were DT<sub>50</sub> > 1000 days for the whole tested range of pH = 5-9 and T = 25°C.

The **direct aqueous photolysis of Flufenacet** was examined in a sterile buffer solution having pH = 5 and T = 21°C. The samples were exposed to UV-Vis radiation generated by the artificial light source. The irradiation conditions were similar to those recorded during 30-days exposure to natural summer sunlight in Phoenix, Arizona, USA. The results demonstrated that Flufenacet was not prone to the direct aqueous photolysis – practically no photodegradation of Flufenacet, in comparison to the dark control samples, was observed. The determined half-lives were: for irradiated sample DT<sub>50</sub> = 7430 days when expressed in Natural Sunlight days, and for the dark control samples DT<sub>50</sub> = 4160 days.

In a separate experiment the quantum yield of the process of direct photodegradation of Flufenacet in water was determined. The quantum yield value determined in that experiment was  $\phi = 0.00096$  [mol/Einstein]. The calculated using it environmental photolytical half-lives for Flufenacet in water, determined using GC-Solar method, were:

- for the latitude 30°N in range DT<sub>50</sub> = 126 – 308 days;
- for the latitude 40°N in range DT<sub>50</sub> = 131 – >365 days;
- for the latitude 50°N in range DT<sub>50</sub> = 142 – >365 days;
- for the latitude 60°N in range DT<sub>50</sub> = 160 – >365 days;

Additionally, in a separate study, was examined the direct aqueous photolysis of the major soil and aquatic degradation product of Flufenacet – FOE Thiadone. The experiment was performed in a sterile buffer solution having pH = 7 and at T = 25°C. The samples were exposed to UV-Vis radiation generated by the artificial light source. The irradiation conditions were similar to those recorded during 30-days exposure to natural summer sunlight in Phoenix, Arizona, USA. The results demonstrated that FOE Thiadone not prone to the direct aqueous photolysis – practically no photodegradation of that compound was observed in either irradiated samples or in dark control and it was not possible to determine the reliable DT<sub>50</sub> values.

The **indirect aqueous photolysis of Flufenacet** was examined in four types of aqueous solutions:

- natural pond water, having pH = 6.5, TOC = 20.7 mg/L and containing 160 mg/L of suspended solids (total), subsequently named Howe pond water;
- natural pond water, having pH = 7.8, TOC = 1.55 mg/L and containing 9 mg/L of suspended solids, subsequently named Stilwell pond water;
- ultrapure water containing 15 ppm of humic material;
- ultrapure water containing 50 ppm KNO<sub>3</sub>.

The samples were exposed to UV-Vis radiation generated by artificial light source, but bearing the characteristic of the natural sunlight. The irradiation conditions were similar to those recorded during the

30-days exposure to natural summer light in Phoenix, Arizona, USA. The experiment showed that Flufenacet was prone to indirect photolysis in water, although that process should not be regarded as one of the driving mechanisms of disappearance of Flufenacet from natural waters. The experiments were aimed on the determination of the kinetic parameters of the process – the rates of the indirect photodegradation of Flufenacet in water, therefore no attempt was made to identify and quantify possibly formed degradation products.

The calculated, net, half-lives for the indirect photodegradation of Flufenacet in water were following:

- for Howe pond water the experimentally derived (continuous irradiation) **DT<sub>50</sub> = 160.08 days**, what corresponded to **DT<sub>50</sub> = 468.53 days** for exposure to natural summer sunlight at 33° 26' N (in June at Phoenix, Arizona, USA);
- for Stilwell pond water the experimentally derived (continuous irradiation) **DT<sub>50</sub> = 281 days**, what corresponded to **DT<sub>50</sub> = 822 days** for exposure to natural summer sunlight at 33° 26' N (in June at Phoenix, Arizona, USA);
- for ultrapure water containing 15 ppm of Humic material the experimentally derived (continuous irradiation) **DT<sub>50</sub> = 114 days**, what corresponded to **DT<sub>50</sub> = 332 days** for exposure to natural summer sunlight at 33° 26' N (in June at Phoenix, Arizona, USA);
- for ultrapure water containing 50 ppm of KNO<sub>3</sub> the experimentally derived (continuous irradiation) **DT<sub>50</sub> = 27.5 days**, what corresponded to **DT<sub>50</sub> = 158 days** for exposure to natural summer sunlight at 33° 26' N (in June at Phoenix, Arizona, USA).

It shall be however indicated that these values were determined using the results obtained in non-GLP experiments (being an additional part of a GLP study aimed on the examination of the direct aqueous photolysis of Flufenacet). For that reason RMS decided to consider them as only indicative and not to include them into the EU List of Endpoints.

Additionally, in a separate experiment, was examined the indirect aqueous photolysis of FOE Thiadone – the major soil and aquatic degradation product of Flufenacet. The test medium was sterilised natural (riverine) water. The samples were exposed to UV-Vis radiation generated by artificial light source, but bearing the characteristic of the natural sunlight. The irradiation conditions were similar to those recorded during the 30-days exposure to natural summer sunlight in Phoenix, Arizona, USA. The experiment showed that FOE Thiadone was prone to indirect photolysis in water. The experiment was performed with the test compound radiolabelled at C2 position in thiadiazole ring, what resulted in identification only CO and CO<sub>2</sub> as degradation products. Therefore it remains unknown what are the degradation products associated with the second carbon atom within the thiadiazole ring – C5. However, it may be assumed that one of such products could be TFA. The calculated, net, rate of indirect photodegradation of FOE Thiadone in water was **k = 0.1194 [days<sup>-1</sup>]**, corresponding to **DT<sub>50</sub> = 5.8 days** in samples continuously irradiated with artificial sunlight. When recalculated to the natural conditions that value corresponded to:

- **DT<sub>50</sub> = 15.8 days** determined for summer sunlight conditions (June) in Phoenix, Arizona, USA (33° 26' N);
- **DT<sub>50</sub> = 24.4 days** determined for summer sunlight conditions (June) in Athens, Greece, EU (38° 03' N);
- **DT<sub>50</sub> = 30.5 days** determined for summer sunlight conditions (July) in London, UK, EU (51° 30' N).

These results were reported in the EU List of Endpoints for Flufenacet.

The assessment of biologically-mediated transformation of Flufenacet in the aquatic environment covered the following issues:

- examination of the ready biodegradability;
- examination of the aerobic mineralisation in surface water;
- examination of the fate and behaviour of Flufenacet in aerobic water/sediment systems;
- examination of the fate and behaviour of Flufenacet in irradiated aerobic water/sediment systems;
- examination of the degradation of Flufenacet in saturated zone (anaerobic water/sediment system).

The Applicant has not submitted any study report presenting the results of the examination of **ready biodegradability of Flufenacet**. Instead the following justification for non-submission was provided:

*“Flufenacet was stated to be not ready biodegradable. This was accepted by the European Commission (7469/VI/98-Final -3<sup>rd</sup> July 2003). Therefore no additional study was performed for the flufenacet renewal of approval.”* The justification for non-provision of the adequate study may be considered acceptable. RMS examining the submitted documentation stated that the Applicant provided a study examining the degradation of Flufenacet in natural water. Also were made available two studies examining the fate and behaviour of Flufenacet in aerobic water/sediment systems. These studies provided information on the mineralisation of Flufenacet in aquatic environment. Their results confirm that Flufenacet shall be classified as not ready

biodegradable, hence the conclusion drawn during the previous evaluation of Flufenacet for its authorisation in the EU remains valid.

The **aerobic mineralisation of Flufenacet in surface water** was examined in pelagic (pond) freshwater collected from the pond representative for the agricultural area of the use of Flufenacet. The test water had the following characteristic:

- type of water sample: pelagic water (no associated sediment);
- pH: 7.5;
- total alkalinity: 230 mg CaCO<sub>3</sub>/L;
- total hardness: 329 mg CaCO<sub>3</sub>/L;
- specific conductivity: 500 µmhos/cm;
- [O<sub>2</sub>]: 9.6 mg/L;
- Suspended solids: 8.5 mg/L;
- Microbial activity, expressed in number of the colony forming units (CFU): 5.9 E3 CFU/mL.

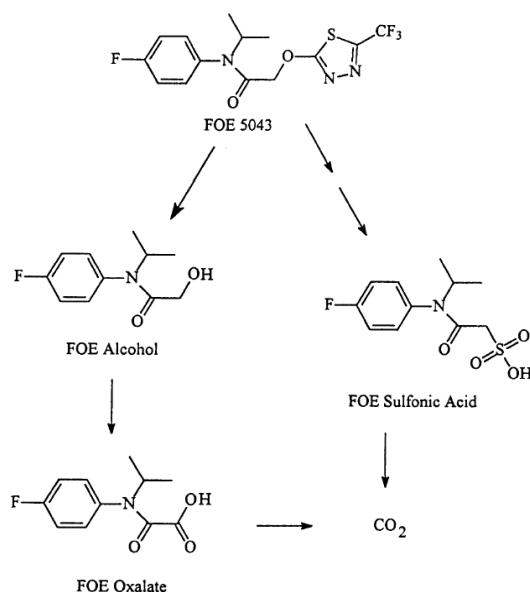
The examination of the degradation of Flufenacet in water was performed in irradiated test systems, under light regime similar to natural sunlight conditions. The mean temperature of incubation was in range 23.1 – 24.4°C (mean estimated by the RMS is 23.75°C), therefore slightly deviating from the assumed  $T = 25 \pm 1^\circ\text{C}$ .

The experiment was performed with Flufenacet radiolabelled in only one position – in fluorophenyl ring, therefore the proposed transformation scheme cannot be considered complete. In case of the biologically viable samples three degradation products were identified and quantified:

- FOE Alcohol, recorded for the first time on DAT 60, peaking at 4.4% of the applied amount of the parent compound on DAT 368 (end of the study) and that amount was still seemingly increasing;
- FOE Oxalate, recorded for the first time on DAT 60, peaking at 24.0% of the applied amount of the parent compound on DAT 368 (end of the study) and that amount was still increasing;
- FOE Sulfonic acid, recorded for the first time on DAT 278, peaking at 8.6% of the applied amount of the parent compound on DAT 368 (end of the study) and that amount was still increasing;

In sterilised samples only one degradation product was identified – FOE Alcohol, observed for the first time on DAT 278 and formed in amount up to 6.8% of the applied amount of the parent compound (value recorded at the end of the study – on DAT 368).

The proposed, partial, transformation scheme for Flufenacet in natural, microbiologically viable water, resulting from that examination, is presented below on figure B.8.4.\_CP-1.



**Figure B.8.4.\_CP-1:** The proposed, partial transformation pathway of Flufenacet in natural, microbiologically viable water (copied from the study report).

During that experiment, lasting for 368 days, it was stated that Flufenacet radiolabelled in fluorophenyl moiety, underwent very limited mineralisation – up to 3.0% of the applied dose was fully mineralised in the biologically viable samples. That indicates that Flufenacet cannot be considered ready biodegradable. In the sterilised samples the level of mineralisation was up to 0.8% at the end of incubation period – DAT 368.

It shall be pointed out that the so determined transformation pathway of Flufenacet was only partial, as it fully covered only one moiety within the molecule – that comprising fluorophenyl ring and attached to it n-alkyl chain. At the same time however it shall be indicated that the main functional group within that moiety – fluorophenyl ring, displayed high persistence, what enabled to estimate with quite good accuracy not only persistence of Flufenacet in natural, microbiologically viable water, but also overall level of mineralisation of the molecule.

The process of degradation of Flufenacet in pelagic water was slow, with  $DT_{50} = 473$  days and  $DT_{90} = 1570$  days in non sterilised water, and it followed the SFO kinetic model. When recalculated to the standard temperature –  $T = 20^{\circ}\text{C}$  (using Arrhenius activation energy  $E_a = 65.4$  kJ/mol) these values were:  $DT_{50} = 664$  days and  $DT_{90} = 2204.1$  days.

In sterilised water the rate of degradation, also determined using the SFO kinetics, was much slower, with  $DT_{50} = 2230$  days and  $DT_{90} = 7410$  days. When recalculated to the standard temperature –  $T = 20^{\circ}\text{C}$  (using Arrhenius activation energy  $E_a = 65.4$  kJ/mol) these values were:  $DT_{50} = 3130.7$  days and  $DT_{90} = 10402.9$  days.

The kinetic examination of the results for any of the identified and quantified degradation products was not possible due to the fact that all they were still forming at the study's end.

These results demonstrated that the process of the degradation of Flufenacet in natural pelagic water was predominantly biologically mediated and that the abiotic degradation processes – hydrolysis and aqueous photolysis (direct and indirect) played only minor role, if any.

**The transformation pattern of Flufenacet in aerobic water/sediment systems** was examined in two separate studies, using Flufenacet radiolabelled at two different positions – uniformly in fluorophenyl ring as [Phenyl- $U-^{14}\text{C}$ ]Flufenacet – one of the studies ([Kelley et al.; 1995]), and in C2 position of Thiadiazole moiety as [Thiadiazole - $2-^{14}\text{C}$ ]Flufenacet – second study ([Halarnkar and Irwin; 1997]). In each study two water/sediment systems were used, bearing codenames (common for both studies) NESAs and BRP. It shall be indicated however that although sampled on the same locations, the test systems did not bear the same characteristics, therefore shall be considered as individual test systems and not the replicates. RMS examining the data set noticed that the examination of the transformation of the thiadiazole moiety of Flufenacet was performed for only C2 radiolabelling position, while C5 radiolabelling position was not covered. That resulted in the lack of data concerning the potential formation of TFA and, possibly (if the degradation pattern was similar to that observed in aerobic soil) FOE TFESA. RMS considers this to be a potential data gap with regard to the full examination of the transformation of Flufenacet in the water/sediment systems.

In the study with [Phenyl- $U-^{14}\text{C}$ ]Flufenacet two water/sediment systems were used:

- NESAs test system (NESAs), containing silty clay loam sediment, having  $\text{pH} = 7.9$ , OC content of 0.7% and CEC of 33.5 meq/100 g, and associated water, having  $\text{pH} = 7.5$ , dissolved  $\text{O}_2$  content of 9.2 ppm and the content of total dissolved solids of 82 ppm;
- BRP test system (BRP), containing silty clay loam sediment, having  $\text{pH} = 7.8$ , OC content of 1.4% and CEC of 25.6 meq/100 g, and associated water, having  $\text{pH} = 7.3$ , dissolved  $\text{O}_2$  content of 8.5 ppm and the content of total dissolved solids of 120 ppm.

The experiment lasted for 156 days and the samples were incubated in the darkness at constant temperature  $T = 20^{\circ}\text{C}$ .

In the study with [Thiadiazole- $2-^{14}\text{C}$ ]Flufenacet two water/sediment systems were used:

- NESAs test system (NESAs 1), containing silty clay sediment, having  $\text{pH} = 7.8$ , OC content of 0.38% and CEC of 22.0 meq/100 g, and associated water, having  $\text{pH} = 7.2$ , dissolved  $\text{O}_2$  content of 9.2 ppm and the OC content of 331 ppm;
- BRP test system (BRP 1), containing silty clay loam sediment, having  $\text{pH} = 7.8$ , OC content of 1.54% and CEC of 13.02 meq/100 g, and associated water, having  $\text{pH} = 6.9$ , dissolved  $\text{O}_2$  content of 10.0 ppm and the OC content of 415 ppm.

The experiment lasted for 156 days and the samples were incubated in the darkness at constant temperature  $T = 20^{\circ}\text{C}$ .

The key results of both studies with regard to the distribution of radioactivity in the test systems are presented below in the table B.8.4.\_CP-1. The detailed results of the profiling of radioactivity in the test water/sediment systems are presented in the table B.8.4.\_CP-2.

Table B.8.4.\_CP-1: Distribution of the Applied Radioactivity (AR) in the test water/sediment systems.

Water/ Sediment system and test compound	Characteristic of the system:			AR distribution in the system [%]:				Identified metabolites <sup>1)</sup>
				<i>In water phase max/min</i>	<i>Max. in sediment - extractable</i>	<i>NER</i>	<i>Minerali- sation level (<sup>14</sup>CO<sub>2</sub>)</i>	
NESA; [Phenyl-U- <sup>14</sup> C] Flufenacet	<i>Sediment's texture class - USDA</i>		Slity clay loam	<u>total:</u> max. 97.1%, DAT 0; min. 38.1%, DAT 157  <u>Flufenacet:</u> max. 94.9%, DAT 0; Min. 15.8% DAT 157	<u>total:</u> max. 23.5%, DAT 120; min. 3.5%, DAT 0  <u>Flufenacet:</u> max. 22.9%, DAT 30; min. 3.5% DAT 0	28.5%; DAT 157	3.4%; DAT 157	FOE Oxalate – max. 4.6%; FOE Alcohol – max. 0.7%; FOE Sulfonic acid – max. 1.7%; FOE Methyl- sulfide – max. 11.4%; FOE Methyl- sulfone – max. 6.4%; FOE Methyl- sulfoxide – max. 3.2%; FOE TGS – max. 2.0%
	<i>pH</i>	Water phase	7.5					
		Sediment	7.9					
	<i>OC content</i>	Sediment [%]	0.7					
	<i>Incubation temperature [°C]</i>		20					
BRP; [Phenyl-U- <sup>14</sup> C] Flufenacet	<i>Sediment's texture class - USDA</i>		Slity clay loam	<u>total:</u> max. 95.5%, DAT 0; min. 21.9%, DAT 157  <u>Flufenacet:</u> max. 95.0%, DAT 0; min. 7.53% DAT 157	<u>total:</u> max. 35.0%, DAT 30; min. 0.5%, DAT 0  <u>Flufenacet:</u> max. 34.2%, DAT 30; min. 0.5% DAT 0	46.4%; DAT 157	1.5%; DAT 157	FOE Oxalate – max. 5.4%; FOE Alcohol – max. 1.3%; FOE Sulfonic acid – max. 3.2%; FOE Methyl- sulfide – max. 4.5%; FOE Methyl- sulfone – max. 7.2%; FOE Methyl- sulfoxide – max. 2.2%; FOE TGS – max. 1.9%
	<i>pH</i>	Water phase	7.3					
		Sediment	7.8					
	<i>OC content</i>	Sediment [%]	1.4					
	<i>Incubation temperature [°C]</i>		20					
NESA 1; [Thiadiazole-2- <sup>14</sup> C]Flufenacet	<i>Sediment's texture class - USDA</i>		Slity clay	<u>total:</u> max. 88.0%, DAT 28; min. 68.0%, DAT 156  <u>Flufenacet:</u> max. 83.99%, DAT 0; min. 3.1% DAT 55	<u>total:</u> max. 12.8%, DAT 7; min. 2.7%, DAT 100  <u>Flufenacet:</u> max. 12.4%, DAT 7; min. 0.6% DAT 100	3.3%; DAT 55	15.3%; DAT 156	FOE Thiadone – max. 84.3%
	<i>pH</i>	Water phase	7.2					
		Sediment	7.8					
	<i>OC content</i>	Sediment [%]	0.38					
	<i>Incubation temperature [°C]</i>		20					
BRP 1; [Thiadiazole-2- <sup>14</sup> C]Flufenacet	<i>Sediment's texture class - USDA</i>		Slity clay loam	<u>total:</u> max. 84.5%, DAT 0; min. 0.9%, DAT 156  <u>Flufenacet:</u> max. 83.2%, DAT 0; min. 0.9% DAT 156	<u>total:</u> max. 29.9%, DAT 14; min. 4.4%, DAT 156  <u>Flufenacet:</u> max. 26.1%, DAT 14; min. 2.3% DAT 156	9.6%; DAT 100	15.0%; DAT 156	FOE Thiadone – max 63.8%.
	<i>pH</i>	Water phase	6.9					
		Sediment	7.8					
	<i>OC content</i>	Sediment [%]	1.54					
	<i>Incubation temperature [°C]</i>		20					

Footnotes to the table:

1) FOE TGS = FOE Thioglycolate sulfoxide;

Table B.8.4.\_CP-2: The results of the profiling of radioactivity in the test water/sediment systems.

Water/ Sediment system and test compound	Compound	Concentration [% AR] in:								
		Whole system			Water phase			Sediment phase:		
		Begin- ning of the study <sup>1)</sup>	End of the study <sup>2)</sup>	Max. amount (DAT)	Begin- ning of the study <sup>1)</sup>	End of the study <sup>2)</sup>	Max. amount (DAT)	Begin- ning of the study <sup>1)</sup>	End of the study <sup>2)</sup>	Max. amount (DAT)
NESA; [Phenyl- U- <sup>14</sup> C] Flufenacet	Flufenacet	98.4	27.7	98.4; (0)	94.9	15.8	94.9; (0)	3.5	11.9	22.9; (30)
	FOE Oxalate	0.0	4.6	4.6; (157)	0.0	4.6	4.6; (157)	0.0	0.0	0.2; (100)
	FOE Alcohol	0.0	0.6	0.7; (120)	0.0	0.2	0.2; (157)	0.0	0.4	0.6; (120)
	FOE Sulfonic acid	0.0	1.7	1.7; (157)	0.0	1.7	1.7; (157)	0.0	0.0	0.0
	FOE Methylsulfide	0.0	11.4	11.4; (157)	0.0	8.0	8.0; (157)	0.0	3.5	3.5; (157)
	FOE Methylsulfone	0.0	5.3	6.4; (100)	0.0	4.4	5.0; (100)	0.0	0.9	1.4; (100)
	FOE Methylsulfoxide	0.4	3.2	3.2; (157)	0.4	0.0	0.4; (0)	0.0	3.2	3.2; (157)
	FOE TGS <sup>3)</sup>	0.0	2.0	2.0; (157)	0.0	2.0	2.0; (157)	0.0	0.0	0.0
BRP; [Phenyl- U- <sup>14</sup> C] Flufenacet	Flufenacet	95.5	22.3	100.2; (1)	95.0	7.5	95.0; (0)	0.5	14.8	34.2; (30)
	FOE Oxalate	0.0	5.4	5.4; (157)	0.0	4.8	4.8; (157)	0.0	0.6	0.6; (157)
	FOE Alcohol	0.0	1.3	1.3; (157)	0.0	0.0	0.0;	0.0	1.3	1.3; (157)
	FOE Sulfonic acid	0.0	3.2	3.2; (157)	0.5	3.0	3.0; (157)	0.0	0.3	0.3; (156)
	FOE Methylsulfide	0.0	4.5	4.5; (157)	0.0	1.9	2.7; (120)	0.0	2.7	2.7; (157)
	FOE Methylsulfone	0.0	3.8	7.2; (120)	0.0	2.9	6.5; (120)	0.0	0.9	1.0; (100)
	FOE Methylsulfoxide	0.0	1.7	2.2; (120)	0.0	0.5	1.0; (60)	0.0	1.2	2.2; (120)
	FOE TGS <sup>3)</sup>	0.0	1.4	1.9; (60)	0.0	1.4	2.0; (60)	0.0	0.0	0.0
NESA 1; [Thia- diazole-2- <sup>14</sup> C] Flu- fenacet	Flufenacet	94.2	0.9	94.2; (0)	83.9	0.0	83.9; (0)	10.4	1.0	12.4; (7)
	FOE Thiadone	0.0	68.7	84.3; (55)	0.0	65.5	81.8; (55)	0.0	3.0	3.0; (156)
BRP 1; [Thia- diazole-2- <sup>14</sup> C] Flu- fenacet	Flufenacet	96.3	3.3	96.3; (0)	83.2	0.9	83.2; (0)	12.2	2.39	26.1; (14)
	FOE Thiadone	0.2	54.2	63.8; (100)	0.0	52.2	60.0; (100)	0.1	1.9	3.8; (100)

**Footnotes to the table:**

- 1) DAT 0 for all experiments;
- 2) DAT 157 for experiments with [Phenyl-U-<sup>14</sup>C] Flufenacet and DAT 156 for experiments with [Thiadiazole-2-<sup>14</sup>C] Flufenacet;
- 3) FOE TGS = FOE Thioglycolate sulfoxide.

The results obtained in the water/sediment systems confirm that Flufenacet cannot be considered readily biodegradable. It was also stated that the transformation pathway of Flufenacet in aerobic water/sediment systems was very similar to that determined in aerobic soil. It is presented below on figure B.8.4.\_CP-2. As already stated that transformation scheme cannot be considered complete due to the fact that the transformation of the thiadiazole moiety was not fully examined. In particular not examined was the formation of TFA from FOE Thiadone, the mechanism indicated in some literature studies (please refer to the point **B.8.2.6. – Impact on water treatment procedures** in the document Vol. 3 B.8-CA). That would result in the underestimation of the exposure in SW compartment based on the model calculations.

RMS was able to identify one open literature study examining the fate of several haloacetic acids, including TFA, in the test systems similar to the design used in water/sediment studies. On that basis it may be concluded that TFA, when formed from FOE Thiadone, will not undergo any substantial transformation in natural SW bodies and it will occur predominantly in water column.



The kinetic analysis was performed for the data obtained for Flufenacet in the whole test systems as well as in water and sediment phases of each test system and was carried out on the Level P-I. Its aim was in case of the whole-system data to determine the persistence endpoints for Flufenacet and the modelling endpoints. In case of water and sediment phases the kinetic analysis was aimed on the determination of the persistence endpoints. The analysis was performed in line with the recommendations given by FOCUS Kineitcs Guidance document [FOCUS; 2006].

**Table B.8.4\_CP-3:** The key results of the kinetic examination at the Level P-I of the data obtained for Flufenacet in water/sediment studies.

The calculated geomean values for the kinetic endpoints – DT<sub>50</sub> and DT<sub>90</sub>, determined in the whole system are following **DT<sub>50</sub> = 49.54 days**, **DT<sub>90</sub> = 164.59 days**. These values are determined by the RMS. The geomean whole-system DT<sub>50</sub> value given in the study report is following: **DT<sub>50</sub> = 49.6 days**. The difference between the

two values is minimal and can be attributed to the rounding procedure used by the Applicant. Therefore the value proposed by the Applicant may be considered a reliable kinetic endpoint to be used as input parameter in SW model exposure assessment.

For water and sediment phases at the Level P-I the Applicant derived two sets of the kinetic endpoints – those representing persistence and those suitable for modelling. RMS however noticed that Flufenacet displayed quite high adsorption potential onto soil, with the geometric mean  $K_{foc} = 245.9$  mL/g (range 161.6 – 643.48 mL/g) and rather low solubility in water – 56 mg/L. That may indicate that the compound would display substantial affinity to the sediment phase. The examination of degradation of Flufenacet in natural water not containing suspended sediment, showed that that process takes long – more than 600 days. Additionally, studies on abiotic degradation of Flufenacet in water showed that only indirect photolysis may contribute to the dissipation of Flufenacet from water, while abiotic hydrolysis and direct aquatic photolysis are not relevant degradation processes for Flufenacet. All that taken into account, also bearing in mind that the water/sediment studies were performed in absence of light, it may be assumed that the process of dissipation of Flufenacet from water column is, at least of mixed nature, partly being degradation and to some extent, if not predominantly, migration to the sediment, where the proper degradation occurs.

In order to verify that RMS decided to perform additional kinetic examination of the data for Flufenacet using the procedure corresponding to the Level P-II assessment. In that fitting the data for Flufenacet in water phase were treated as those for the parent compound, while the sediment phase was defined as the metabolite A1 compartment.

Unlike at the Level P-I for the sediment phase, whole data set was fitted together with that for water phase.

The results obtained for water phase were comparable to those obtained for that compartment by the Applicant at the Level P-I. The kinetic endpoints obtained for the sediment phase were usually shorter than those obtained by the Applicant at the Level P-I, what also reflected differences in the kinetic approach. It shall be indicated that the fits obtained for Flufenacet in the sediment phase were also not always fully reliable, but of sufficient quality to draw the conclusions.

Finally, it was noticed that the values of the kinetic formation fraction –  $ff$ , characterising the flux from water to sediment phases were in all cases very close or equal to 1. That may indicate that the dominant mechanism of dissipation from water column is migration to the sediment.

On that basis the RMS stated that the geometric mean whole-system  $DT_{50}$  value when used in the modelling should be considered as representing the degradation of Flufenacet in sediment, not in the water column.

The Applicant also made an attempt to derive the kinetic endpoints for the two identified major degradation products – FOE Methylsulfide and FOE Thiadone. The kinetic analysis aimed on that was performed at the Level M-I using the whole-system data for Flufenacet and related degradation products, kinetically fitted together. The results obtained for Flufenacet were very similar to those obtained for the same compound fitted alone at the Level P-I. However, it was not possible to obtain the reliable kinetic endpoints for the degradation products, due to the fact that the concentrations still increased at the end of the experiment – which was the case for FOE Methylsulfide, or the number of data point after maximum was reached was too low to obtain the reliable decline curve, what was observed in case of FOE Thiadone. Additionally, it shall be indicated that due to the poor fitting results the kinetic formation fractions determined for both degradation products shall be considered with care.

Also was submitted the study examining the **fate and behaviour of Flufenacet in anaerobic water/sediment system**. The study was evaluated for its compliance with OECD Guideline 308 – Aerobic and Anaerobic Transformation in Aquatic Sediment Systems. RMS stated that the study deviated from the reference Guideline in the following areas:

- **selection of sediment:** in the study soil was used instead of anaerobic sediment; the water overlying “sediment layer” was not that associated with it, but taken from pond located at the test facility, in the vicinity of the soil sampling area;
- **number of water/sediment systems:** the Guideline recommends at least two types of water/sediment systems to be used in experiment; in this case only one type was used;
- **duration of the experiment:** Guideline recommends that the study should usually not be longer than 100 days; in this case the study lasted for 388 days;
- the anaerobic conditions were not maintained throughout the incubation period and there is no indication in the study report when the change occurred; although in the study report it is declared that anaerobic conditions for ~99 days of incubation there is no experimental evidence confirming that statement;
- although the study lasted for 388 days and the test soil, used as a surrogate for sediment, was known, from other studies, to have problems with maintaining biological viability, in the study report the biological viability of the test system was not reported.

As a result, RMS stated that the study could not be considered as complying with the provisions of the reference Guideline, hence it was found not acceptable for the present assessment. Therefore RMS decided not to summarise it and use its results in the evaluation.

The issue of the determination of **fate and behaviour of Flufenacet in irradiated water/sediment system** was covered by the Applicant by submitting a study report presenting the kinetic evaluation of the results obtained in the indoor mesocosm study. The indoor mesocosm study ([Foekema and Jak.; 1999]) was indicated by the Applicant as the study covering the problem of transformation in irradiated water/sediment systems. RMS evaluated the study and stated that it displayed several deficiencies, not enabling to consider it a reliable regulatory study addressing the problem of fate and behaviour in irradiated water/sediment systems. As a result also the study presenting the kinetic analysis of its results cannot be considered valid for regulatory purposes. At the same time it shall be indicated that the kinetic analysis it presents was performed in line with the recommendations of the FOCUS Work Group on the Degradation Kinetics ([FOCUS; 2006]), therefore formally meeting the acceptability criteria.

It shall be however indicated that the lack of the proper regulatory study examining the problem of the transformation of Flufenacet in the irradiated water/sediment systems does not result in the data gap, as the issue is satisfactorily covered by the other studies submitted for this assessment.

The problem of the **degradation of Flufenacet in the saturated zone** was not examined for the purpose of the present evaluation. Instead the Applicant in the document MCA for the Section 7: Environmental Fate and Behaviour, in order to address the problem, made the following statement: *“The degradation of flufenacet in the saturated zone was not studied since flufenacet is not expected to reach the saturated zone after its use according to good agricultural practices.”*. That statement may be considered justified as long as it concerns GW recharge, however it cannot be excluded that the problem of the degradation of Flufenacet in the saturated zone may be relevant with regard to other issues, in particular bank filtration as a first stage of drinking water abstraction from the surface water (riverine). The problem is discussed in a more detailed way in the document Vol. 3 B.8.-CA under the point B.8.2.6, therefore RMS is of the opinion that it does not require more extensive consideration under this point.

It shall be indicated that for the purpose of the former evaluation of Flufenacet for its authorisation in the EU the then-RMS – France, made the following statement in this area (please also refer to the point B.7.4.4 of the Annex B.7 of the Assessment Report): *“No special studies were performed on the degradation of FOE 5043 and its metabolites in the saturated zone. However, this requirement is considered to be covered by the lysimeter studies under the point 7.2.4. Additional information can be derived from the studies on the metabolism in soil (section 7.1.1.) and on hydrolytic degradation (section 7.4.1.).”*.

RMS – Poland, is of the opinion that for the purpose of the current assessment this statement may be considered valid.

Finally, it shall be indicated that the results of the examination of the transformation pathways of Flufenacet in the aquatic systems, in particular water/sediment studies, showed that it should be very similar, if not identical, to that determined in soil. Therefore RMS is of the opinion that there is no need for more extensive examination of that problem and that it may be covered by the data obtained in the other areas of the assessment.

Summarising the data presented above it may be stated that in the aquatic compartment of the environment Flufenacet is expected to be moderately persistent, with half life in water  $DT_{50} = 29.4$  days (geomean; range 16.9 – 58.8 days) and that in sediment  $DT_{50} = 61.5$  days (geomean; range 17.6 – 140.5 days). The half life in the whole compartment (water and sediment together) is estimated to be  $DT_{50} = 49.6$  days (geomean; range 19.6 – 90.3 days). The dissipation from water column was demonstrated to occur mainly by migration to sediment, where the compound will be degraded to several degradation products, identical to those identified in soil.

The degradation of Flufenacet in the aquatic environment was demonstrated to be biologically-mediated process, while the abiotic processes – abiotic hydrolysis and direct photolysis were shown to be not relevant degradation mechanism for Flufenacet in that component of the environment. Of the abiotic degradation processes only indirect aqueous photolysis may be considered relevant, contributing to degradation of Flufenacet in water column (understood as the decomposition of the molecule) to similar extent as the microbial transformation.

Flufenacet was demonstrated to be not readily biodegradable.

### B.8.5 – Predicted Environmental Concentrations in Surface Water and Sediment (PEC<sub>SW</sub>, PEC<sub>SED</sub>)

To address this data point the Applicant submitted two studies. Their evaluation is presented below.

#### Study 1

**Report:** Reinken G., Porschewski R., (2014): “Flufenacet Core PEC<sub>SW</sub> FOCUS EU: Modelling Core Info Document for Standard FOCUS STEP 1-2 and STEP 3-4 Surface Water Exposure Assessment in Europe.”; Bayer CropScience AG, Environmental Safety, Alfred-Nobel-Strasse 50, 40789 Monheim, Germany; Study Report No. EnSa-13-1008; 25. 02. 2014; study reference number: M478438-01-1;

**Guidelines:** Not specified, it was stated however that the assessment of the endpoints for Flufenacet and its major soil degradation products to select those suitable for calculating PEC<sub>GW</sub> was performed to comply with the recommendations for modelling input selection given by the EU Commission, FOCUS and EFSA.

**GLP:** No, not applicable, modelling study

**RMS comments:** The study was performed as a supportive study to the main study presenting the results of the model exposure assessment for the surface water compartment performed by the Applicant for Flufenacet and its major soil degradation products. It provides for each compound of interest the list of determined reliable soil and aquatic (water and sediment) DT<sub>50</sub> values as well as adsorption parameters ( $K_f$ ,  $K_{fOC}$  and  $1/n$  values), the analysis of the data sets aimed on the identification of potential outliers and identification, with justification, of the endpoints considered suitable in calculation of PEC<sub>SW</sub> and PEC<sub>SED</sub> values.

The study was evaluated, in its part in its part related to the degradation kinetics in soil of the compounds of concern, as **Study 25** in the document Vol. 3. Annex B8 (AS) – Environmental Fate and Behaviour under the data point B.8.1.1.2.1.1 – Rate of Degradation, Laboratory Studies, Aerobic Degradation, on page 464. However, as in that area the pieces of information provided were the same as in the similar study providing the input data for PEC<sub>GW</sub> assessment, RMS decided not to summarise it there.

In that summary RMS checked and, when necessary updated soil DT<sub>50</sub> values, DT<sub>50</sub> values in aquatic environment (water and sediment) and maximum concentrations of degradation products in soil and aquatic environments, proposed by the Applicant to be used as input parameters. Similar verification was carried out for the sorption parameters –  $K_{fOC}/K_{fOM}$  and  $1/n$  values and the PUF value for the parent compound – Flufenacet. The verification and introduction of changes was performed in line with the findings presented under the appropriate points of the Vol. 3. Annex B8 (AS), as well as with the current regulatory recommendations. All changes introduced by the RMS are listed below in the brief summary of the study.

#### Summary:

The study provided the input parameters – soil DT<sub>50</sub>, values of maximum occurrence in soil, DT<sub>50</sub> in water and sediment, values of maximum occurrence in water/sediment systems,  $K_{fOC}$ ,  $K_{fOM}$ ,  $1/n$  and PUF, for Flufenacet and its major soil and aquatic degradation products – FOE Oxalate, FOE Sulfonic Acid, FOE Methylsulfone, FOE Methylsulfide, FOE Thiadone, FOE 5043-trifluoroethanesulfonic acid and Trifluoroacetic acid (TFA) recommended for SW modelling. RMS evaluated the study with aim to verify the correctness of the Applicant's proposal.

The results of the comparative analysis of the input parameters representing the rate of degradation in soil (soil DT<sub>50</sub> values) and mobility in that compartment ( $K_{fOC}$ ,  $K_{fOM}$ ,  $1/n$  and PUF values) were the same as in case of GW model exposure assessment. Additionally RMS changed the  $K_{OC}$  value proposed by the Applicant for FOE Methylsulfide, in line with the results of the repeated QSAR analysis.

Also updated were the input parameters representing the rate of degradation in aquatic system, in particular for the parent compound, and those of the maximum occurrence of degradation products in water/sediment systems.

The results of that comparative analysis are presented below in two tables: B.8.5.\_CP-1 and B.8.5.\_CP-2.

**Table B.8.5.\_CP-1:** The results of the comparative analysis of the soil-related substance-specific input parameters, proposed by the Applicant and RMS to be used in calculations.

Compound <sup>1)</sup>	Input parameters									
	Degradation in soil				Sorption parameters				PUF	
	Applicant		RMS		Applicant		RMS		Applicant	RMS
	DT <sub>50</sub> <sup>2)</sup>	Max. occurrence in soil [%]	DT <sub>50</sub> <sup>2)</sup>	Max. occurrence in soil [%]	K <sub>foc</sub> <sup>4)</sup>	1/n <sup>5, 6)</sup>	K <sub>foc</sub> <sup>4)</sup>	1/n <sup>5, 6)</sup>		
Flufenacet	18.3	----	17.87	----	215	0.916	245.9	0.916	0.50	0.744
FOE OXA	13.7	26.5	11.08	26.5	11.0	0.91	10.60	0.912	n. r. <sup>8)</sup>	n. r. <sup>8)</sup>
FOE SA	20.5 <sup>3)</sup>	26.3	45.11	26.3	10.3	1.04	11.10	0.995	n. r. <sup>8)</sup>	n. r. <sup>8)</sup>
FOE MET	67.7	6.6	81.70	6.6	74.1	0.89	61.03	0.860	n. r. <sup>8)</sup>	n. r. <sup>8)</sup>
FOE MES	1000	0	1000	0.0001	850.5	n. r. <sup>7)</sup>	598.0	1.0	n. r. <sup>8)</sup>	n. r. <sup>8)</sup>
FOE THIA	1.6	5.9	1.95	5.9	43.7	0.76	42.10	0.764	n. r. <sup>8)</sup>	n. r. <sup>8)</sup>
FOE TFESA	9.1	6.0	6.41	6.0	0	1.0	0.0001	1.0	n. r. <sup>8)</sup>	n. r. <sup>8)</sup>
TFA	1000	81.5	1000	81.5	0	1.0	0.0001	1.0	n. r. <sup>8)</sup>	n. r. <sup>8)</sup>

**Footnotes to the table:**

- 1) The following codenames were used to denominate the test compounds: **FOE OXA** for FOE Oxalate, **FOE SA** for FOE Sulfonic acid, **FOE MET** for FOE Methylsulfone, **FOE MES** for FOE Methylsulfide, **FOE THIA** for FOE Thiadone, **FOE TFESA** for FOE 5043-trifluoroethanesulfonic acid, and **TFA** for Trifluoroacetic acid;
- 2) All values are normalised lab geomean values, except that marked <sup>3)</sup>;
- 3) Normalised geomean field value;
- 4) All values, except those for FOE MES, FOE TFESA and TFA, are geometric means;
- 5) All values, except those for FOE MES, FOE TFESA and TFA, are arithmetic means;
- 6) In case of the degradation products the 1/n values, although reported, were not used in calculations (not required in STEP 1-2 modelling) and for that reason they are given in italics;
- 7) Value not reported;
- 8) Value not required and for that reason not reported.

**Table B.8.5.\_CP-2:** The results of the comparative analysis of the aquatic-system-related substance-specific input parameters, proposed by the Applicant and RMS to be used in calculations.

Compound <sup>1)</sup>	Input parameters							
	Rate of degradation						Max. occurrence in water/sediment system [%]	
	Applicant			RMS			Applicant	RMS
	Whole system – DT <sub>50</sub> W/SED [days]	Water – DT <sub>50</sub> W [days]	Sediment – DT <sub>50</sub> SED [days]	Whole system – DT <sub>50</sub> W/SED [days]	Water – DT <sub>50</sub> W [days]	Sediment – DT <sub>50</sub> SED [days]		
<i>Flufenacet</i>	49.6	49.6	1000	<b>49.6</b>	<b>1000</b>	<b>49.6</b>	----	----
<i>FOE OXA</i>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	0.0	<b>5.4</b>
<i>FOE SA</i>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	0.0	<b>3.2</b>
<i>FOE MET</i>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	0.0	<b>7.2</b>
<i>FOE MES</i>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>11.4</b>	<b>11.4</b>
<i>FOE THIA</i>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>84.3</b>	<b>84.3</b>
<i>FOE TFESA</i>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	0.0	<b>0.0001</b>
<i>TFA</i>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	0.0	<b>0.0001</b>

**Footnotes to the table:**

- 1) The following codenames were used to denominate the test compounds: **FOE OXA** for FOE Oxalate, **FOE SA** for FOE Sulfonic acid, **FOE MET** for FOE Methylsulfone, **FOE MES** for FOE Methylsulfide, **FOE THIA** for FOE Thiadone, **FOE TFESA** for FOE 5043-trifluoroethanesulfonic acid, and **TFA** for Trifluoroacetic acid.

**Study 2**

**Report:** Reinken G., Bolekhan A., (2014): “Flufenacet (FOE 5043) and metabolites: PEC<sub>sw</sub>, sed FOCUS EUR. Autumn use in winter cereals in Europe; Flufenacet (FOE 5043), FOE sulfonic acid, FOE oxalate, FOE methylsulfone, FOE methylsulfide, FOE-thiadone, FOE 5043-trifluoroethanesulfonic acid, Trifluoroacetic acid.”; Bayer CropScience AG, Environmental Safety, Alfred-Nobel-Strasse 50, 40789 Monheim, Germany; Study Report No. EnSa-14-0075; 14. 02. 2014; study reference number: M478924-01-1;

**Guidelines:** The applicant stated that the calculations were performed in line with the following Guidelines:

- FOCUS 2003: FOCUS Surface Water Scenarios in the EU Evaluation Process under 91/414/EC. Report of the FOCUS Working Group on Surface Water Scenarios., SANCO/4802/2001-rev.2, 245 pp.;
- FOCUS, 2007: Landscape And Mitigation Factors in Aquatic Risk Assessment. Volume 2. Detailed Technical Reviews. Report of the FOCUS Working Group on Landscape and Mitigation Factors in Ecological Risk Assessment, SANCO/10422/2005, v2.0, 436 pp.;

**GLP:** No, not applicable, modelling study

**RMS comments:** The study was performed in line with the provisions of the evoked Guidelines. The calculations were carried out for the crop scenarios that covered the uses proposed in the EU-representative GAP. The modelling tools recommended by the Guidelines at the time of performing the assessment were used. The calculations however were not accepted because the values used as input parameters had to be changed for all evaluated compounds (please see the summary of the **Study 1** above). For that reason RMS decided to repeat the calculations and not to summarise the whole Applicant's report. However, below is provided a short summary presenting the comparative analysis of the application pattern assumed in calculations by the Applicant and by the RMS.

**Summary:**

The study report presented the results of the calculations of PEC<sub>sw</sub> and PEC<sub>sed</sub> values performed for Flufenacet and its major degradation products – FOE Oxalate, FOE Sulfonic acid, FOE Methylsulfone, FOE Methylsulfide FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid (TFA). The calculations were carried out using the tiered approach recommended by FOCUS. In case of the active substance – Flufenacet, they covered all four levels of assessment – STEPS 1-4. For calculations at STEPS 1-2 the “FOCUS STEPS 1-2” ver. 2.1 calculator was used. Calculations at STEP 3 were performed using FOCUS SWASH 3.1 modelling tool. In calculations at STEP 4 (FOCUS) SWAN 1.1.4. modelling tool was used.

The assessment for the degradation products was carried out at STEPS 1 and 2 using “FOCUS STEPS 1-2” ver. 2.1 calculator as a modelling tool.

Due to the fact that the substance-specific input parameters used in calculations had to be changed as a result of the evaluation performed by the RMS, the results of the calculations – the PEC<sub>sw</sub> and PEC<sub>sed</sub> values determined for each compound, are not presented here. However, below, in two tables: B.8.5.\_CP-3 and B.8.5.\_CP-4, are provided the results of the comparative analysis of the application pattern assumed by the Applicant and the RMS. The values finally selected as input parameters for modelling are given in bold. Additionally in the table B.8.5.\_CP-5 are presented the risk mitigation measures used by the Applicant in calculations.

**Table B.8.5.\_CP-3:** The results of the comparative analysis of the application patterns proposed by the Applicant and RMS to be used in PEC<sub>SW</sub>/PEC<sub>SED</sub> calculations at STEPS 1 and 2.

Application parameter	Data on application for the GAP-defined use:					
	Single, post-emergence use in Winter cereals (BBCH 10-13) at 240 g Flufenacet/ha		Single, post-emergence use in Winter cereals (BBCH 11-13) at 160 g Flufenacet/ha		Single, pre-emergence use in Winter cereals (BBCH 00-22) at 120 g Flufenacet/ha	
	defined by the Applicant	defined by the RMS	defined by the Applicant	defined by the RMS	defined by the Applicant	defined by the RMS
<b>FOCUS Crop</b>	Winter cereals	Winter cereals	Winter cereals	Winter cereals	Winter cereals	Winter cereals
<b>Number of applications</b>	1	1	1	1	1	1
<b>Application timing</b>	October - February	October – February	October - February	October – February	October - February	October – February
<b>Crop cover and corresponding crop interception factor CI [%]</b>	Minimal crop cover; 25%	No interception; 0%	Minimal crop cover; 25%	No interception; 0%	No interception; 0%	No interception; 0%
<b>Application rate [g a. s./ha]</b>	240	240	160	160	120	120

**Table B.8.5.\_CP-4:** The results of the comparative analysis of the application patterns proposed by the Applicant and RMS to be used in PEC<sub>SW</sub>/PEC<sub>SED</sub> calculations at STEPS 3 and 4.

Application parameter	Data on application for the GAP-defined use:					
	Single, post-emergence use in Winter cereals (BBCH 10-13) at 240 g Flufenacet/ha		Single, post-emergence use in Winter cereals (BBCH 11-13) at 160 g Flufenacet/ha		Single, pre-emergence use in Winter cereals (BBCH 00-22) at 120 g Flufenacet/ha	
	defined by the Applicant	defined by the RMS	defined by the Applicant	defined by the RMS	defined by the Applicant	defined by the RMS
<b>FOCUS Crop</b>	Winter cereals	Winter cereals	Winter cereals	Winter cereals	Winter cereals	Winter cereals
<b>Number of applications</b>	1	1	1	1	1	1
<b>Application method</b>	Ground spray	Ground spray	Ground spray	Ground spray	Ground spray	Ground spray
<b>Application type (R scenarios)</b>	CAM 2	CAM 1	CAM 2	CAM 1	CAM 2	CAM 1
<b>Application rate [g a. s./ha]</b>	240	240	160	160	120	120
<b>Date of application in relation to crop event (beginning of application window)</b>	1 day after emergence	1 day after emergence	2 days after emergence	2 days after emergence	10 days before emergence	10 days before emergence
<b>Range of application (PAT) window</b>	30 days	30 days	30 days	30 days	30 days	30 days
<b>Date of application – first day of application expressed as day/month and Julian Day (JD)</b>	D1	26/09 (269)	26/09 (269)	27/09 (270)	27/09 (270)	15/09 (258)
	D2	26/10 (299)	26/10 (299)	27/10 (300)	27/10 (300)	15/10 (288)
	D3	22/11 (326)	22/11 (326)	23/11 (327)	23/11 (327)	11/11 (315)
	D4	23/09 (266)	23/09 (266)	24/09 (267)	24/09 (267)	12/09 (255)
	D5	11/11 (315)	11/11 (315)	12/11 (316)	12/11 (316)	31/10 (304)
	D6	01/12 (335)	01/12 (335)	02/12 (336)	02/12 (336)	20/11 (324)
	R1	13/11 (317)	13/11 (317)	14/11 (318)	14/11 (318)	02/11 (306)
	R3	02/12 (336)	02/12 (336)	03/12 (337)	03/12 (337)	21/11 (325)
	R4	11/11 (315)	11/11 (315)	12/11 (316)	12/11 (316)	31/10 (304)

**Table B.8.5.\_CP-5:** The mitigation measures proposed by the Applicant in STEP-4 calculations.

Assumed buffer zone	Mitigation measures:					
	Spray drift reduction		Run-off reduction factors:			
	Buffer width [m]	Drift reducing nozzles [%]	for run-off		for erosion	
10-metres wide buffer zone for SD and RO	10	0	volume	flux	mass	flux
	10	50	0.6	0.6	0.85	0.85
	10	75	0.6	0.6	0.85	0.85
	10	90	0.6	0.6	0.85	0.85
20-metres wide buffer zone for SD and RO	20	0	0.8	0.8	0.95	0.95
	20	50	0.8	0.8	0.95	0.95
	20	75	0.8	0.8	0.95	0.95
	20	90	0.8	0.8	0.95	0.95

Additionally, because for the uses in Winter cereals at 160 g/ha and 120 g/ha the application period was not clearly specified (unlike for the use at application rate 240 g/ha, limited only to Autumn), it was possible that the compound would be used both in Autumn and at Spring. Therefore RMS decided to perform two additional sets of simulations to cover also possible uses early at Spring. For calculations at STEP 4 RMS decided not to use spray drift reducing nozzles as a mitigation measure, limiting the reduction of the spray drift only via implementation of the non-spray zone. In case however of the run-off reduction the additional measure – VFS-mod, was implemented.

#### **Calculations performed by the RMS:**

To address the issue of the potential risk to the Surface Water compartment resulting from the use of Flufenacet in line with the proposed EU-representative GAP the Applicant submitted following two study reports, briefly characterised above:

- 1) Reinken G., Poschewski R., (2014): “Flufenacet Core PECsw FOCUS EU: Modelling Core Info Document for Standard FOCUS STEP 1-2 and STEP 3-4 Surface Water Exposure Assessment in Europe.”; Bayer CropScience AG, Environmental Safety, Alfred-Nobel-Strasse 50, 40789 Monheim, Germany; Study Report No. EnSa-13-1008; 25. 02. 2014; study reference number: M478438-01-1; (**Study 1**);
- 2) Reinken G., Bolekhan A., (2014): “Flufenacet (FOE 5043) and metabolites: PECsw, sed FOCUS EUR. Autumn use in winter cereals in Europe; Flufenacet (FOE 5043), FOE sulfonic acid, FOE oxalate, FOE methylsulfone, FOE methylsulfide, FOE-thiadone, FOE 5043-trifluoroethanesulfonic acid, Trifluoroacetic acid.”; Bayer CropScience AG, Environmental Safety, Alfred-Nobel-Strasse 50, 40789 Monheim, Germany; Study Report No. EnSa-14-0075; 14. 02. 2014; study reference number: M478924-01-1; (**Study 2**);

RMS analysed both reports with aim to verify the compliance of the data and findings they provided with:

- the results of the determination of the physicochemical properties of each compound encompassed by the calculations, presented in section B2 of the RAR (draft version available at the time of generating this section of the RAR);
- the results of the determination of the degradation kinetics of Flufenacet and its degradation products in soil presented in the document Vol. 3 B8\_CA of this Renewal Assessment Report;
- the results of the determination of the fate and behaviour of Flufenacet and its degradation products in aquatic environment soil presented in the document Vol. 3 B8\_CA of this Renewal Assessment Report;
- the results of the determination of the mobility of Flufenacet and its degradation products in soil, in particular the determined Freundlich adsorption parameters ( $K_{fOC}$ ,  $K_{fOM}$  and  $1/n$  values) presented in the document Vol. 3 B8\_CA of this Renewal Assessment Report;
- provisions of the relevant Guidance Documents, in particular:
  - FOCUS 2003: FOCUS Surface Water Scenarios in the EU Evaluation Process under 91/414/EC. Report of the FOCUS Working Group on Surface Water Scenarios., SANCO/4802/2001-rev.2, 245 pp.;
  - FOCUS, 2007: Landscape And Mitigation Factors in Aquatic Risk Assessment. Report of the FOCUS Working Group on Landscape and Mitigation Factors in Ecological Risk Assessment, SANCO/10422/2005, v2.0, 436 pp.;
  - FOCUS, 2015: Generic Guidance for FOCUS surface water Scenarios. Version 1.4, May 2015

The verification of the physicochemical properties of each compound of concern, used as input parameters in modelling demonstrated that they were in line with the values found acceptable by the RMS and presented in section B2 of the draft RAR.

The verification of the parameters characterising the degradation kinetics of Flufenacet and its degradation products in soil showed that the values proposed by the Applicant and used in the model exposure assessment for the SW compartment could not be considered acceptable. That was due to the fact that the RMS changed them as a result of the repeated analysis/verification. The detailed information is provided under the relevant point in the document Vol. 3 B8\_CA of this Renewal Assessment Report. The same concerned the parameters characterising the degradation kinetics of Flufenacet in aquatic systems (water and sediment phases). Also modified by the RMS were the Freundlich sorption parameters for Flufenacet.

As a result, RMS stated that the calculations had to be repeated using the refined values.

Evaluating the study report RMS decided to consult the most recent version of the document “Generic Guidance for FOCUS surface water Scenarios” – ver. 1.4 issued in May 2015 for the selection of the appropriate

substance-specific input parameters –  $DT_{50}$ ,  $K_{fOC}$  and  $1/n$  values, and the CI values to be used in STEP 1-2 calculations.

RMS also decided to use one of the crop-related substance parameters – TSCF/PUF, updated in line with what was used in  $PEC_{GW}$  calculations. That was done only for Flufenacet and for higher-tier calculations (at STEPS 3 and 4).

The analysis of the proposed application pattern used by the Applicant in calculations showed that the proposed application dates for each use were acceptable. However, due to the fact that for the uses in Winter cereals at 160 g/ha and at 120 g/ha, unlike for that with application rate 240 g/ha, the limits of the application period were determined only by the crop's growth stage, the use of the compound in Autumn and at Spring could not be excluded. That problem concerned in particular the use in Winter cereals at 120 g/ha, in which the proposed application timing, in terms of BBCH for the treated crop, was 00-22.

All that taken into account, RMS decided to perform two additional sets of modelling calculations assuming application at early Spring.

In calculations the Applicant proposed to use, for the post-emergence applications in Winter cereals – at 240 g/ha and 160 g/ha, the crop interception factor  $CI = 25\%$ . RMS however decided to change that value, in line with the recommendations of the “Generic Guidance for FOCUS surface water Scenarios. Version 1.4, May 2015” to  $CI = 0\%$ . That change was implemented in calculations at lower tiers – STEP 1 and STEP 2.

The repeated calculations performed by the RMS are characterised below.

The aim of the SW model exposure assessment was to calculate the  $PEC_{SW}$  and  $PEC_{SED}$  values for Flufenacet and its major degradation products – FOE Oxalate, FOE Sulfonic acid, FOE Methylsulfone, FOE Methylsulfide, FOE Thiadone, FOE 5043-Trifluoroethanesulfonic acid and Trifluoroacetic acid, to be subsequently used in the risk assessment for the aquatic organisms. The calculations were performed in line with the tiered approach recommended by FOCUS.

Following modelling tools were used:

- “FOCUS STEPS 1-2” ver. 2.1 calculator for the assessment at STEP 1 and STEP 2;
- FOCUS SWASH ver 3.1 modelling tool for the assessment at STEP 3;
- SWAN 3.0.0 and TOXSWA 3.3.1 for the assessment at STEP 4.

Calculations at STEPS 1-4 were performed for Flufenacet, while for all degradation products the assessment was limited to the lower tiers – STEP 1 and STEP 2.

The substance-specific input parameters used in calculations are presented below in tables B.8.5.\_CA-6 – B.8.5.\_CA-10.

**Table B.8.5.\_CP-6:** The substance-specific input parameters for Flufenacet.

Parameter	Value	Remarks
<i>Physico-chemical properties</i>	Molar weight [g/mol]	363.3 as defined by the Applicant
	Vapour pressure at $T = 20^{\circ}\text{C}$ [Pa]	0.00009 as defined by the Applicant
	Water solubility at $T = 20^{\circ}\text{C}$ [mg/L]	56 as defined by the Applicant
	pKa	20 FOCUS default
<i>Degradation parameters</i>	Soil $DT_{50}$ [days]	17.87 normalised lab geomean value, determined by RMS
	Water/sediment (whole system) $DT_{50}$ [days]	 normalised lab geomean value, determined by the Applicant
	Water $DT_{50}$ [days]	1000 FOCUS default – value changed by the RMS as a result of the refined kinetic analysis
	Sediment $DT_{50}$ [days]	 normalised lab geomean value, determined by the Applicant – value changed by the RMS as a result of the refined kinetic analysis
	Plant $DT_{50}$ [days]	10 FOCUS default
	Values determined at: temperature, soil moisture	$T = 20^{\circ}\text{C}$ , pF2 FOCUS defaults
	$Q_{10}$ (PRZM)	2.58 FOCUS default
	Exponent $[1/K]$ (MACRO)	0.095 FOCUS default
	$E_a$ [J/mol] (TOXSWA)	65.4 FOCUS default
	Walker's exponent $\beta$	0.7 FOCUS default
<i>Adsorption-related parameters</i>	$K_{fOC}$ [mL/g] (FOCUS PELMO)	245.9 geomean value determined by RMS
	$1/n$	0.916 arithmetic mean value determined by RMS
<i>Plant uptake-related parameters</i>	PUF	0.744 TSCF value calculated using recommendations given by FOCUS and $\log P_{OW} = 3.5$
<i>Wash-off factor from crop</i>	for MACRO [ $\text{mm}^{-1}$ ]	0.5
	for PRZM [ $\text{cm}^{-1}$ ]	0.05 FOCUS defaults

**Table B.8.5.\_CP-7:** The substance-specific input parameters for FOE Oxalate and FOE Sulfonic acid.

Parameter		Input for the compound:			
		FOE Oxalate		FOE Sulfonic acid	
		Value	Remarks	Value	Remarks
<i>Physico-chemical properties</i>	Molar weight [g/mol]	225.2	as defined by the Applicant	275.3	as defined by the Applicant
	Water solubility at T = 20°C [mg/L]	120000	as defined by the Applicant		as defined by the Applicant
<i>Degradation parameters</i>	Soil DT <sub>50</sub> [days]	11.08	normalised lab geomean value, determined by RMS	45.11	normalised lab geomean value, determined by RMS
	Water/Sediment (whole system) DT <sub>50</sub> [days]	1000	FOCUS default, as defined by the Applicant	1000	FOCUS default, as defined by the Applicant
	Water DT <sub>50</sub> [days]	1000	FOCUS default	1000	FOCUS default
	Sediment DT <sub>50</sub> [days]	1000	FOCUS default	1000	FOCUS default
	Maximum occurrence in soil [%]	26.3	as defined by the Applicant	26.5	as defined by the Applicant
	Maximum occurrence in Water/Sediment system [%]	5.4	Experimental value from water/sediment studies; RMS's proposal	3.2	Experimental value from water/sediment studies; RMS's proposal
<i>Adsorption parameters</i>	K <sub>OC</sub> [mL/g]	10.60	geomean value	11.10	geomean value

**Table B.8.3.\_CP-8:** The substance-specific input parameters for FOE Methylsulfone and FOE Methylsulfide.

Parameter		Input for the compound:			
		FOE Methylsulfone		FOE Methylsulfide	
		Value	Remarks	Value	Remarks
<i>Physico-chemical properties</i>	Molar weight [g/mol]	273.3	as defined by the Applicant	241.33	as defined by the Applicant
	Water solubility at T = 20°C [mg/L]	4100	as defined by the Applicant	113.1	as defined by the Applicant
<i>Degradation parameters</i>	Soil DT <sub>50</sub> [days]	81.70	normalised lab geomean value, determined by RMS	1000	as defined by the Applicant
	Water/Sediment (whole system) DT <sub>50</sub> [days]	1000	FOCUS default, as defined by the Applicant	1000	FOCUS default, as defined by the Applicant
	Water DT <sub>50</sub> [days]	1000	FOCUS default	1000	FOCUS default
	Sediment DT <sub>50</sub> [days]	1000	FOCUS default	1000	FOCUS default
	Maximum occurrence in soil [%]	6.6	as defined by the Applicant	0.0001	RMS's proposal
	Maximum occurrence in Water/Sediment system [%]	7.2	Experimental value from water/sediment studies; RMS's proposal	11.4	Experimental value from water/sediment studies; Applicant's proposal
<i>Adsorption parameters</i>	K <sub>OC</sub> [mL/g]	61.03	geomean value	598.0	KOCWIN value; RMS's proposal

**Table B.8.5.\_CP-9:** The substance-specific input parameters for FOE Thiadone and FOE 5043-Trifluoroethanesulfonic acid.

Parameter		Input for the compound:			
		FOE Thiadone		FOE 5043-Trifluoroethanesulfonic acid	
		Value	Remarks	Value	Remarks
<i>Physico-chemical properties</i>	Molar weight [g/mol]	170.1	as defined by the Applicant	164.1	as defined by the Applicant
	Water solubility at T = 20°C [mg/L]	100000	as defined by the Applicant	160000	as defined by the Applicant
<i>Degradation parameters</i>	Soil DT <sub>50</sub> [days]	1.95	normalised lab geomean value, determined by RMS	6.41	normalised lab geomean value, determined by RMS
	Water/Sediment (whole system) DT <sub>50</sub> [days]	1000	FOCUS default, as defined by the Applicant	1000	FOCUS default, as defined by the Applicant
	Water DT <sub>50</sub> [days]	1000	FOCUS default	1000	FOCUS default
	Sediment DT <sub>50</sub> [days]	1000	FOCUS default	1000	FOCUS default
	Maximum occurrence in soil [%]	5.9	as defined by the Applicant	6.0	as defined by the Applicant
	Maximum occurrence in Water/Sediment system [%]	84.3	as defined by the Applicant	0.0001	RMS's proposal
<i>Adsorption parameters</i>	K <sub>OC</sub> [mL/g]	42.10	geomean value	0.0001	RMS's proposal

**Table B.8.5.\_CP-10:** The substance-specific input parameters for Trifluoroacetic acid.

	Parameter	Value	Remarks
<i>Physico-chemical properties</i>	Molar weight [g/mol]	114.0	as defined by the Applicant
	Water solubility at T = 20°C [mg/L]	500000	as defined by the Applicant
<i>Degradation parameters</i>	Soil DT <sub>50</sub> [days]	1000	normalised lab value, determined by RMS
	Water/sediment (whole system) DT <sub>50</sub> [days]	1000	FOCUS default
	Water DT <sub>50</sub> [days]	1000	FOCUS default
	Sediment DT <sub>50</sub> [days]	1000	FOCUS default
	Maximum occurrence in soil [%]	81.5	as defined by the Applicant
	Maximum occurrence in Water/Sediment system [%]	0.0001	RMS's proposal
<i>Adsorption-related parameters</i>	K <sub>ioc</sub> [mL/g]	0.0001	RMS's proposal

The application patterns assumed for each GAP-defined use are presented below in two tables: table B.8.5.\_CA-11 for calculations at STEP 1 and STEP 2 and table B.8.5.\_CA-12 for calculations at STEP 3 (and STEP 4).

**Table B.8.5.\_CP-11:** The application patterns used in PEC<sub>SW</sub>/PEC<sub>SED</sub> calculations at STEPS 1 and 2.

Application parameter	Data on application for the GAP-defined use:				
	Single, post-emergence use in Winter cereals (BBCH 10-13) at 240 g Flufenacet/ha	Single, post-emergence use in Winter cereals (BBCH 11-13) at 160 g Flufenacet/ha		Single, pre-emergence use in Winter cereals (BBCH 00-22) at 120 g Flufenacet/ha	
		Autumn use	Spring use	Autumn use	Spring use
<i>FOCUS Crop</i>	Winter cereals	Winter cereals	Winter cereals	Winter cereals	Winter cereals
<i>Number of applications</i>	1	1	1	1	1
<i>Application timing</i>	October – February	October – February	March – May	October – February	March – May
<i>Crop cover and corresponding crop interception factor CI [%]</i>	No interception; 0%	No interception; 0%	No interception; 0%	No interception; 0%	No interception; 0%
<i>Application rate [g a. s./ha]</i>	240	160	160	120	120

**Table B.8.5.\_CP-12:** The the application patterns used in PEC<sub>SW</sub>/PEC<sub>SED</sub> calculations at STEPS 3 and 4.

Application parameter	Data on application for the GAP-defined use:				
	Single, post-emergence use in Winter cereals (BBCH 10-13) at 240 g Flufenacet/ha	Single, post-emergence use in Winter cereals (BBCH 11-13) at 160 g Flufenacet/ha		Single, pre-emergence use in Winter cereals (BBCH 00-22) at 120 g Flufenacet/ha	
		Autumn use	Spring use	Autumn use	Spring use
<i>FOCUS Crop</i>	Winter cereals	Winter cereals	Winter cereals	Winter cereals	Winter cereals
<i>Number of applications</i>	1	1	1	1	1
<i>Application method</i>	Ground spray	Ground spray	Ground spray	Ground spray	Ground spray
<i>Application type (R scenarios)</i>	CAM 1	CAM 1	CAM 1	CAM 1	CAM 1
<i>Application rate [g a. s./ha]</i>	240	160	160	120	120
<i>Date of application in relation to crop event (beginning of application window)</i>	1 day after emergence	2 days after emergence	Estimated beginning of growth period	10 days before emergence	Estimated beginning of growth period
<i>Range of application (PAT) window</i>	30 days	30 days	30 days	30 days	30 days
<i>Date of application – first day of application expressed as day/month and Julian Day (JD)</i>	D1	26/09 (269)	27/09 (270)	25/03 (84)	25/03 (84)
	D2	26/10 (299)	27/10 (300)	04/04 (94)	04/04 (94)
	D3	22/11 (326)	23/11 (327)	16/04 (106)	16/04 (106)
	D4	23/09 (266)	24/09 (267)	18/03 (77)	18/03 (77)
	D5	11/11 (315)	12/11 (316)	15/03 (74)	15/03 (74)
	D6	01/12 (335)	02/12 (336)	16/02 (47)	16/02 (47)
	R1	13/11 (317)	14/11 (318)	01/04 (91)	01/04 (91)
	R3	02/12 (336)	03/12 (337)	15/03 (74)	15/03 (74)
	R4	11/11 (315)	12/11 (316)	15/03 (74)	15/03 (74)

The calculations for Flufenacet at STEP 4 were carried out using the safe  $PEC_{SW} = 0.3 \mu\text{g/L}$ . The mitigation measures used in these calculations are presented below in the table B.8.5.\_CA-13.

**Table B.8.5.\_CA-13:** The mitigation measures used in STEP-4 calculations for Flufenacet.

Mitigation measures			Assumed buffer zone		
			10-metres wide buffer zone (FOCUS) for SD and RO	20-metres wide buffer zone (FOCUS) for SD and RO	10-metres wide buffer zone in VFS-mod
Spray drift reduction	non-spray zone		10-metres wide	20-metres wide	10-metres wide
	drift-reducing nozzles		not applied	not applied	not applied
Runoff reduction – FOCUS L&M factors	for run-off	volume	0.6	0.8	not applied
		flux	0.6	0.8	not applied
	for erosion	mass	0.85	0.95	not applied
		flux	0.85	0.95	not applied
	Runoff reduction – VFS-mod		not applied	not applied	10-metres wide VFS

The results of the calculations are presented below, individually for each use listed in tables B.8.5.\_CA-11 and B.8.5.\_CA-12.

- 1) Results obtained for the use in autumn at 240 g Flufenacet/ha:

The results of the calculations are presented below. First, in the tables B.8.5.\_CA-14 – B.8.5.\_CA-16 are given the key results of the calculations – the maximum PEC values obtained for each compound at each STEP. Next, in the tables B.8.5.\_CA-17 – B.8.5.\_CA- 48, are presented the detailed results of the calculations obtained for each compound of concern.

**Table B.8.5.\_CP-14:** The maximum  $PEC_{SW}$  and  $PEC_{SED}$  values obtained for Flufenacet.

Results obtained at Step 1 and Step2					
STEP 1		STEP 2			
		North Europe		South Europe	
$PEC_{SW} [\mu\text{g/L}]$	$PEC_{SED} [\mu\text{g/kg}]$	$PEC_{SW} [\mu\text{g/L}]$	$PEC_{SED} [\mu\text{g/kg}]$	$PEC_{SW} [\mu\text{g/L}]$	$PEC_{SED} [\mu\text{g/kg}]$
62.454	150.122	27.593	66.541	22.433	54.030
Results obtained at Step 3					
FOCUS Scenario	$PEC_{SW} [\mu\text{g/L}]$		$PEC_{SED} [\mu\text{g/kg}]$	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	6.543	6.541	17.365	Drainage	16. 03.1982/9:59
D1 stream	4.082	4.080	10.378	Drainage	16. 03. 1982/6:59
D2 ditch	6.199	6.197	7.619	Drainage	15. 12. 1986/6:00
D2 stream	3.882	3.881	4.466	Drainage	15. 12. 1986/6:00
D3 ditch	1.514	1.513	0.401	Spray drift	22. 11. 1992/9:00
D4 pond	1.168	1.168	3.689	Drainage	24. 12. 1985/9:59
D4 stream	1.647	1.647	1.648	Drainage	07. 12. 1985/9:00
D5 pond	1.170	1.170	3.505	Drainage	15. 02. 1979/17:00
D5 stream	1.420	1.419	1.074	Spray drift	27. 11. 1978/9:00
D6 ditch	5.693	5.692	4.168	Drainage	25. 12. 1986/12:00
R1 pond	0.116	0.116	0.408	Run-off	31. 12. 1978/15:00
R1 stream	5.811	5.810	1.280	Run-off	25. 11. 1978/7:59
R3 stream	7.641	7.639	1.891	Run-off	16. 12. 1980/9:00
R4 stream	5.980	5.979	1.550	Run-off	21. 12. 1979/2:00

Table B.8.5.\_CP-15: The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for Flufenacet - continued.

Results obtained at Step 4, 10-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	6.543	6.541	17.365	Drainage	16. 03.1982/9:59
D1 stream	4.082	4.080	10.378	Drainage	16. 03. 1982/6:59
D2 ditch	6.199	6.197	7.554	Drainage	15. 12. 1986/6:00
D2 stream	3.882	3.881	4.455	Drainage	15. 12. 1986/6:00
D3 ditch	0.218	0.217	0.0611	Spray drift	22. 11. 1992/9:00
D4 pond	1.159	1.159	3.560	Drainage	24. 12. 1985/9:59
D4 stream	1.674	1.674	1.641	Drainage	07. 12. 1985/9:00
D5 pond	1.163	1.162	3.468	Drainage	15. 02. 1979/17:00
D5 stream	1.249	1.248	1.064	Drainage	04. 02. 1979/11:00
D6 ditch	5.693	5.692	3.818	Drainage	25. 12. 1986/12:00
R1 pond	0.0543	0.0543	0.201	Run-off	31. 12. 1978/15:00
R1 stream	2.602	2.601	0.572	Run-off	25. 11. 1978/7:59
R3 stream	3.446	3.445	0.853	Run-off	16. 12. 1980/9:00
R4 stream	2.699	2.698	0.707	Run-off	21. 12. 1979/2:00
Results obtained at Step 4, 20-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	6.543	6.541	7.549	Drainage	16. 03.1982/9:59
D1 stream	4.082	4.080	10.378	Drainage	16. 03. 1982/6:59
D2 ditch	6.199	6.197	7.549	Drainage	15. 12. 1986/6:00
D2 stream	3.882	3.881	4.454	Drainage	15. 12. 1986/6:00
D3 ditch	0.113	0.113	0.0324	Spray drift	22. 11. 1992/9:00
D4 pond	1.154	1.154	3.629	Drainage	24. 12. 1985/11:00
D4 stream	1.674	1.674	1.640	Drainage	07. 12. 1985/9:00
D5 pond	1.159	1.158	3.449	Drainage	15. 02. 1979/18:00
D5 stream	1.249	1.248	1.063	Drainage	04. 02. 1979/11:00
D6 ditch	5.693	5.692	3.789	Drainage	25. 12. 1986/12:00
R1 pond	0.0310	0.0310	0.117	Run-off	25. 11. 1978/7:59
R1 stream	1.354	1.354	0.301	Run-off	25. 11. 1978/7:59
R3 stream	1.799	1.799	0.452	Run-off	16. 12. 1980/9:00
R4 stream	1.410	1.410	0.375	Run-off	21. 12. 1979/2:00
Results obtained at Step 4, 10-metres buffer zone, VFS-modFOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	6.543	6.541	17.365	Drainage	16. 03.1982/9:59
D1 stream	4.082	4.080	10.378	Drainage	16. 03. 1982/6:59
D2 ditch	6.199	6.197	7.554	Drainage	15. 12. 1986/6:00
D2 stream	3.882	3.881	4.455	Drainage	15. 12. 1986/6:00
D3 ditch	0.218	0.217	0.0611	Spray drift	22. 11. 1992/9:00
D4 pond	1.159	1.159	3.560	Drainage	24. 12. 1985/9:59
D4 stream	1.674	1.674	1.641	Drainage	07. 12. 1985/9:00
D5 pond	1.163	1.162	3.468	Drainage	15. 02. 1979/17:00
D5 stream	1.249	1.248	1.064	Drainage	04. 02. 1979/11:00
D6 ditch	5.693	5.692	3.818	Drainage	25. 12. 1986/12:00
R1 pond	0.0326	0.0326	0.989	Spray drift	14. 11. 1978/9:00
R1 stream	0.194	0.194	0.0214	Spray drift	14. 11. 1978/9:00
R3 stream	0.272	0.272	0.0391	Spray drift	05. 12. 1980/9:00
R4 stream	0.192	0.192	0.0179	Spray drift	10. 12. 1979/9:00

**Table B.8.5.\_CP-16:** The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for the degradation products of Flufenacet.

Compound	Obtained results:					
	STEP 1		STEP 2			
			North Europe		South Europe	
	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]
<i>FOE Oxalate</i>	12.933	1.370	5.079	0.538	4.078	0.432
<i>FOE Sulfonic acid</i>	15.882	1.762	7.500	0.831	6.007	0.666
<i>FOE Methylsulfone</i>	3.792	2.307	1.888	1.150	1.533	0.933
<i>FOE Methylsulfide</i>	0.167	0.556	0.167	0.554	0.167	0.554
<i>FOE Thiadone</i>	2.928	1.212	1.086	0.450	1.036	0.430
<i>FOE 5043-Trifluoroethanesulfonic acid</i>	2.168	0.000	0.703	0.000	0.563	0.000
<i>Trifluoroacetic acid (TFA)</i>	20.457	0.000	10.200	0.000	8.160	0.000

Detailed results**Table B.8.5.\_CP-17:** Results of the calculations obtained for Flufenacet at Step 1

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	62.454	----	148.147	----
1	61.050	61.752	150.122	149.135
2	60.203	61.189	148.039	149.106
4	58.544	60.279	143.959	147.548
7	56.140	59.017	138.048	144.734
14	50.908	56.249	125.183	138.122
21	46.164	53.665	113.517	131.833
28	41.862	51.243	102.938	125.910
42	34.423	46.836	84.647	115.105
50	30.782	44.553	75.693	109.502
100	15.305	33.351	37.636	81.984

**Table B.8.5.\_CP-18:** Results of the calculations obtained for Flufenacet at Step 2

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	27.593	----	66.541	----	22.433	----	54.030	----
1	27.422	27.507	66.279	66.410	22.266	22.350	53.816	53.923
2	27.314	27.438	66.017	66.279	22.178	22.286	53.604	53.816
4	27.099	27.322	65.497	66.018	22.003	22.188	53.181	53.604
7	26.779	27.158	64.724	65.628	21.744	22.053	52.554	53.288
14	26.047	26.785	62.956	64.732	21.150	21.749	51.118	52.561
21	25.336	26.420	61.236	63.852	20.572	21.453	49.722	51.846
28	24.644	26.062	59.564	62.988	10.010	21.162	48.364	51.145
42	23.316	25.366	56.355	61.307	18.932	20.597	45.758	49.779
50	22.590	24.980	54.599	60.373	18.342	20.283	44.333	49.021
100	18.536	24.738	44.800	54.956	15.463	18.463	36.376	44.662

Table B.8.5.\_CP-19: Data on application pattern for Flufenacet – STEP 3.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
D1 – ditch	26. 09 – 26. 10	03. 10. 1982/9:00	16. 03.1982/9:59	Drainage
D1 – stream	26. 09 – 26. 10	03. 10. 1982/ 9:00	16. 03. 1982/6:59	Drainage
D2 – ditch	26. 10 – 25. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
D2 – stream	26. 10 – 25. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
D3 – ditch	22. 11 – 22. 12	22. 11. 1992/9:00	22. 11. 1992/9:00	Spray drift
D4 – pond	23. 09 – 23. 10	28. 09. 1985/9:00	24. 12. 1985/9:59	Drainage
D4 – stream	23. 09 – 23. 10	28. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
D5 – pond	11. 11 – 11. 12	27. 11. 1978/9:00	15. 02. 1979/17:00	Drainage
D5 – stream	11. 11 – 11. 12	27. 11. 1978/9:00	27. 11. 1978/9:00	Spray drift
D6 – ditch	01. 12 – 31. 12	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
R1 – pond	13. 11 – 13. 12	14. 11. 1978/9:00	31. 12. 1978/15:00	Run-off
R1 – stream	13. 11 – 13. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
R2 – stream	Crop not defined in this scenario			
R3 – stream	02. 12 – 02. 01	05. 12. 1980/9:00	16. 12. 1980/9:00	Run-off
R4 – stream	11. 11 – 11. 12	10. 12. 1979/9:00	21. 12. 1979/2:00	Run-off

Table B.8.5.\_CP-20: Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.543 <sup>1)</sup> 6.541 <sup>2)</sup>	----	17.365	----	4.082 <sup>1)</sup> 4.080 <sup>2)</sup>	----	10.378	----
1	6.457	6.524	17.360	17.364	4.041	4.072	10.376	10.378
2	6.355	6.499	17.350	17.363	3.951	4.054	10.368	10.377
4	5.992	6.427	17.317	17.358	3.712	4.002	10.341	10.374
7	5.440	6.286	17.249	17.345	3.353	3.912	10.267	10.365
14	4.610	6.007	16.994	17.297	2.790	3.724	9.598	10.320
21	4.079	5.947	16.305	17.236	2.382	3.687	7.657	10.256
28	4.166	5.687	16.156	17.228	2.560	3.516	8.208	10.247
42	3.327	5.267	14.726	17.167	1.454	3.230	5.939	10.172
50	2.648	5.163	13.685	17.064	0.0174	3.165	5.286	9.998
100	0.792	4.261	7.284	15.860	0.002694	2.295	2.628	8.481
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.199 <sup>1)</sup> 6.197 <sup>2)</sup>	----	7.619	----	3.882 <sup>1)</sup> 3.881 <sup>2)</sup>	----	4.466	----
1	2.146	3.920	7.570	7.599	1.299	2.342	4.446	4.452
2	2.368	3.347	7.516	7.579	1.724	2.002	4.410	4.444
4	2.017	3.197	7.439	7.539	1.159	1.896	4.377	4.421
7	2.082	3.049	7.282	7.518	1.178	1.809	4.287	4.405
14	2.043	2.846	6.940	7.416	1.465	1.702	4.077	4.346
21	2.265	2.588	6.637	7.380	1.285	1.559	3.890	4.315
28	1.600	2.465	n. c. <sup>3)</sup>	7.318	0.935	1.479	n. c. <sup>3)</sup>	4.275
42	1.291	2.257	n. c. <sup>3)</sup>	7.296	0.713	1.354	n. c. <sup>3)</sup>	4.242
50	4.070	2.119	n. c. <sup>3)</sup>	7.264	2.525	1.269	n. c. <sup>3)</sup>	4.221
100	1.202	1.679	n. c. <sup>3)</sup>	7.055	0.688	0.994	n. c. <sup>3)</sup>	4.087

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-21:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D3-ditch, D4-pond, D4-stream, D5-pond, D5-stream and D6-ditch.

Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.514 <sup>1)</sup> ----- 1.513 <sup>2)</sup>	----	0.401	----	1.168 <sup>1)</sup> ----- 1.168 <sup>2)</sup>	----	3.689	----
1	0.294	0.971	0.267	0.369	1.166	1.167	3.689	3.689
2	0.0154	0.535	0.192	0.317	1.164	1.167	3.689	3.689
4	0.00164	0.270	0.137	0.247	1.156	1.166	3.687	3.689
7	5.78 E-4	0.155	0.104	0.195	1.136	1.163	3.682	3.689
14	1.77 E-4	0.0755	0.0735	0.142	1.082	1.149	3.666	3.688
21	9.2 E-5	0.0517	0.0597	0.117	1.032	1.131	3.646	3.686
28	6.3 E-5	0.0388	0.0510	0.102	0.969	1.112	3.623	3.684
42	3.7 E-5	0.0259	0.0402	0.0832	0.853	1.069	n. c. <sup>3)</sup>	3.677
50	3.0 E-5	0.0217	0.0359	0.0760	0.809	1.042	n. c. <sup>3)</sup>	3.672
100	9 E-6	0.0109	0.0218	0.0519	0.620	0.901	n. c. <sup>3)</sup>	3.603
Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.647 <sup>1)</sup> ----- 1.647 <sup>2)</sup>	----	1.648	----	1.170 <sup>1)</sup> ----- 1.170 <sup>2)</sup>	----	3.505	----
1	1.221	1.462	1.645	1.647	1.167	1.169	3.505	3.505
2	1.478	1.389	1.634	1.646	1.161	1.169	3.505	3.505
4	1.160	1.343	1.599	1.641	1.146	1.166	3.505	3.505
7	0.967	1.257	1.530	1.627	1.122	1.158	3.504	3.505
14	0.520	1.038	1.323	1.580	1.069	1.137	3.501	3.505
21	0.258	0.842	1.133	1.517	1.026	1.114	n. c. <sup>3)</sup>	3.504
28	0.128	0.688	0.981	1.443	0.988	1.093	n. c. <sup>3)</sup>	3.503
42	0.0472	0.489	0.871	1.299	0.864	1.049	n. c. <sup>3)</sup>	3.485
50	0.0941	0.422	0.792	1.233	0.805	1.022	n. c. <sup>3)</sup>	3.454
100	0.00656	0.226	0.473	0.951	n. c. <sup>3)</sup>	0.788	n. c. <sup>3)</sup>	2.666
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.420 <sup>1)</sup> ----- 1.419 <sup>2)</sup>	----	1.074	----	5.693 <sup>1)</sup> ----- 5.692 <sup>2)</sup>	----	4.168	----
1	0.0115	0.775	1.057	1.073	3.214	4.376	4.097	4.155
2	0.00134	0.744	1.025	1.072	2.372	3.957	3.974	4.123
4	3.55 E-4	0.736	0.949	1.059	1.448	3.720	3.637	4.028
7	1.40 E-4	0.685	0.846	1.030	0.618	2.962	3.075	3.826
14	4.5 E-5	0.565	0.681	0.948	0.200	1.938	2.290	3.366
21	2.4 E-5	0.420	0.578	0.873	0.226	1.413	2.004	3.001
28	1.5 E-5	0.332	0.509	0.811	1.021	1.307	2.907	2.801
42	0.0115	0.242	0.482	0.716	0.185	0.995	2.023	2.719
50	0.0844	0.216	0.461	0.680	0.134	0.972	1.789	2.604
100	0.0341	0.130	n. c. <sup>3)</sup>	0.516	0.170	0.605	1.473	1.161

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-22:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios R1-pond, R1-stream, R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.116 <sup>1)</sup> ----- 0.116 <sup>2)</sup>	----	0.408	----	5.811 <sup>1)</sup> ----- 5.810 <sup>2)</sup>	----	1.280	----
1	0.115	0.116	0.408	0.408	0.00562	2.413	0.608	0.977
2	0.114	0.115	0.408	0.408	0.00177	1.209	0.447	0.775
4	0.112	0.114	0.408	0.408	5.94 E-4	0.605	0.329	0.588
7	0.109	0.112	0.407	0.408	1.08 E-4	0.346	0.255	0.463
14	0.102	0.109	0.404	0.408	2.55 E-4	0.186	0.200	0.341
21	0.0964	0.106	0.400	0.408	0.0116	0.124	0.161	0.285
28	0.0911	0.103	0.395	0.407	1.5 E-5	0.0941	0.133	0.250
42	0.0816	0.0978	0.383	0.405	6.4 E-5	0.0702	0.152	0.222
50	0.0762	0.0950	0.375	0.404	1.6 E-5	0.0626	0.126	0.208
100	0.0510	0.0894	0.289	0.393	4 E-6	0.0315	0.0730	0.152
Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	7.641 <sup>1)</sup> ----- 7.639 <sup>2)</sup>	----	1.891	----	5.980 <sup>1)</sup> ----- 5.979 <sup>2)</sup>	----	1.550	----
1	0.0206	3.941	0.979	1.537	3.173	3.099	1.396	1.298
2	0.00595	1.981	0.724	1.239	0.00654	2.239	0.845	1.237
4	0.00195	0.933	0.535	0.949	0.00119	1.121	0.578	0.987
7	8.31 E-4	0.568	0.416	0.751	4.37 E-4	0.641	0.434	0.786
14	0.00131	0.431	0.553	0.689	1.38 E-4	0.331	0.305	0.577
21	5.17 E-4	0.288	0.399	0.616	7.3 E-5	0.221	0.247	0.477
28	2.83 E-4	0.229	0.331	0.554	4.7 E-5	0.166	0.211	0.416
42	1.36 E-4	0.153	0.256	0.467	2.8 E-5	0.110	0.166	0.340
50	1.05 E-4	0.128	0.228	0.431	2.7 E-5	0.0927	0.146	0.310
100	4.0 E-5	0.0679	0.149	0.312	9 E-6	0.0464	0.0840	0.210

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone:****Table B.8.5.\_CP-23:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
D1 – ditch	26. 09 – 26. 10	03. 10. 1982/9:00	16. 03.1982/9:59	Drainage
D1 – stream	26. 09 – 26. 10	03. 10. 1982/ 9:00	16. 03. 1982/6:59	Drainage
D2 – ditch	26. 10 – 25. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
D2 – stream	26. 10 – 25. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
D3 – ditch	22. 11 – 22. 12	22. 11. 1992/9:00	22. 11. 1992/9:00	Spray drift
D4 – pond	23. 09 – 23. 10	28. 09. 1985/9:00	24. 12. 1985/9:59	Drainage
D4 – stream	23. 09 – 23. 10	28. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
D5 – pond	11. 11 – 11. 12	27. 11. 1978/9:00	15. 02. 1979/17:00	Drainage
D5 – stream	11. 11 – 11. 12	27. 11. 1978/9:00	04. 02. 1979/11:00	Drainage
D6 – ditch	01. 12 – 31. 12	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
R1 – pond	13. 11 – 13. 12	14. 11. 1978/9:00	31. 12. 1978/15:00	Run-off
R1 – stream	13. 11 – 13. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
R2 – stream	Crop not defined in this scenario			
R3 – stream	02. 12 – 02. 01	05. 12. 1980/9:00	16. 12. 1980/9:00	Run-off
R4 – stream	11. 11 – 11. 12	10. 12. 1979/9:00	21. 12. 1979/2:00	Run-off

**Table B.8.5. CP-24:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.543 <sup>1)</sup> ----- 6.541 <sup>2)</sup>	----	17.365	----	4.082 <sup>1)</sup> ----- 4.080 <sup>2)</sup>	----	10.378	----
1	6.457	6.524	17.360	17.364	4.041	4.072	10.376	10.378
2	6.355	6.499	17.350	17.363	3.951	4.054	10.368	10.377
4	5.992	6.427	17.317	17.358	3.712	4.002	10.341	10.374
7	5.440	6.286	17.249	17.345	3.353	3.912	10.267	10.365
14	4.610	6.007	16.994	17.297	2.790	3.724	9.598	10.320
21	4.079	5.947	16.305	17.236	2.382	3.687	7.657	10.256
28	4.166	5.687	16.156	17.228	2.560	3.516	8.208	10.247
42	3.327	5.267	14.726	17.167	1.454	3.230	5.939	10.172
50	2.648	5.163	13.685	17.064	0.0174	3.165	5.286	9.998
100	0.792	4.261	7.284	15.860	0.00269	2.295	2.628	8.481
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.199 <sup>1)</sup> ----- 6.197 <sup>2)</sup>	----	7.554	----	3.882 <sup>1)</sup> ----- 3.881 <sup>2)</sup>	----	4.455	----
1	2.416	3.920	7.506	7.535	1.299	2.342	4.435	4.441
2	2.368	3.347	7.452	7.515	1.724	2.002	4.399	4.433
4	2.017	3.197	7.376	7.475	1.159	1.896	4.366	4.410
7	2.082	3.049	7.221	7.453	1.178	1.809	4.277	4.394
14	2.043	2.846	6.882	7.351	1.465	1.702	4.067	4.336
21	2.265	2.588	6.582	7.314	1.285	1.559	3.881	4.304
28	1.599	2.465	n. c. <sup>3)</sup>	7.251	0.935	1.479	n. c. <sup>3)</sup>	4.264
42	1.290	2.257	n. c. <sup>3)</sup>	7.224	0.713	1.354	n. c. <sup>3)</sup>	4.230
50	4.070	2.119	n. c. <sup>3)</sup>	7.191	2.525	1.269	n. c. <sup>3)</sup>	4.209
100	1.202	1.679	n. c. <sup>3)</sup>	6.967	0.688	0.994	n. c. <sup>3)</sup>	4.072
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.218 <sup>1)</sup> ----- 0.217 <sup>2)</sup>	----	0.0611	----	1.159 <sup>1)</sup> ----- 1.159 <sup>2)</sup>	----	3.560	----
1	0.0420	0.139	0.0410	0.0564	1.158	1.159	3.650	3.650
2	0.00228	0.0768	0.0297	0.0487	1.156	1.158	3.650	3.650
4	2.59 E-4	0.0388	0.0213	0.0382	1.147	1.157	3.647	3.650
7	9.0 E-5	0.0222	0.0162	0.0303	1.128	1.154	3.642	3.650
14	2.8 E-5	0.0111	0.0114	0.0221	1.074	1.141	3.626	3.649
21	1.4 E-5	0.00743	0.00925	0.0182	1.024	1.123	3.607	3.647
28	1.0 E-5	0.00558	0.00792	0.0158	0.962	1.104	3.584	3.644
42	6 E-6	0.00372	0.00625	0.0129	0.847	1.061	n. c. <sup>3)</sup>	3.638
50	5 E-6	0.00313	0.00558	0.0118	0.803	1.034	n. c. <sup>3)</sup>	3.633
100	1 E-6	0.00156	0.00339	0.00806	0.615	0.894	n. c. <sup>3)</sup>	3.562

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5. CP-25:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.674 <sup>1)</sup> ----- 1.674 <sup>2)</sup>	----	1.641	----	1.163 <sup>1)</sup> ----- 1.162 <sup>2)</sup>	----	3.468	----
1	1.221	1.462	1.638	1.640	1.159	1.162	3.468	3.468
2	1.478	1.389	1.627	1.639	1.154	1.161	3.468	3.468
4	1.160	1.343	1.592	1.634	1.139	1.158	3.468	3.468
7	0.967	1.257	1.523	1.620	1.114	1.151	3.467	3.468
14	0.520	1.038	1.317	1.573	1.062	1.130	n. c. <sup>3)</sup>	3.468
21	0.258	0.842	1.127	1.510	1.019	1.107	n. c. <sup>3)</sup>	3.468
28	0.128	0.688	0.976	1.436	0.981	1.086	n. c. <sup>3)</sup>	3.466
42	0.0472	0.489	0.866	1.293	0.859	1.043	n. c. <sup>3)</sup>	3.447
50	0.0941	0.422	0.788	1.227	0.799	1.015	n. c. <sup>3)</sup>	3.415
100	0.00656	0.226	0.470	0.946	n. c. <sup>3)</sup>	0.781	n. c. <sup>3)</sup>	2.622
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.249 <sup>1)</sup> ----- 1.248 <sup>2)</sup>	----	1.064	----	5.693 <sup>1)</sup> ----- 5.692 <sup>2)</sup>	----	3.818	----
1	0.613	0.775	1.047	1.063	3.214	4.376	3.750	3.807
2	0.760	0.744	1.015	1.061	2.372	3.957	3.637	3.778
4	0.820	0.736	0.939	1.049	1.448	3.720	3.315	3.691
7	0.799	0.685	0.837	1.019	0.618	2.962	2.780	3.498
14	0.199	0.565	0.672	0.938	0.200	1.938	2.049	3.056
21	0.0745	0.420	0.570	0.863	0.226	1.410	1.798	2.715
28	0.0409	0.332	0.501	0.802	1.021	1.109	1.723	2.542
42	0.0667	0.242	0.475	0.707	0.185	0.995	1.878	2.487
50	0.0604	0.216	0.454	0.671	0.134	0.869	1.658	2.385
100	n. c. <sup>3)</sup>	0.130	n. c. <sup>3)</sup>	0.507	0.170	0.545	1.398	2.000
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0543 <sup>1)</sup> ----- 0.0543 <sup>2)</sup>	----	0.201	----	2.602 <sup>1)</sup> ----- 2.601 <sup>2)</sup>	----	0.572	----
1	0.0536	0.0540	0.201	0.201	0.00259	1.076	0.271	0.437
2	0.0531	0.0537	0.201	0.201	8.17 E-4	0.539	0.197	0.346
4	0.0521	0.0532	0.201	0.201	2.70 E-4	0.270	0.143	0.261
7	0.0507	0.0524	0.200	0.201	4.9 E-5	0.154	0.109	0.204
14	0.0477	0.0509	0.198	0.201	8.9 E-5	0.0796	0.0843	0.148
21	0.0450	0.0494	0.196	0.200	0.00467	0.0753	0.0677	0.123
28	0.0425	0.0481	0.194	0.200	6 E-6	0.0403	0.0558	0.108
42	0.0383	0.0457	0.188	0.199	2.9 E-5	0.0312	0.0655	0.0955
50	0.0357	0.0459	0.184	0.199	1.2 E-5	0.0269	0.0540	0.0898
100	0.0239	0.0427	0.144	0.193	2 E-6	0.0135	0.0310	0.0651

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-26:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.446 <sup>1)</sup> ----- 3.445 <sup>2)</sup>	----	0.853	----	2.699 <sup>1)</sup> ----- 2.698 <sup>2)</sup>	----	0.707	----
1	0.00956	1.777	0.440	0.693	1.423	1.395	0.604	0.593
2	0.00278	0.894	0.321	0.556	0.00302	1.006	0.387	0.565
4	8.93 E-4	0.448	0.233	0.423	5.50 E-4	0.504	0.263	0.451
7	3.77 E-4	0.256	0.179	0.332	2.02 E-4	0.288	0.196	0.358
14	6.04 E-4	0.194	0.244	0.305	6.3 E-5	0.146	0.137	0.262
21	2.33 E-4	0.130	0.174	0.272	3.3 E-5	0.0974	0.111	0.216
28	1.26 E-4	0.0998	0.144	0.244	2.1 E-5	0.0731	0.0944	0.188
42	6.0 E-5	0.0666	0.111	0.205	1.3 E-5	0.0487	0.0740	0.153
50	4.6 E-5	0.0560	0.0987	0.189	1.2 E-5	0.0409	0.0654	0.140
100	1.7 E-5	0.0296	0.0646	0.136	4 E-6	0.0205	0.0374	0.0946

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 20 metres buffer zone:****Table B.8.5.\_CP-27:** Data on application pattern for Flufenacet – STEP 4, 20-metres buffer zone

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	26. 09 – 26. 10	03. 10. 1982/9:00	16. 03.1982/9:59	Drainage
<i>D1 – stream</i>	26. 09 – 26. 10	03. 10. 1982/ 9:00	16. 03. 1982/6:59	Drainage
<i>D2 – ditch</i>	26. 10 – 25. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D2 – stream</i>	26. 10 – 25. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D3 – ditch</i>	22. 11 – 22. 12	22. 11. 1992/9:00	22. 11. 1992/9:00	Spray drift
<i>D4 – pond</i>	23. 09 – 23. 10	28. 09. 1985/9:00	24. 12. 1985/11:00	Drainage
<i>D4 – stream</i>	23. 09 – 23. 10	28. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
<i>D5 – pond</i>	11. 11 – 11. 12	27. 11. 1978/9:00	15. 02. 1979/18:00	Drainage
<i>D5 – stream</i>	11. 11 – 11. 12	27. 11. 1978/9:00	04. 02. 1979/11:00	Drainage
<i>D6 – ditch</i>	01. 12 – 31. 12	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
<i>R1 – pond</i>	13. 11 – 13. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
<i>R1 – stream</i>	13. 11– 13. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	02. 12 – 02. 01	05. 12. 1980/9:00	16. 12. 1980/9:00	Run-off
<i>R4 – stream</i>	11. 11 – 11. 12	10. 12. 1979/9:00	21. 12. 1979/2:00	Run-off

**Table B.8.5. CP-28:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.543 <sup>1)</sup> ----- 6.541 <sup>2)</sup>	----	17.365	----	4.082 <sup>1)</sup> ----- 4.080 <sup>2)</sup>	----	10.378	----
1	6.457	6.524	17.360	17.364	4.041	4.072	10.376	10.378
2	6.355	6.499	17.350	17.363	3.951	4.054	10.368	10.377
4	5.992	6.427	17.317	17.358	3.712	4.002	10.341	10.374
7	5.440	6.286	17.249	17.345	3.353	3.912	10.267	10.365
14	4.610	6.007	16.994	17.297	2.790	3.724	9.598	10.320
21	4.079	5.947	16.305	17.236	2.382	3.687	7.657	10.256
28	4.166	5.687	16.156	17.228	2.560	3.516	8.208	10.247
42	3.327	5.267	14.726	17.167	1.454	3.230	5.939	10.172
50	2.648	5.163	13.685	17.064	0.0174	3.165	5.286	9.998
100	0.792	4.261	7.284	15.860	0.00269	2.295	2.628	8.481
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.199 <sup>1)</sup> ----- 6.197 <sup>2)</sup>	----	7.549	----	3.882 <sup>1)</sup> ----- 3.881 <sup>2)</sup>	----	4.454	----
1	2.416	3.920	7.500	7.529	1.299	2.342	4.434	4.440
2	2.368	3.347	7.447	7.509	1.724	2.002	4.398	4.431
4	2.017	3.197	7.371	7.469	1.159	1.896	4.365	4.409
7	2.082	3.049	7.216	7.448	1.178	1.809	4.276	4.393
14	2.043	2.846	6.878	7.346	1.465	1.702	4.066	4.334
21	2.265	2.588	6.578	7.309	1.285	1.559	3.880	4.303
28	1.599	2.465	n. c. <sup>3)</sup>	7.246	0.935	1.479	n. c. <sup>3)</sup>	4.263
42	1.290	2.257	n. c. <sup>3)</sup>	7.219	0.713	1.354	n. c. <sup>3)</sup>	4.229
50	4.070	2.119	n. c. <sup>3)</sup>	7.185	2.525	1.269	n. c. <sup>3)</sup>	4.207
100	1.202	1.679	n. c. <sup>3)</sup>	6.960	0.688	0.994	n. c. <sup>3)</sup>	4.070
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.113 <sup>1)</sup> ----- 0.113 <sup>2)</sup>	----	0.0324	----	1.154 <sup>1)</sup> ----- 1.154 <sup>2)</sup>	----	3.629	----
1	0.0218	0.0725	0.0220	0.0300	1.153	1.154	3.628	3.629
2	0.00120	0.0399	0.0159	0.0259	1.151	1.153	3.628	3.629
4	1.39 E-4	0.0202	0.0114	0.0204	1.143	1.152	3.625	3.628
7	4.8 E-5	0.0116	0.00864	0.0161	1.123	1.149	3.620	3.628
14	1.5 E-5	0.00579	0.00609	0.0118	1.070	1.136	3.605	3.627
21	8 E-6	0.00387	0.00494	0.00971	1.020	1.118	3.586	3.625
28	5 E-6	0.00290	0.00423	0.00844	0.958	1.099	3.563	3.623
42	3 E-6	0.00194	0.00334	0.00689	0.843	1.057	n. c. <sup>3)</sup>	3.616
50	3 E-6	0.00163	0.00298	0.00630	0.800	1.030	n. c. <sup>3)</sup>	3.612
100	1 E-6	8.14 E-4	0.00181	0.00430	0.613	0.891	n. c. <sup>3)</sup>	3.540

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-29:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.674 <sup>1)</sup> ----- 1.674 <sup>2)</sup>	----	1.640	----	1.159 <sup>1)</sup> ----- 1.158 <sup>2)</sup>	----	3.449	----
1	1.221	1.462	1.637	1.639	1.155	1.158	3.449	3.449
2	1.478	1.389	1.627	1.638	1.150	1.157	3.448	3.449
4	1.160	1.343	1.591	1.633	1.135	1.154	3.448	3.449
7	0.967	1.257	1.522	1.620	1.111	1.147	3.447	3.448
14	0.520	1.038	1.317	1.573	1.059	1.126	n. c. <sup>3)</sup>	3.448
21	0.258	0.842	1.126	1.509	1.016	1.103	n. c. <sup>3)</sup>	3.448
28	0.128	0.688	0.975	1.436	0.978	1.082	n. c. <sup>3)</sup>	3.446
42	0.0472	0.489	0.866	1.292	0.856	1.039	n. c. <sup>3)</sup>	3.426
50	0.0941	0.422	0.787	1.226	0.797	1.012	n. c. <sup>3)</sup>	3.394
100	0.00656	0.226	0.469	0.945	n. c. <sup>3)</sup>	0.777	n. c. <sup>3)</sup>	2.598
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.249 <sup>1)</sup> ----- 1.248 <sup>2)</sup>	----	1.063	----	5.693 <sup>1)</sup> ----- 5.692 <sup>2)</sup>	----	3.789	----
1	0.613	0.775	1.046	1.061	3.214	4.376	3.722	3.778
2	0.760	0.744	1.014	1.060	2.372	3.957	3.610	3.749
4	0.820	0.736	0.938	1.048	1.448	3.720	3.290	3.663
7	0.799	0.685	0.836	1.018	0.618	2.962	2.575	3.471
14	0.199	0.565	0.671	0.937	0.200	1.938	2.030	3.030
21	0.0745	0.420	0.569	0.862	0.226	1.410	1.781	2.691
28	0.0409	0.332	0.500	0.801	1.021	1.109	2.709	2.521
42	0.0667	0.242	0.474	0.706	0.185	0.995	1.866	2.468
50	0.0604	0.216	0.454	0.670	0.134	0.869	1.648	2.368
100	n. c. <sup>3)</sup>	0.130	n. c. <sup>3)</sup>	0.506	0.170	0.545	1.392	1.987
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0310 <sup>1)</sup> ----- 0.0310 <sup>2)</sup>	----	0.117	----	1.354 <sup>1)</sup> ----- 1.354 <sup>2)</sup>	----	0.301	----
1	0.0305	0.0308	0.117	0.117	0.00139	0.559	0.145	0.231
2	0.0302	0.0306	0.117	0.117	4.40 E-4	0.280	0.105	0.183
4	0.0295	0.0302	0.117	0.117	1.44 E-4	0.140	0.0757	0.138
7	0.0286	0.0297	0.117	0.117	2.6 E-5	0.0802	0.0578	0.108
14	0.0266	0.0287	0.116	0.117	4.4 E-5	0.0414	0.0444	0.0786
21	0.0248	0.0278	0.115	0.117	0.00234	0.0276	0.0356	0.0653
28	0.0231	0.0271	0.114	0.117	3 E-6	0.0209	0.0294	0.0571
42	0.0289	0.0265	0.110	0.116	1.5 E-5	0.0162	0.0347	0.0505
50	0.0269	0.0267	0.108	0.116	6 E-6	0.0140	0.0286	0.0475
100	0.0179	0.0246	0.0851	0.113	1 E-6	0.00704	0.0164	0.0344

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-30:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.799 <sup>1)</sup> ----- 1.799 <sup>2)</sup>	----	0.452	----	1.410 <sup>1)</sup> ----- 1.410 <sup>2)</sup>	----	0.375	----
1	0.00512	0.928	0.236	0.368	0.741	0.728	0.341	0.316
2	0.00150	0.466	0.171	0.296	0.00161	0.525	0.207	0.301
4	4.79 E-4	0.234	0.124	0.225	2.96 E-4	0.263	0.140	0.241
7	2.02 E-4	0.134	0.0950	0.177	1.08 E-4	0.150	0.105	0.191
14	3.24 E-4	0.102	0.130	0.162	3.4 E-5	0.0761	0.0730	0.140
21	1.25 E-4	0.0678	0.0927	0.145	1.8 E-5	0.0508	0.0590	0.115
28	6.7 E-5	0.0521	0.0765	0.130	1.1 E-5	0.0381	0.0503	0.100
42	3.2 E-5	0.0348	0.0589	0.109	7 E-6	0.0254	0.0394	0.0817
50	2.4 E-5	0.0292	0.0524	0.101	6 E-6	0.0213	0.0348	0.0746
100	9 E-6	0.0155	0.0343	0.0724	2 E-6	0.0107	0.0200	0.0504

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone VFS-mod:****Table B.8.5.\_CP-31:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone VFS.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	26. 09 – 26. 10	03. 10. 1982/9:00	16. 03.1982/9:59	Drainage
<i>D1 – stream</i>	26. 09 – 26. 10	03. 10. 1982/ 9:00	16. 03. 1982/6:59	Drainage
<i>D2 – ditch</i>	26. 10 – 25. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D2 – stream</i>	26. 10 – 25. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D3 – ditch</i>	22. 11 – 22. 12	22. 11. 1992/9:00	22. 11. 1992/9:00	Spray drift
<i>D4 – pond</i>	23. 09 – 23. 10	28. 09. 1985/9:00	24. 12. 1985/9:59	Drainage
<i>D4 – stream</i>	23. 09 – 23. 10	28. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
<i>D5 – pond</i>	11. 11 – 11. 12	27. 11. 1978/9:00	15. 02. 1979/17:00	Drainage
<i>D5 – stream</i>	11. 11 – 11. 12	27. 11. 1978/9:00	04. 02. 1979/11:00	Drainage
<i>D6 – ditch</i>	01. 12 – 31. 12	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
<i>R1 – pond</i>	13. 11 – 13. 12	14. 11. 1978/9:00	14. 11. 1978/9:00	Spray drift
<i>R1 – stream</i>	13. 11– 13. 12	14. 11. 1978/9:00	14. 11. 1978/9:00	Spray drift
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	02. 12 – 02. 01	05. 12. 1980/9:00	05. 12. 1980/9:00	Spray drift
<i>R4 – stream</i>	11. 11 – 11. 12	10. 12. 1979/9:00	10. 12. 1979/9:00	Spray drift

**Table B.8.5.\_CP-32:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.543 <sup>1)</sup> ----- 6.541 <sup>2)</sup>	----	17.365	----	4.082 <sup>1)</sup> ----- 4.080 <sup>2)</sup>	----	10.378	----
1	6.457	6.524	17.360	17.364	4.041	4.072	10.376	10.378
2	6.355	6.499	17.350	17.363	3.951	4.054	10.368	10.377
4	5.992	6.427	17.317	17.358	3.712	4.002	10.341	10.374
7	5.440	6.286	17.249	17.345	3.353	3.912	10.267	10.365
14	4.610	6.007	16.994	17.297	2.790	3.724	9.598	10.320
21	4.079	5.947	16.305	17.236	2.382	3.687	7.657	10.256
28	4.166	5.687	16.156	17.228	2.560	3.516	8.208	10.247
42	3.327	5.267	14.726	17.167	1.454	3.230	5.939	10.172
50	2.648	5.163	13.685	17.064	0.0174	3.165	5.286	9.998
100	0.792	4.261	7.284	15.860	0.00269	2.295	2.628	8.481
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.199 <sup>1)</sup> ----- 6.197 <sup>2)</sup>	----	7.554	----	3.882 <sup>1)</sup> ----- 3.881 <sup>2)</sup>	----	4.455	----
1	2.416	3.920	7.506	7.535	1.299	2.342	4.435	4.441
2	2.368	3.347	7.452	7.515	1.724	2.002	4.399	4.433
4	2.017	3.197	7.376	7.475	1.159	1.896	4.366	4.410
7	2.082	3.049	7.221	7.453	1.178	1.809	4.277	4.394
14	2.043	2.846	6.882	7.351	1.465	1.702	4.067	4.336
21	2.265	2.588	6.582	7.314	1.285	1.559	3.881	4.304
28	1.599	2.465	n. c. <sup>3)</sup>	7.251	0.935	1.479	n. c. <sup>3)</sup>	4.264
42	1.290	2.257	n. c. <sup>3)</sup>	7.224	0.713	1.354	n. c. <sup>3)</sup>	4.230
50	4.070	2.119	n. c. <sup>3)</sup>	7.191	2.525	1.269	n. c. <sup>3)</sup>	4.209
100	1.202	1.679	n. c. <sup>3)</sup>	6.967	0.688	0.994	n. c. <sup>3)</sup>	4.072
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.218 <sup>1)</sup> ----- 0.217 <sup>2)</sup>	----	0.0611	----	1.159 <sup>1)</sup> ----- 1.159 <sup>2)</sup>	----	3.560	----
1	0.0420	0.139	0.0410	0.0564	1.158	1.159	3.650	3.650
2	0.00228	0.0768	0.0297	0.0487	1.156	1.158	3.650	3.650
4	2.59 E-4	0.0388	0.0213	0.0382	1.147	1.157	3.647	3.650
7	9.0 E-5	0.0222	0.0162	0.0303	1.128	1.154	3.642	3.650
14	2.8 E-5	0.0111	0.0114	0.0221	1.074	1.141	3.626	3.649
21	1.4 E-5	0.00743	0.00925	0.0182	1.024	1.123	3.607	3.647
28	1.0 E-5	0.00558	0.00792	0.0158	0.962	1.104	3.584	3.644
42	6 E-6	0.00372	0.00625	0.0129	0.847	1.061	n. c. <sup>3)</sup>	3.638
50	5 E-6	0.00313	0.00558	0.0118	0.803	1.034	n. c. <sup>3)</sup>	3.633
100	1 E-6	0.00156	0.00339	0.00806	0.615	0.894	n. c. <sup>3)</sup>	3.562

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-33:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.674 <sup>1)</sup> ----- 1.674 <sup>2)</sup>	----	1.641	----	1.163 <sup>1)</sup> ----- 1.162 <sup>2)</sup>	----	3.468	----
1	1.221	1.462	1.638	1.640	1.159	1.162	3.468	3.468
2	1.478	1.389	1.627	1.639	1.154	1.161	3.468	3.468
4	1.160	1.343	1.592	1.634	1.139	1.158	3.468	3.468
7	0.967	1.257	1.523	1.620	1.114	1.151	3.467	3.468
14	0.520	1.038	1.317	1.573	1.062	1.130	n. c. <sup>3)</sup>	3.468
21	0.258	0.842	1.127	1.510	1.019	1.107	n. c. <sup>3)</sup>	3.468
28	0.128	0.688	0.976	1.436	0.981	1.086	n. c. <sup>3)</sup>	3.466
42	0.0472	0.489	0.866	1.293	0.859	1.043	n. c. <sup>3)</sup>	3.447
50	0.0941	0.422	0.788	1.227	0.799	1.015	n. c. <sup>3)</sup>	3.415
100	0.00656	0.226	0.470	0.946	n. c. <sup>3)</sup>	0.781	n. c. <sup>3)</sup>	2.622
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.249 <sup>1)</sup> ----- 1.248 <sup>2)</sup>	----	1.064	----	5.693 <sup>1)</sup> ----- 5.692 <sup>2)</sup>	----	3.818	----
1	0.613	0.775	1.047	1.063	3.214	4.376	3.750	3.807
2	0.760	0.744	1.015	1.061	2.372	3.957	3.637	3.778
4	0.820	0.736	0.939	1.049	1.448	3.720	3.315	3.691
7	0.799	0.685	0.837	1.019	0.618	2.962	2.780	3.498
14	0.199	0.565	0.672	0.938	0.200	1.938	2.049	3.056
21	0.0745	0.420	0.570	0.863	0.226	1.410	1.798	2.715
28	0.0409	0.332	0.501	0.802	1.021	1.109	1.723	2.542
42	0.0667	0.242	0.475	0.707	0.185	0.995	1.878	2.487
50	0.0604	0.216	0.454	0.671	0.134	0.869	1.658	2.385
100	n. c. <sup>3)</sup>	0.130	n. c. <sup>3)</sup>	0.507	0.170	0.545	1.398	2.000
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0326 <sup>1)</sup> ----- 0.0326 <sup>2)</sup>	----	0.989	----	0.194 <sup>1)</sup> ----- 0.194 <sup>2)</sup>	----	0.0214	----
1	0.0318	0.0321	0.989	0.989	7.7 E-5	0.0394	0.0103	0.0160
2	0.0313	0.0318	0.988	0.989	2.4 E-5	0.0175	0.0724	0.0125
4	0.0304	0.0313	0.988	0.989	7 E-6	0.00875	0.00512	0.00938
7	0.0294	0.0307	0.987	0.988	3 E-6	0.00500	0.00387	0.00729
14	0.0274	0.0295	0.982	0.988	1 E-6	0.00250	0.00272	0.00526
21	0.0256	0.0285	0.972	0.987	<1.0 E-6	0.00167	0.00220	0.00433
28	0.0238	0.0276	0.960	0.986	<1.0 E-6	0.00125	0.00188	0.00375
42	0.0208	0.0258	0.931	0.982	<1.0 E-6	8.34 E-4	0.00149	0.00306
50	0.0229	0.0251	0.913	0.980	1.0 E-5	0.00112	0.00496	0.00321
100	0.0152	0.0219	0.735	0.954	<1.0 E-6	5.70 E-4	0.00167	0.00284

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-34:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.272 <sup>1)</sup> ----- 0.272 <sup>2)</sup>	----	0.0391	----	0.192 <sup>1)</sup> ----- 0.192 <sup>2)</sup>	----	0.0179	----
1	3.90 E-4	0.0701	0.0199	0.0308	4.8 E-5	0.0285	0.00847	0.0131
2	1.07 E-4	0.0352	0.0141	0.0244	1.5 E-5	0.0142	0.00593	0.0103
4	3.0 E-5	0.0176	0.0100	0.0184	5 E-6	0.00713	0.00417	0.00765
7	1.2 E-5	0.0101	0.00760	0.0143	2 E-6	0.00407	0.00314	0.00594
14	4 E-6	0.00504	0.00535	0.0103	1 E-6	0.00204	0.00219	0.00427
21	<1.0 E-6	0.00336	0.00434	0.00851	<1.0 E-6	0.00136	0.00176	0.00350
28	2 E-6	0.00252	0.00372	0.00739	<1.0 E-6	0.00102	0.00150	0.00303
42	1 E-6	0.00168	0.00295	0.00603	<1.0 E-6	6.79 E-4	0.00118	0.00247
50	1 E-6	0.00141	0.00266	0.00552	<1.0 E-6	5.71 E-4	0.00105	0.00225
100	<1.0 E-6	7.07 E-4	0.00158	0.00379	<1.0 E-6	2.85 E-4	5.93 E-4	0.00152

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-35:** Results of the calculations obtained for FOE Oxalate at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	12.933	----	1.363	----
1	12.923	12.928	1.370	1.366
2	12.914	12.923	1.369	1.368
4	12.896	12.914	1.367	1.368
7	12.869	12.901	1.364	1.367
14	12.807	12.869	1.358	1.364
21	12.745	12.838	1.351	1.361
28	12.683	12.807	1.344	1.357
42	12.561	12.745	1.331	1.351
50	12.491	12.710	1.324	1.347
100	12.066	12.494	1.279	1.324

**Table B.8.5\_CP-36:** Results of the calculations obtained for FOE Oxalate at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	5.079	----	0.538	----	4.078	----	0.432	----
1	5.075	5.077	0.538	0.538	4.075	4.076	0.432	0.432
2	5.072	5.075	0.537	0.538	4.072	4.075	0.431	0.432
4	5.065	5.072	0.537	0.537	4.066	4.072	0.431	0.431
7	5.054	5.067	0.535	0.537	4.058	4.068	0.430	0.431
14	5.030	5.054	0.533	0.535	4.038	4.058	0.428	0.430
21	5.005	5.042	0.530	0.534	4.019	4.048	0.426	0.429
28	4.981	5.030	0.528	0.533	3.999	4.038	0.424	0.428
42	4.933	5.006	0.523	0.530	3.961	4.019	0.420	0.426
50	4.906	4.992	0.520	0.529	3.939	4.008	0.417	0.425
100	4.739	4.907	0.502	0.520	3.805	3.929	0.403	0.417

**Table B.8.5.\_CP-37:** Results of the calculations obtained for FOE Sulfonic acid at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	15.882	----	1.757	----
1	15.871	15.876	1.762	1.759
2	15.860	15.871	1.760	1.760
4	15.838	15.860	1.758	1.760
7	15.805	15.843	1.754	1.758
14	15.728	15.805	1.746	1.754
21	15.652	15.767	1.737	1.750
28	15.576	15.728	1.729	1.746
42	15.426	15.653	1.712	1.737
50	15.341	15.610	1.703	1.733
100	14.818	15.344	1.645	1.703

**Table B.8.5.\_CP-38:** Results of the calculations obtained for FOE Sulfonic acid at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	7.500	----	0.831	----	6.007	----	0.666	----
1	7.490	7.493	0.831	0.831	6.003	6.005	0.666	0.666
2	7.485	7.490	0.830	0.831	5.998	6.003	0.665	0.666
4	7.475	7.485	0.829	0.830	5.990	5.998	0.664	0.665
7	7.459	7.477	0.827	0.829	5.978	5.992	0.663	0.665
14	7.423	7.459	0.823	0.827	5.949	5.978	0.660	0.663
21	7.387	7.441	0.819	0.825	5.920	5.963	0.657	0.662
28	7.351	7.423	0.815	0.823	5.891	5.949	0.654	0.660
42	7.280	7.387	0.808	0.819	5.834	5.920	0.647	0.657
50	7.240	7.367	0.803	0.817	5.802	5.904	0.644	0.655
100	6.993	7.241	0.776	0.803	5.604	5.803	0.622	0.644

**Table B.8.5.\_CP-39:** Results of the calculations obtained for FOE Methylsulfone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	3.792	----	2.241	----
1	3.781	3.786	2.307	2.274
2	3.778	3.783	2.306	2.290
4	3.773	3.779	2.303	2.297
7	3.765	3.775	2.298	2.299
14	3.747	3.765	2.287	2.295
21	3.729	3.756	2.276	2.291
28	3.711	3.747	2.265	2.285
42	3.675	3.729	2.243	2.275
50	3.654	3.719	2.230	2.269
100	3.530	3.655	2.154	2.230

**Table B.8.5.\_CP-40:** Results of the calculations obtained for FOE Methylsulfone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.888	----	1.150	----	1.533	----	0.933	----
1	1.884	1.886	1.149	1.149	1.529	1.531	0.933	0.933
2	1.883	1.885	1.148	1.149	1.528	1.530	0.932	0.933
4	1.880	1.883	1.147	1.148	1.526	1.529	0.931	0.932
7	1.876	1.881	1.144	1.147	1.523	1.527	0.929	0.931
14	1.867	1.876	1.139	1.144	1.516	1.523	0.924	0.929
21	1.858	1.872	1.133	1.142	1.508	1.519	0.920	0.927
28	1.849	1.867	1.128	1.139	1.501	1.516	0.915	0.924
42	1.831	1.858	1.117	1.133	1.486	1.508	0.907	0.920
50	1.821	1.853	1.111	1.130	1.478	1.504	0.902	0.917
100	1.759	1.822	1.073	1.111	1.428	1.479	0.871	0.902

**Table B.8.5.\_CP-41:** Results of the calculations obtained for FOE Methylsulfide at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	0.167	----	<0.001	----
1	0.093	0.130	0.556	0.279
2	0.093	0.112	0.556	0.417
4	0.093	0.102	0.555	0.486
7	0.093	0.098	0.554	0.515
14	0.092	0.095	0.551	0.534
21	0.092	0.094	0.548	0.539
28	0.091	0.093	0.546	0.541
42	0.090	0.093	0.540	0.541
50	0.090	0.092	0.537	0.541
100	0.087	0.090	0.519	0.535

**Table B.8.5.\_CP-42:** Results of the calculations obtained for FOE Methylsulfide at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.167	----	0.554	----	0.167	----	0.554	----
1	0.118	0.142	0.554	0.554	0.118	0.142	0.554	0.554
2	0.110	0.128	0.554	0.554	0.110	0.128	0.554	0.554
4	0.109	0.119	0.553	0.554	0.109	0.119	0.553	0.554
7	0.093	0.109	0.552	0.553	0.093	0.109	0.552	0.553
14	0.092	0.101	0.549	0.552	0.092	0.101	0.549	0.552
21	0.092	0.098	0.546	0.550	0.092	0.098	0.546	0.550
28	0.091	0.096	0.544	0.549	0.091	0.096	0.544	0.549
42	0.090	0.094	0.538	0.546	0.090	0.094	0.538	0.546
50	0.090	0.094	0.535	0.545	0.090	0.094	0.535	0.545
100	0.087	0.091	0.517	0.535	0.087	0.091	0.517	0.535

**Table B.8.5.\_CP-43:** Results of the calculations obtained for FOE Thiadone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	2.928	----	0.866	----
1	2.880	2.904	1.212	1.039
2	2.878	2.891	1.211	1.126
4	2.874	2.883	1.210	1.168
7	2.868	2.878	1.207	1.185
14	2.854	2.869	1.201	1.195
21	2.840	2.862	1.196	1.196
28	2.826	2.855	1.190	1.195
42	2.799	2.841	1.178	1.192
50	2.783	2.833	1.172	1.189
100	2.689	2.784	1.132	1.170

**Table B.8.5.\_CP-44:** Results of the calculations obtained for FOE Thiadone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.086	----	0.450	----	1.036	----	0.430	----
1	1.070	1.078	0.450	0.450	1.020	1.028	0.492	0.429
2	1.069	1.074	0.450	0.450	1.020	1.024	0.429	0.429
4	1.068	1.071	0.449	0.450	1.018	1.021	0.428	0.429
7	1.065	1.069	0.448	0.449	1.016	1.020	0.428	0.429
14	1.060	1.066	0.446	0.448	1.011	1.017	0.425	0.428
21	1.055	1.063	0.444	0.447	1.006	1.014	0.423	0.426
28	1.050	1.061	0.442	0.446	1.001	1.011	0.421	0.425
42	1.040	1.055	0.438	0.444	0.992	1.007	0.417	0.423
50	1.034	1.052	0.435	0.443	0.986	1.004	0.415	0.422
100	0.999	1.034	0.420	0.435	0.953	0.987	0.401	0.415

**Table B.8.5.\_CP-45:** Results of the calculations obtained for FOE TFESA at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	2.168	----	0.000	----
1	2.166	2.167	0.000	0.000
2	2.165	2.166	0.000	0.000
4	2.162	2.165	0.000	0.000
7	2.157	2.163	0.000	0.000
14	2.147	2.157	0.000	0.000
21	2.137	2.152	0.000	0.000
28	2.126	2.147	0.000	0.000
42	2.106	2.137	0.000	0.000
50	2.094	2.131	0.000	0.000
100	2.023	2.095	0.000	0.000

**Table B.8.5.\_CP-46:** Results of the calculations obtained for FOE TFESA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.703	----	0.000	----	0.563	----	0.000	----
1	0.703	0.703	0.000	0.000	0.562	0.563	0.000	0.000
2	0.702	0.703	0.000	0.000	0.562	0.562	0.000	0.000
4	0.701	0.702	0.000	0.000	0.561	0.562	0.000	0.000
7	0.700	0.702	0.000	0.000	0.560	0.561	0.000	0.000
14	0.696	0.700	0.000	0.000	0.557	0.560	0.000	0.000
21	0.693	0.698	0.000	0.000	0.555	0.559	0.000	0.000
28	0.690	0.697	0.000	0.000	0.552	0.557	0.000	0.000
42	0.683	0.693	0.000	0.000	0.547	0.555	0.000	0.000
50	0.679	0.691	0.000	0.000	0.544	0.553	0.000	0.000
100	0.656	0.680	0.000	0.000	0.525	0.544	0.000	0.000

**Table B.8.5.\_CP-47:** Results of the calculations obtained for FOE TFA at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	20.457	----	0.000	----
1	20.443	20.450	0.000	0.000
2	20.429	20.443	0.000	0.000
4	20.400	20.429	0.000	0.000
7	20.358	20.407	0.000	0.000
14	20.259	20.358	0.000	0.000
21	20.161	20.309	0.000	0.000
28	20.064	20.260	0.000	0.000
42	19.870	20.162	0.000	0.000
50	19.760	20.106	0.000	0.000
100	19.087	19.764	0.000	0.000

**Table B.8.5.\_CP-48:** Results of the calculations obtained for FOE TFA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	10.200	----	0.000	----	8.160	----	0.000	----
1	10.193	10.200	0.000	0.000	8.154	8.157	0.000	0.000
2	10.186	10.193	0.000	0.000	8.149	8.154	0.000	0.000
4	10.172	10.186	0.000	0.000	8.138	8.149	0.000	0.000
7	10.151	10.175	0.000	0.000	8.121	8.140	0.000	0.000
14	10.102	10.151	0.000	0.000	8.081	8.121	0.000	0.000
21	10.053	10.126	0.000	0.000	8.042	8.101	0.000	0.000
28	10.004	10.102	0.000	0.000	8.003	8.081	0.000	0.000
42	9.907	10.053	0.000	0.000	7.926	8.043	0.000	0.000
50	9.853	10.025	0.000	0.000	7.882	8.020	0.000	0.000
100	9.517	9.855	0.000	0.000	7.614	7.884	0.000	0.000

2) Results obtained for the use in autumn at 160 g Flufenacet/ha:

The results of the calculations are presented below. First, in the tables B.8.5.\_CA-49 – B.8.5.\_CA-51 are given the key results of the calculations – the maximum PEC values obtained for each compound at each STEP. Next,

in the tables B.8.5.\_CA-52 – B.8.5.\_CA- 83, are presented the detailed results of the calculations obtained for each compound of concern.

**Table B.8.5.\_CP-49:** The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for Flufenacet.

Results obtained at Step 1 and Step2					
STEP 1		STEP 2			
		North Europe		South Europe	
PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]
41.636	100.081	18.395	44.361	14.956	36.020
Results obtained at Step 3					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	4.328	4.327	11.617	Drainage	16. 03.1982/9:59
D1 stream	2.699	2.699	6.958	Drainage	16. 03. 1982/8:00
D2 ditch	3.957	3.955	4.987	Drainage	15. 12. 1986/6:00
D2 stream	2.480	2.479	2.919	Drainage	15. 12. 1986/6:00
D3 ditch	1.010	1.010	0.272	Spray drift	22. 11. 1992/9:00
D4 pond	0.756	0.755	2.430	Drainage	24. 12. 1985/14:00
D4 stream	1.081	1.080	1.081	Drainage	07. 12. 1985/9:00
D5 pond	0.766	0.765	2.315	Drainage	15. 02. 1979/18:00
D5 stream	0.946	0.946	0.714	Spray drift	27. 11. 1978/9:00
D6 ditch	3.732	3.731	2.722	Drainage	25. 12. 1986/12:00
R1 pond	0.0797	0.0796	0.281	Run-off	31. 12. 1978/15:00
R1 stream	3.790	3.789	0.845	Run-off	25. 11. 1978/7:59
R3 stream	4.980	4.979	1.248	Run-off	16. 12. 1980/9:00
R4 stream	3.957	3.955	1.037	Run-off	21. 12. 1979/2:00
Results obtained at Step 4, 10-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	4.328	4.327	11.671	Drainage	16. 03.1982/15:59
D1 stream	2.699	2.699	6.958	Drainage	16. 03. 1982/6:59
D2 ditch	3.957	3.955	4.943	Drainage	15. 12. 1986/6:00
D2 stream	2.480	2.479	2.912	Drainage	15. 12. 1986/6:00
D3 ditch	0.145	0.145	0.0413	ray drift	22. 11. 1992/9:00
D4 pond	0.750	0.750	2.403	Drainage	24. 12. 1985/15:00
D4 stream	1.081	1.080	1.076	Drainage	07. 12. 1985/9:00
D5 pond	0.761	0.760	2.291	Drainage	15. 02. 1979/18:59
D5 stream	0.812	0.812	0.707	Drainage	04. 02. 1979/11:00
D6 ditch	3.732	3.731	2.485	Drainage	25. 12. 1986/12:00
R1 pond	0.0370	0.0370	0.138	Run-off	31. 12. 1978/15:00
R1 stream	1.697	1.696	0.377	Run-off	25. 11. 1978/7:59
R3 stream	2.246	2.246	0.562	Run-off	16. 12. 1980/9:00
R4 stream	1.786	1.785	0.473	Run-off	21. 12. 1979/2:00
Results obtained at Step 4, 20-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	4.328	4.327	11.617	Drainage	16. 03.1982/15:59
D1 stream	2.699	2.699	6.958	Drainage	16. 03. 1982/8:00
D2 ditch	3.957	3.955	4.939	Drainage	15. 12. 1986/6:00
D2 stream	2.480	2.479	2.911	Drainage	15. 12. 1986/6:00
D3 ditch	0.0754	0.0753	0.0291	Spray drift	22. 11. 1992/9:00
D4 pond	0.747	0.746	2.389	Drainage	24. 12. 1985/15:00
D4 stream	1.081	1.080	1.076	Drainage	07. 12. 1985/9:00
D5 pond	0.758	0.758	2.278	Drainage	15. 02. 1979/18:59
D5 stream	0.812	0.812	0.706	Drainage	04. 02. 1979/11:00
D6 ditch	3.732	3.731	2.466	Drainage	25. 12. 1986/12:00
R1 pond	0.0208	0.0208	0.0806	Run-off	31. 12. 1978/15:00
R1 stream	0.883	0.883	0.199	Run-off	25. 11. 1978/7:59
R3 stream	1.173	1.172	0.298	Run-off	16. 12. 1980/9:00
R4 stream	0.933	0.933	0.251	Run-off	21. 12. 1979/2:00

**Table B.8.5.\_CP-50:** The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for Flufenacet - continued.

Results obtained at Step 4, 10-metres buffer zone, VFS-modFOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
<i>D1 ditch</i>	4.328	4.327	11.671	Drainage	16. 03.1982/15:59
<i>D1 stream</i>	2.699	2.699	6.958	Drainage	16. 03. 1982/6:59
<i>D2 ditch</i>	3.957	3.955	4.943	Drainage	15. 12. 1986/6:00
<i>D2 stream</i>	2.480	2.479	2.912	Drainage	15. 12. 1986/6:00
<i>D3 ditch</i>	0.145	0.145	0.0413	Spray drift	22. 11. 1992/9:00
<i>D4 pond</i>	0.750	0.750	2.403	Drainage	24. 12. 1985/15:00
<i>D4 stream</i>	1.081	1.080	1.076	Drainage	07. 12. 1985/9:00
<i>D5 pond</i>	0.761	0.760	2.291	Drainage	15. 02. 1979/18:59
<i>D5 stream</i>	0.812	0.812	0.707	Drainage	04. 02. 1979/11:00
<i>D6 ditch</i>	3.732	3.731	2.485	Drainage	25. 12. 1986/12:00
<i>R1 pond</i>	0.0218	0.0217	0.0675	Spray drift	14. 11. 1978/9:00
<i>R1 stream</i>	0.129	0.129	0.0143	Spray drift	14. 11. 1978/9:00
<i>R3 stream</i>	0.181	0.181	0.0262	Spray drift	05. 12. 1980/9:00
<i>R4 stream</i>	0.128	0.128	0.0120	Spray drift	10. 12. 1979/9:00

**Table B.8.5.\_CP-51:** The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for the degradation products of Flufenacet.

Compound	Obtained results:					
	STEP 1		STEP 2			
	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	North Europe		South Europe	
			PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]
<i>FOE Oxalate</i>	8.622	0.913	3.386	0.359	2.719	0.288
<i>FOE Sulfonic acid</i>	10.588	1.174	4.997	0.554	4.005	0.444
<i>FOE Methylsulfone</i>	2.528	1.538	1.259	0.767	1.022	0.622
<i>FOE Methylsulfide</i>	0.111	0.371	0.111	0.370	0.111	0.370
<i>FOE Thiadone</i>	1.952	0.808	0.724	0.300	0.691	0.286
<i>FOE 5043-Trifluoroethanesulfonic acid</i>	1.445	0.000	0.469	0.000	0.375	0.000
<i>Trifluoroacetic acid (TFA)</i>	13.638	0.000	6.800	0.000	5.444	0.000

Detailed results**Table B.8.5.\_CP-52:** Results of the calculations obtained for Flufenacet at Step 1

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	41.636	----	98.765	----
1	40.700	41.168	100.081	99.423
2	40.135	40.792	98.692	99.404
4	39.029	40.186	95.972	98.365
7	37.427	39.344	92.032	96.489
14	33.939	37.499	83.455	92.082
21	30.776	35.777	75.678	87.889
28	27.908	34.162	68.626	83.940
42	22.949	31.224	56.431	76.737
50	20.521	29.702	50.462	73.001
100	10.204	22.234	25.090	54.656

Table B.8.5.\_CP-53: Results of the calculations obtained for Flufenacet at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	18.395	----	44.361	----	14.956	----	36.020	----
1	18.281	18.338	44.186	44.273	14.844	14.900	35.877	35.949
2	18.209	18.292	44.011	44.186	14.785	14.857	35.736	35.878
4	18.066	18.215	43.664	44.012	14.669	14.792	35.454	35.736
7	17.853	18.105	43.149	43.752	14.496	14.702	35.036	35.526
14	17.365	17.856	41.971	43.155	14.100	14.500	34.079	35.040
21	16.891	17.613	40.824	42.568	13.715	14.302	33.148	34.564
28	16.429	17.375	39.709	41.992	13.340	14.108	32.243	34.096
42	15.544	16.911	37.570	40.871	12.621	13.731	30.505	33.186
50	15.060	16.653	36.399	40.249	12.228	13.522	29.555	32.681
100	12.357	15.159	29.867	36.637	10.034	12.308	24.251	29.748

Table B.8.5.\_CP-54: Data on application pattern for Flufenacet – STEP 3.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	27. 09 – 27. 10	03. 10. 1982/9:00	16. 03.1982/9:59	Drainage
<i>D1 – stream</i>	27. 09 – 27. 10	03. 10. 1982/ 9:00	16. 03. 1982/8:00	Drainage
<i>D2 – ditch</i>	27. 10 – 26. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D2 – stream</i>	27. 10 – 26. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D3 – ditch</i>	23. 11 – 23. 12	22. 11. 1992/9:00	22. 11. 1992/9:00	Spray drift
<i>D4 – pond</i>	24. 09 – 24. 10	28. 09. 1985/9:00	24. 12. 1985/14:00	Drainage
<i>D4 – stream</i>	24. 09 – 24. 10	28. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
<i>D5 – pond</i>	12. 11 – 12. 12	27. 11. 1978/9:00	15. 02. 1979/18:00	Drainage
<i>D5 – stream</i>	12. 11 – 12. 12	27. 11. 1978/9:00	27. 11. 1978/9:00	Spray drift
<i>D6 – ditch</i>	02. 12 – 02. 01	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
<i>R1 – pond</i>	14. 11 – 14. 12	14. 11. 1978/9:00	31. 12. 1978/15:00	Run-off
<i>R1 – stream</i>	14. 11 – 14. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	03. 12 – 03. 01	05. 12. 1980/9:00	16. 12. 1980/9:00	Run-off
<i>R4 – stream</i>	12. 11 – 12. 12	10. 12. 1979/9:00	21. 12. 1979/2:00	Run-off

**Table B.8.5.\_CP-55:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.328 <sup>1)</sup> ----- 4.327 <sup>2)</sup>	----	11.617	----	2.699 <sup>1)</sup> ----- 2.699 <sup>2)</sup>	----	6.958	----
1	4.261	4.315	11.615	11.617	2.671	2.693	6.956	6.958
2	4.178	4.296	11.609	11.616	2.613	2.680	6.952	6.957
4	3.948	4.252	11.590	11.613	2.462	2.648	6.934	6.956
7	3.603	4.156	11.550	11.606	2.232	2.585	6.883	6.950
14	3.065	3.945	11.382	11.578	1.863	2.446	6.368	6.921
21	2.719	3.908	10.907	11.532	1.593	2.423	5.084	6.873
28	2.771	3.748	10.837	11.512	1.710	2.317	5.421	6.860
42	2.217	3.446	9.867	11.464	0.967	2.117	3.955	6.801
50	1.759	3.374	9.162	11.394	0.0117	2.068	3.519	6.678
100	0.527	2.810	4.871	10.592	0.00181	1.511	1.748	5.653
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.957 <sup>1)</sup> ----- 3.955 <sup>2)</sup>	----	4.987	----	2.480 <sup>1)</sup> ----- 2.479 <sup>2)</sup>	----	2.919	----
1	1.490	2.528	4.955	4.975	0.796	1.507	2.907	2.910
2	1.463	2.145	4.919	4.962	1.072	1.281	2.882	2.905
4	1.240	2.070	4.870	4.935	0.711	1.225	2.861	2.890
7	1.292	1.966	4.768	4.920	0.727	1.161	2.803	2.879
14	1.286	1.829	4.545	4.852	0.929	1.092	2.667	2.841
21	1.436	1.665	4.348	4.824	0.812	1.002	2.546	2.817
28	1.007	1.589	n. c. <sup>3)</sup>	4.781	0.589	0.952	n. c. <sup>3)</sup>	2.790
42	0.821	1.458	n. c. <sup>3)</sup>	4.757	0.451	0.874	n. c. <sup>3)</sup>	2.762
50	2.650	1.369	n. c. <sup>3)</sup>	4.733	1.644	0.819	n. c. <sup>3)</sup>	2.747
100	0.782	1.089	n. c. <sup>3)</sup>	4.576	0.447	0.644	n. c. <sup>3)</sup>	2.647
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.010 <sup>1)</sup> ----- 1.010 <sup>2)</sup>	----	0.272	----	0.756 <sup>1)</sup> ----- 0.755 <sup>2)</sup>	----	2.430	----
1	0.197	0.650	0.182	0.250	0.755	0.755	2.430	2.430
2	0.0104	0.358	0.131	0.215	0.754	0.755	2.430	2.430
4	0.00112	0.181	0.0935	0.168	0.748	0.755	2.429	2.430
7	3.92 E-4	0.104	0.0709	0.133	0.736	0.753	2.425	2.430
14	1.21 E-4	0.0519	0.0501	0.0968	0.701	0.744	2.415	2.429
21	6.3 E-5	0.0346	0.0406	0.0798	0.669	0.732	2.402	2.428
28	4.3 E-5	0.0260	0.0348	0.0694	0.628	0.720	2.387	2.426
42	2.5 E-5	0.0173	0.0274	0.0566	0.552	0.692	n. c. <sup>3)</sup>	2.422
50	2.1 E-5	0.0146	0.0244	0.0518	0.524	0.675	n. c. <sup>3)</sup>	2.419
100	6 E-6	0.0729	0.0148	0.0353	0.401	0.583	n. c. <sup>3)</sup>	2.373

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-56:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.081 <sup>1)</sup> ----- 1.080 <sup>2)</sup>	----	1.081	----	0.766 <sup>1)</sup> ----- 0.765 <sup>2)</sup>	----	2.315	----
1	0.773	0.936	1.078	1.081	0.764	0.765	2.315	2.315
2	0.956	0.886	1.069	1.080	0.760	0.765	2.315	2.315
4	0.743	0.857	1.049	1.077	0.750	0.763	2.315	2.315
7	0.628	0.804	0.999	1.069	0.734	0.758	2.315	2.315
14	0.347	0.668	0.865	1.039	0.700	0.744	n. c. <sup>3)</sup>	2.315
21	0.173	0.545	0.742	0.999	0.671	0.729	n. c. <sup>3)</sup>	2.315
28	0.0860	0.447	0.644	0.952	0.646	0.715	n. c. <sup>3)</sup>	2.314
42	0.0317	0.318	0.573	0.858	0.565	0.686	n. c. <sup>3)</sup>	2.302
50	0.0605	0.275	0.520	0.815	0.525	0.668	n. c. <sup>3)</sup>	2.281
100	0.00411	0.147	0.311	0.629	n. c. <sup>3)</sup>	0.513	n. c. <sup>3)</sup>	1.751
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.946 <sup>1)</sup> ----- 0.946 <sup>2)</sup>	----	0.714	----	3.732 <sup>1)</sup> ----- 3.731 <sup>2)</sup>	----	2.722	----
1	0.00768	0.498	0.703	0.713	2.100	2.859	2.677	2.715
2	9.15 E-4	0.497	0.682	0.712	1.555	2.563	2.600	2.695
4	2.41 E-4	0.489	0.630	0.704	0.955	2.403	2.382	2.637
7	9.5 E-5	0.451	0.562	0.683	0.407	1.918	2.013	2.506
14	3.1 E-5	0.372	0.451	0.629	0.124	1.239	1.493	2.203
21	1.6 E-5	0.276	0.382	0.578	0.141	0.906	1.304	1.963
28	1.0 E-5	0.218	0.335	0.537	0.673	0.843	1.918	1.834
42	0.00621	0.156	0.317	0.473	0.114	0.640	1.324	1.783
50	0.0483	0.139	0.303	0.449	0.0828	0.628	1.167	1.707
100	0.0216	0.0841	n. c. <sup>3)</sup>	0.338	0.105	0.390	0.953	1.414
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0797 <sup>1)</sup> ----- 0.0796 <sup>2)</sup>	----	0.281	----	3.790 <sup>1)</sup> ----- 3.789 <sup>2)</sup>	----	0.845	----
1	0.0786	0.0791	0.281	0.281	0.00374	1.574	0.405	0.647
2	0.0778	0.0787	0.281	0.281	0.00118	0.789	0.298	0.514
4	0.0763	0.0779	0.281	0.281	3.95 E-4	0.395	0.219	0.391
7	0.0742	0.0768	0.280	0.281	7.2 E-5	0.226	0.170	0.308
14	0.0698	0.0745	0.278	0.281	1.46 E-4	0.121	0.133	0.227
21	0.0658	0.0723	0.275	0.281	0.0070	0.0810	0.108	0.190
28	0.0622	0.0703	0.272	0.280	1.0 E-5	0.0615	0.0889	0.167
42	0.0559	0.0668	0.263	0.279	4.6 E-5	0.0465	0.104	0.149
50	0.0521	0.0649	0.258	0.278	1.8 E-5	0.0415	0.0862	0.140
100	0.0349	0.0603	0.198	0.271	3 E-6	0.0209	0.0497	0.102

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-57:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.980 <sup>1)</sup> ----- 4.979 <sup>2)</sup>	----	1.248	----	3.957 <sup>1)</sup> ----- 3.955 <sup>2)</sup>	----	1.037	----
1	0.0136	2.568	0.652	1.018	2.133	2.050	0.946	0.874
2	0.00397	1.291	0.482	0.821	0.00444	1.489	0.573	0.834
4	0.00129	0.647	0.356	0.630	8.06 E-4	0.745	0.392	0.667
7	5.53 E-4	0.370	0.277	0.499	2.96 E-4	0.426	0.294	0.531
14	8.81 E-4	0.283	0.370	0.459	9.3 E-5	0.220	0.207	0.390
21	3.47 E-4	0.189	0.267	0.411	4.9 E-5	0.147	0.167	0.323
28	1.89 E-4	0.150	0.222	0.370	3.2 E-5	0.110	0.143	0.281
42	9.1 E-5	0.100	0.171	0.312	1.9 E-5	0.0734	0.112	0.230
50	7.0 E-5	0.0841	0.153	0.288	1.8 E-5	0.0617	0.0992	0.210
100	2.7 E-5	0.0447	0.101	0.209	6 E-6	0.0309	0.0571	0.143

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone:****Table B.8.5\_CP-58:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	27. 09 – 27. 10	03. 10. 1982/9:00	16. 03.1982/15:59	Drainage
<i>D1 – stream</i>	27. 09 – 27. 10	03. 10. 1982/ 9:00	16. 03. 1982/6:59	Drainage
<i>D2 – ditch</i>	27. 10 – 26. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D2 – stream</i>	27. 10 – 26. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D3 – ditch</i>	23. 11 – 23. 12	22. 11. 1992/9:00	22. 11. 1992/9:00	Spray drift
<i>D4 – pond</i>	24. 09 – 24. 10	28. 09. 1985/9:00	24. 12. 1985/15:00	Drainage
<i>D4 – stream</i>	24. 09 – 24. 10	28. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
<i>D5 – pond</i>	12. 11 – 12. 12	27. 11. 1978/9:00	15. 02. 1979/18:59	Drainage
<i>D5 – stream</i>	12. 11 – 12. 12	27. 11. 1978/9:00	04. 02. 1979/11:00	Drainage
<i>D6 – ditch</i>	02. 12 – 02. 01	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
<i>R1 – pond</i>	14. 11 – 14. 12	14. 11. 1978/9:00	31. 12. 1978/15:00	Run-off
<i>R1 – stream</i>	14. 11– 14. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	03. 12 – 03. 01	05. 12. 1980/9:00	16. 12. 1980/9:00	Run-off
<i>R4 – stream</i>	12. 11 – 12. 12	10. 12. 1979/9:00	21. 12. 1979/2:00	Run-off

**Table B.8.5\_CP-59:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.328 <sup>1)</sup> ----- 4.327 <sup>2)</sup>	----	11.671	----	2.699 <sup>1)</sup> ----- 2.699 <sup>2)</sup>	----	6.958	----
1	4.261	4.315	11.615	11.617	2.671	2.693	6.956	6.958
2	4.178	4.296	11.609	11.616	2.613	2.680	6.952	6.957
4	3.948	4.252	11.590	11.613	2.462	2.648	6.934	6.956
7	3.603	4.156	11.550	11.606	2.232	2.585	6.883	6.950
14	3.065	3.945	11.382	11.578	1.863	2.446	6.368	6.921
21	2.719	3.908	10.907	11.532	1.593	2.423	5.084	6.873
28	2.771	3.748	10.837	11.512	1.710	2.317	5.421	6.860
42	2.217	3.446	9.867	11.464	0.967	2.117	3.955	6.801
50	1.759	3.374	9.162	11.394	0.0117	2.068	3.519	6.678
100	0.527	2.810	4.871	10.592	0.00181	1.511	1.748	5.653
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.957 <sup>1)</sup> ----- 3.955 <sup>2)</sup>	----	4.943	----	2.480 <sup>1)</sup> ----- 2.479 <sup>2)</sup>	----	2.912	----
1	1.490	2.528	4.911	4.930	0.796	1.507	2.899	2.903
2	1.463	2.145	4.875	4.918	1.072	1.281	2.875	2.898
4	1.240	1.070	4.827	4.891	0.711	1.225	2.854	2.883
7	1.291	1.966	4.726	4.875	0.727	1.161	2.796	2.871
14	1.285	1.829	4.506	4.808	0.929	1.092	2.660	2.833
21	1.436	1.665	4.311	4.779	0.812	1.002	2.540	2.809
28	1.007	1.589	n. c. <sup>3)</sup>	4.736	0.589	0.952	n. c. <sup>3)</sup>	2.783
42	0.821	1.458	n. c. <sup>3)</sup>	4.708	0.541	0.874	n. c. <sup>3)</sup>	2.753
50	2.650	1.369	n. c. <sup>3)</sup>	4.684	1.644	0.819	n. c. <sup>3)</sup>	2.739
100	0.782	1.089	n. c. <sup>3)</sup>	4.520	0.447	0.644	n. c. <sup>3)</sup>	2.638
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.145 <sup>1)</sup> ----- 0.145 <sup>2)</sup>	----	0.0413	----	0.750 <sup>1)</sup> ----- 0.750 <sup>2)</sup>	----	2.403	----
1	0.0282	0.0932	0.0280	0.0382	0.749	0.750	2.403	2.403
2	0.00155	0.0514	0.0203	0.0330	0.748	0.749	2.403	2.403
4	1.77 E-4	0.0260	0.0145	0.0260	0.743	0.749	2.402	2.403
7	6.1 E-5	0.0149	0.0110	0.0206	0.730	0.747	2.398	2.403
14	1.9 E-5	0.00745	0.00776	0.0150	0.696	0.738	2.388	2.402
21	1.0 E-5	0.00497	0.00629	0.0124	0.664	0.727	2.375	2.401
28	7 E-6	0.00373	0.00539	0.0108	0.623	0.714	2.360	2.400
42	4 E-6	0.00249	0.00425	0.00878	0.544	0.687	n. c. <sup>3)</sup>	2.395
50	3 E-6	0.00209	0.00380	0.00803	0.520	0.669	n. c. <sup>3)</sup>	2.392
100	1 E-6	0.00105	0.00230	0.00548	0.398	0.579	n. c. <sup>3)</sup>	2.346

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-60:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.081 <sup>1)</sup> ----- 1.080 <sup>2)</sup>	----	1.076	----	0.761 <sup>1)</sup> ----- 0.760 <sup>2)</sup>	----	2.291	----
1	0.773	0.936	1.073	1.076	0.759	0.760	2.291	2.291
2	0.956	0.886	1.064	1.075	0.755	0.760	2.291	2.291
4	0.743	0.857	1.044	1.072	0.745	0.758	2.291	2.291
7	0.628	0.804	0.995	1.064	0.729	0.753	2.290	2.291
14	0.347	0.668	0.861	1.035	0.695	0.739	n. c. <sup>3)</sup>	2.291
21	0.173	0.545	0.738	0.995	0.667	0.724	n. c. <sup>3)</sup>	2.290
28	0.0860	0.447	0.640	0.947	0.641	0.710	n. c. <sup>3)</sup>	2.289
42	0.0317	0.318	0.570	0.854	0.561	0.682	n. c. <sup>3)</sup>	2.276
50	0.0605	0.275	0.517	0.811	0.522	0.664	n. c. <sup>3)</sup>	2.254
100	0.00411	0.147	0.309	0.626	n. c. <sup>3)</sup>	0.509	n. c. <sup>3)</sup>	1.721
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.812 <sup>1)</sup> ----- 0.812 <sup>2)</sup>	----	0.707	----	3.732 <sup>1)</sup> ----- 3.731 <sup>2)</sup>	----	2.485	----
1	0.388	0.498	0.696	0.706	2.100	2.859	2.442	2.479
2	0.488	0.497	0.675	0.705	1.555	2.563	2.372	2.461
4	0.541	0.489	0.624	0.697	0.955	2.403	2.164	2.408
7	0.535	0.451	0.556	0.677	0.407	1.918	1.813	2.285
14	0.133	0.372	0.445	0.622	0.124	1.239	1.330	1.993
21	0.0492	0.276	0.376	0.571	0.141	0.902	1.165	1.769
28	0.0262	0.218	0.330	0.530	0.673	0.708	1.793	1.659
42	0.0433	0.156	0.312	0.467	0.114	0.640	1.225	1.626
50	0.0390	0.139	0.298	0.443	0.0826	0.558	1.079	1.559
100	n. c. <sup>3)</sup>	0.0841	n. c. <sup>3)</sup>	0.333	0.105	0.349	0.902	1.305
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0370 <sup>1)</sup> ----- 0.0370 <sup>2)</sup>	----	0.138	----	1.697 <sup>1)</sup> ----- 1.696 <sup>2)</sup>	----	0.377	----
1	0.0365	0.0368	0.138	0.138	0.00172	0.702	0.181	0.289
2	0.0362	0.0366	0.138	0.138	5.46 E-4	0.352	0.131	0.229
4	0.0355	0.0362	0.138	0.138	1.80 E-4	0.176	0.0949	0.173
7	0.0345	0.0357	0.137	0.138	3.2 E-5	0.101	0.0727	0.135
14	0.0325	0.0346	0.136	0.138	5.8 E-5	0.0519	0.0561	0.0986
21	0.0306	0.0336	0.135	0.138	0.00317	0.0346	0.0451	0.0820
28	0.0289	0.0327	0.133	0.137	4 E-6	0.0263	0.0371	0.0717
42	0.0261	0.0311	0.129	0.137	2.1 E-5	0.0207	0.0450	0.0640
50	0.0243	0.0306	0.126	0.136	8 E-6	0.0179	0.0369	0.0603
100	0.0163	0.0287	0.0981	0.133	1 E-6	0.00899	0.0211	0.0439

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-61:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.246 <sup>1)</sup> 2.246 <sup>2)</sup>	----	0.562	----	1.786 <sup>1)</sup> 1.785 <sup>2)</sup>	----	0.473	----
1	0.00633	1.158	0.293	0.458	0.956	0.923	0.433	0.399
2	0.00185	0.582	0.213	0.368	0.00205	0.669	0.262	0.381
4	5.93 E-4	0.292	0.155	0.280	3.74 E-4	0.335	0.178	0.304
7	2.50 E-4	0.167	0.119	0.220	1.37 E-4	0.192	0.133	0.242
14	4.60 E-4	0.128	0.164	0.203	4.3 E-5	0.0971	0.0927	0.177
21	1.57 E-4	0.0851	0.117	0.182	2.2 E-5	0.0648	0.0749	0.146
28	8.4 E-5	0.0655	0.0962	0.163	1.4 E-5	0.0486	0.0638	0.127
42	4.0 E-5	0.0437	0.0741	0.137	8 E-6	0.0324	0.0500	0.104
50	3.1 E-5	0.0367	0.0660	0.126	8 E-6	0.0272	0.0442	0.0946
100	1.2 E-5	0.0195	0.0434	0.0911	2 E-6	0.0136	0.0254	0.0640

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 20 metres buffer zone:****Table B.8.5\_CP-62:** Data on application pattern for Flufenacet – STEP 4, 20-metres buffer zone.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
D1 – ditch	27. 09 – 27. 10	03. 10. 1982/9:00	16. 03.1982/15:59	Drainage
D1 – stream	27. 09 – 27. 10	03. 10. 1982/ 9:00	16. 03. 1982/8:00	Drainage
D2 – ditch	27. 10 – 26. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
D2 – stream	27. 10 – 26. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
D3 – ditch	23. 11 – 23. 12	22. 11. 1992/9:00	22. 11. 1992/9:00	Spray drift
D4 – pond	24. 09 – 24. 10	28. 09. 1985/9:00	24. 12. 1985/15:00	Drainage
D4 – stream	24. 09 – 24. 10	28. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
D5 – pond	12. 11 – 12. 12	27. 11. 1978/9:00	15. 02. 1979/18:59	Drainage
D5 – stream	12. 11 – 12. 12	27. 11. 1978/9:00	04. 02. 1979/11:00	Drainage
D6 – ditch	02. 12 – 02. 01	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
R1 – pond	14. 11 – 14. 12	14. 11. 1978/9:00	31. 12. 1978/15:00	Run-off
R1 – stream	14. 11 – 14. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
R2 – stream	Crop not defined in this scenario			
R3 – stream	03. 12 – 03. 01	05. 12. 1980/9:00	16. 12. 1980/9:00	Run-off
R4 – stream	12. 11 – 12. 12	10. 12. 1979/9:00	21. 12. 1979/2:00	Run-off

**Table B.8.5\_CP-63:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.328 <sup>1)</sup> ----- 4.327 <sup>2)</sup>	----	11.617	----	2.699 <sup>1)</sup> ----- 2.699 <sup>2)</sup>	----	6.958	----
1	4.261	4.315	11.615	11.617	2.671	2.693	6.956	6.958
2	4.178	4.296	11.609	11.616	2.613	2.680	6.952	6.957
4	3.948	4.252	11.590	11.613	2.462	2.648	6.934	6.956
7	3.603	4.156	11.550	11.606	2.232	2.585	6.883	6.950
14	3.065	3.945	11.382	11.578	1.863	2.446	6.368	6.921
21	2.719	3.908	10.907	11.532	1.593	2.423	5.084	6.873
28	2.771	3.748	10.837	11.512	1.710	2.317	5.421	6.860
42	2.217	3.446	9.867	11.464	0.967	2.117	3.955	6.801
50	1.759	3.374	9.162	11.394	0.0117	2.068	3.519	6.678
100	0.527	2.810	4.871	10.592	0.00181	1.511	1.748	5.653
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.957 <sup>1)</sup> ----- 3.955 <sup>2)</sup>	----	4.939	----	2.480 <sup>1)</sup> ----- 2.479 <sup>2)</sup>	----	2.911	----
1	1.490	2.528	4.908	4.927	0.796	1.507	2.898	2.902
2	1.463	2.145	4.872	4.914	1.072	1.281	2.874	2.897
4	1.240	2.070	4.824	4.887	0.711	1.225	2.853	2.882
7	1.291	1.966	4.723	4.872	0.727	1.161	2.796	2.870
14	1.285	1.829	4.503	4.804	0.929	1.092	2.659	2.832
21	1.436	1.665	4.308	4.775	0.812	1.002	2.539	2.808
28	1.007	1.589	n. c. <sup>3)</sup>	4.733	0.589	0.952	n. c. <sup>3)</sup>	2.782
42	0.821	1.458	n. c. <sup>3)</sup>	4.704	0.451	0.874	n. c. <sup>3)</sup>	2.752
50	2.650	1.369	n. c. <sup>3)</sup>	4.680	1.644	0.819	n. c. <sup>3)</sup>	2.738
100	0.782	1.089	n. c. <sup>3)</sup>	4.515	0.447	0.644	n. c. <sup>3)</sup>	2.636
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0754 <sup>1)</sup> ----- 0.0753 <sup>2)</sup>	----	0.0291	----	0.747 <sup>1)</sup> ----- 0.746 <sup>2)</sup>	----	2.389	----
1	0.0146	0.0483	0.0149	0.0203	0.746	0.746	2.389	2.389
2	8.10 E-4	0.0267	0.0108	0.0175	0.745	0.746	2.389	2.389
4	9.5 E-5	0.0135	0.00774	0.0138	0.740	0.746	2.389	2.389
7	3.3 E-5	0.00772	0.00587	0.0109	0.727	0.744	2.387	2.389
14	1.0 E-5	0.00387	0.00414	0.00799	0.693	0.735	2.374	2.388
21	5 E-6	0.00258	0.00335	0.00659	0.661	0.724	2.361	2.387
28	4 E-6	0.00194	0.00287	0.00573	0.620	0.711	2.346	2.385
42	2 E-6	0.00129	0.00227	0.00468	0.546	0.684	n. c. <sup>3)</sup>	2.381
50	2 E-6	0.00109	0.00202	0.00428	0.518	0.667	n. c. <sup>3)</sup>	2.378
100	1 E-6	5.43 E-4	0.00123	0.00292	0.397	0.577	n. c. <sup>3)</sup>	2.330

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-64:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.081 <sup>1)</sup> ----- 1.080 <sup>2)</sup>	----	1.076	----	0.758 <sup>1)</sup> ----- 0.758 <sup>2)</sup>	----	2.278	----
1	0.773	0.936	1.072	1.075	0.756	0.758	2.278	2.278
2	0.956	0.886	1.064	1.075	0.752	0.757	2.278	2.278
4	0.743	0.857	1.044	1.072	0.743	0.755	2.277	2.278
7	0.628	0.804	0.994	1.064	0.727	0.750	n. c. <sup>3)</sup>	2.278
14	0.347	0.668	0.861	1.034	0.693	0.737	n. c. <sup>3)</sup>	2.277
21	0.173	0.545	0.738	0.994	0.664	0.722	n. c. <sup>3)</sup>	2.277
28	0.0860	0.447	0.640	0.497	0.639	0.708	n. c. <sup>3)</sup>	2.276
42	0.0317	0.318	0.570	0.853	0.559	0.679	n. c. <sup>3)</sup>	2.262
50	0.0605	0.275	0.517	0.810	0.520	0.661	n. c. <sup>3)</sup>	2.240
100	0.00411	0.147	0.308	0.625	n. c. <sup>3)</sup>	0.506	n. c. <sup>3)</sup>	1.704
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.812 <sup>1)</sup> ----- 0.812 <sup>2)</sup>	----	0.706	----	3.732 <sup>1)</sup> ----- 3.731 <sup>2)</sup>	----	2.466	----
1	0.388	0.498	0.695	0.705	2.100	2.859	2.424	2.459
2	0.488	0.497	0.674	0.704	1.555	2.563	2.354	2.442
4	0.541	0.489	0.623	0.696	0.955	2.403	2.147	2.389
7	0.535	0.451	0.555	0.676	0.407	1.918	1.798	2.267
14	0.133	0.372	0.444	0.621	0.124	1.239	1.317	1.976
21	0.0492	0.276	0.376	0.571	0.141	0.902	1.154	1.753
28	0.0262	0.218	0.329	0.529	0.673	0.708	1.783	1.645
42	0.0433	0.156	0.312	0.466	0.114	0.640	1.217	1.613
50	0.0390	0.139	0.298	0.442	0.0826	0.558	1.071	1.547
100	n. c. <sup>3)</sup>	0.0841	n. c. <sup>3)</sup>	0.332	0.105	0.349	0.898	1.296
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0208 <sup>1)</sup> ----- 0.0208 <sup>2)</sup>	----	0.0806	----	0.883 <sup>1)</sup> ----- 0.883 <sup>2)</sup>	----	0.199	----
1	0.0205	0.0207	0.0806	0.0806	9.20 E-4	0.365	0.0964	0.153
2	0.0203	0.0206	0.0806	0.0806	2.94 E-4	0.183	0.0697	0.121
4	0.0200	0.0204	0.0805	0.0806	9.6 E-5	0.0915	0.0503	0.0918
7	0.0194	0.0201	0.0804	0.0806	1.7 E-5	0.0523	0.0384	0.0718
14	0.0183	0.0195	0.0797	0.0805	2.9 E-5	0.0270	0.0295	0.0522
21	0.0172	0.0189	0.789	0.0804	0.00159	0.0180	0.0237	0.0434
28	0.0163	0.0184	0.0779	0.0803	2 E-6	0.0137	0.0195	0.0379
42	0.0147	0.0176	0.0756	0.0800	1.1 E-5	0.0108	0.0238	0.0338
50	0.0137	0.0178	0.0740	0.0797	4 E-6	0.00928	0.0195	0.0318
100	0.00918	0.0165	0.0581	0.0776	1 E-6	0.00467	0.0111	0.0232

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-65:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.173 <sup>1)</sup> 1.172 <sup>2)</sup>	----	0.298	----	0.933 <sup>1)</sup> 0.933 <sup>2)</sup>	----	0.251	----
1	0.00338	0.604	0.157	0.243	0.498	0.482	0.231	0.213
2	0.00100	0.304	0.114	0.196	0.00109	0.349	0.140	0.203
4	3.18 E-4	0.152	0.0824	0.149	2.01 E-4	0.175	0.0950	0.162
7	1.34 E-4	0.0872	0.0631	0.117	7.3 E-5	0.0999	0.0708	0.129
14	2.18 E-4	0.0666	0.0872	0.108	2.3 E-5	0.0506	0.0494	0.0944
21	8.4 E-5	0.0445	0.0620	0.0966	1.2 E-5	0.0338	0.0399	0.0779
28	4.5 E-5	0.0342	0.0511	0.0866	8 E-6	0.0253	0.0340	0.0677
42	2.1 E-5	0.0228	0.0393	0.0728	5 E-6	0.0169	0.0267	0.0552
50	1.6 E-5	0.0192	0.0350	0.0671	4 E-6	0.0142	0.0236	0.0504
100	6 E-6	0.0102	0.0230	0.0484	1 E-6	0.00711	0.0135	0.0341

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone VFS-mod:****Table B.8.5.\_CP-66:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone VFS.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	27. 09 – 27. 10	03. 10. 1982/9:00	16. 03.1982/15:59	Drainage
<i>D1 – stream</i>	27. 09 – 27. 10	03. 10. 1982/ 9:00	16. 03. 1982/6:59	Drainage
<i>D2 – ditch</i>	27. 10 – 26. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D2 – stream</i>	27. 10 – 26. 11	03. 11. 1986/9:00	15. 12. 1986/6:00	Drainage
<i>D3 – ditch</i>	23. 11 – 23. 12	22. 11. 1992/9:00	22. 11. 1992/9:00	Spray drift
<i>D4 – pond</i>	24. 09 – 24. 10	28. 09. 1985/9:00	24. 12. 1985/15:00	Drainage
<i>D4 – stream</i>	24. 09 – 24. 10	28. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
<i>D5 – pond</i>	12. 11 – 12. 12	27. 11. 1978/9:00	15. 02. 1979/18:59	Drainage
<i>D5 – stream</i>	12. 11 – 12. 12	27. 11. 1978/9:00	04. 02. 1979/11:00	Drainage
<i>D6 – ditch</i>	02. 12 – 02. 01	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
<i>R1 – pond</i>	14. 11 – 14. 12	14. 11. 1978/9:00	14. 11. 1978/9:00	Spray drift
<i>R1 – stream</i>	14. 11– 14. 12	14. 11. 1978/9:00	14. 11. 1978/9:00	Spray drift
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	03. 12 – 03. 01	05. 12. 1980/9:00	05. 12. 1980/9:00	Spray drift
<i>R4 – stream</i>	12. 11 – 12. 12	10. 12. 1979/9:00	10. 12. 1979/9:00	Spray drift

**Table B.8.5\_ CP-67:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.328 <sup>1)</sup> ----- 4.327 <sup>2)</sup>	----	11.671	----	2.699 <sup>1)</sup> ----- 2.699 <sup>2)</sup>	----	6.958	----
1	4.261	4.315	11.615	11.617	2.671	2.693	6.956	6.958
2	4.178	4.296	11.609	11.616	2.613	2.680	6.952	6.957
4	3.948	4.252	11.590	11.613	2.462	2.648	6.934	6.956
7	3.603	4.156	11.550	11.606	2.232	2.585	6.883	6.950
14	3.065	3.945	11.382	11.578	1.863	2.446	6.368	6.921
21	2.719	3.908	10.907	11.532	1.593	2.423	5.084	6.873
28	2.771	3.748	10.837	11.512	1.710	2.317	5.421	6.860
42	2.217	3.446	9.867	11.464	0.967	2.117	3.955	6.801
50	1.759	3.374	9.162	11.394	0.0117	2.068	3.519	6.678
100	0.527	2.810	4.871	10.592	0.00181	1.511	1.748	5.653
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.957 <sup>1)</sup> ----- 3.955 <sup>2)</sup>	----	4.943	----	2.480 <sup>1)</sup> ----- 2.479 <sup>2)</sup>	----	2.912	----
1	1.490	2.528	4.911	4.930	0.796	1.507	2.899	2.903
2	1.463	2.145	4.875	4.918	1.072	1.281	2.875	2.898
4	1.240	1.070	4.827	4.891	0.711	1.225	2.854	2.883
7	1.291	1.966	4.726	4.875	0.727	1.161	2.796	2.871
14	1.285	1.829	4.506	4.808	0.929	1.092	2.660	2.833
21	1.436	1.665	4.311	4.779	0.812	1.002	2.540	2.809
28	1.007	1.589	n. c. <sup>3)</sup>	4.736	0.589	0.952	n. c. <sup>3)</sup>	2.783
42	0.821	1.458	n. c. <sup>3)</sup>	4.708	0.541	0.874	n. c. <sup>3)</sup>	2.753
50	2.650	1.369	n. c. <sup>3)</sup>	4.684	1.644	0.819	n. c. <sup>3)</sup>	2.739
100	0.782	1.089	n. c. <sup>3)</sup>	4.520	0.447	0.644	n. c. <sup>3)</sup>	2.638
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.145 <sup>1)</sup> ----- 0.145 <sup>2)</sup>	----	0.0413	----	0.750 <sup>1)</sup> ----- 0.750 <sup>2)</sup>	----	2.403	----
1	0.0282	0.0932	0.0280	0.0382	0.749	0.750	2.403	2.403
2	0.00155	0.0514	0.0203	0.0330	0.748	0.749	2.403	2.403
4	1.77 E-4	0.0260	0.0145	0.0260	0.743	0.749	2.402	2.403
7	6.1 E-5	0.0149	0.0110	0.0206	0.730	0.747	2.398	2.403
14	1.9 E-5	0.00745	0.00776	0.0150	0.696	0.738	2.388	2.402
21	1.0 E-5	0.00497	0.00629	0.0124	0.664	0.727	2.375	2.401
28	7 E-6	0.00373	0.00539	0.0108	0.623	0.714	2.360	2.400
42	4 E-6	0.00249	0.00425	0.00878	0.544	0.687	n. c. <sup>3)</sup>	2.395
50	3 E-6	0.00209	0.00380	0.00803	0.520	0.669	n. c. <sup>3)</sup>	2.392
100	1 E-6	0.00105	0.00230	0.00548	0.398	0.579	n. c. <sup>3)</sup>	2.346

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-68:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.081 <sup>1)</sup> ----- 1.080 <sup>2)</sup>	----	1.076	----	0.761 <sup>1)</sup> ----- 0.760 <sup>2)</sup>	----	2.291	----
1	0.773	0.936	1.073	1.076	0.759	0.760	2.291	2.291
2	0.956	0.886	1.064	1.075	0.755	0.760	2.291	2.291
4	0.743	0.857	1.044	1.072	0.745	0.758	2.291	2.291
7	0.628	0.804	0.995	1.064	0.729	0.753	2.290	2.291
14	0.347	0.668	0.861	1.035	0.695	0.739	n. c. <sup>3)</sup>	2.291
21	0.173	0.545	0.738	0.995	0.667	0.724	n. c. <sup>3)</sup>	2.290
28	0.0860	0.447	0.640	0.947	0.641	0.710	n. c. <sup>3)</sup>	2.289
42	0.0317	0.318	0.570	0.854	0.561	0.682	n. c. <sup>3)</sup>	2.276
50	0.0605	0.275	0.517	0.811	0.522	0.664	n. c. <sup>3)</sup>	2.254
100	0.00411	0.147	0.309	0.626	n. c. <sup>3)</sup>	0.509	n. c. <sup>3)</sup>	1.721
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.812 <sup>1)</sup> ----- 0.812 <sup>2)</sup>	----	0.707	----	3.732 <sup>1)</sup> ----- 3.731 <sup>2)</sup>	----	2.485	----
1	0.388	0.498	0.696	0.706	2.100	2.859	2.442	2.479
2	0.488	0.497	0.675	0.705	1.555	2.563	2.372	2.461
4	0.541	0.489	0.624	0.697	0.955	2.403	2.164	2.408
7	0.535	0.451	0.556	0.677	0.407	1.918	1.813	2.285
14	0.133	0.372	0.445	0.622	0.124	1.239	1.330	1.993
21	0.0492	0.276	0.376	0.571	0.141	0.902	1.165	1.769
28	0.0262	0.218	0.330	0.530	0.673	0.708	1.793	1.659
42	0.0433	0.156	0.312	0.467	0.114	0.640	1.225	1.626
50	0.0390	0.139	0.298	0.443	0.0826	0.558	1.079	1.559
100	n. c. <sup>3)</sup>	0.0841	n. c. <sup>3)</sup>	0.333	0.105	0.349	0.902	1.305
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0218 <sup>1)</sup> ----- 0.0217 <sup>2)</sup>	----	0.0675	----	0.129 <sup>1)</sup> ----- 0.129 <sup>2)</sup>	----	0.0143	----
1	0.0212	0.0214	0.0675	0.0675	5.2 E-5	0.0233	0.00698	0.0108
2	0.0208	0.0212	0.0675	0.0675	1.6 E-5	0.0117	0.00491	0.00848
4	0.0203	0.0209	0.0675	0.0675	5 E-6	0.00583	0.00347	0.00635
7	0.0196	0.0205	0.0674	0.0675	2 E-6	0.00333	0.00262	0.00494
14	0.0183	0.0197	0.0671	0.0675	1 E-6	0.00167	0.00184	0.00356
21	0.0170	0.0190	0.0664	0.0674	<1.0 E-6	0.00111	0.00149	0.00293
28	0.0158	0.0184	0.0655	0.0674	<1.0 E-6	8.34 E-4	0.00127	0.00254
42	0.0138	0.0172	0.0636	0.0671	<1.0 E-6	5.56 E-4	0.00101	0.00219
50	0.0155	0.0167	0.0623	0.0669	7 E-6	7.78 E-4	0.00360	0.00220
100	0.0103	0.0147	0.0501	0.0651	<1.0 E-6	3.95 E-4	0.00119	0.00198

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-69:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.181 <sup>1)</sup> 0.181 <sup>2)</sup>	----	0.0262	----	0.128 <sup>1)</sup> 0.128 <sup>2)</sup>	----	0.0120	----
1	2.61 E-4	0.0468	0.0135	0.0208	3.2 E-5	0.0190	0.00576	0.00881
2	7.3 E-5	0.0235	0.00957	0.0165	1.1 E-5	0.00950	0.00403	0.00694
4	2.1 E-5	0.0117	0.00680	0.0124	3 E-6	0.00475	0.00283	0.00518
7	8 E-6	0.00672	0.00515	0.00969	1 E-6	0.00272	0.00213	0.00402
14	3 E-6	0.00336	0.00362	0.00701	<1.0 E-6	0.00136	0.00148	0.00289
21	<1.0 E-6	0.00224	0.00294	0.00577	<1.0 E-6	9.06 E-4	0.00119	0.00237
28	1 E-6	0.00168	0.00252	0.00501	<1.0 E-6	6.79 E-4	0.00101	0.00206
42	1 E-6	0.00112	0.00200	0.00409	<1.0 E-6	4.53 E-4	7.99 E-4	0.00167
50	1 E-6	9.42 E-4	0.00180	0.00374	<1.0 E-6	3.80 E-4	7.15 E-4	0.00157
100	<1.0 E-6	4.71 E-4	0.00107	0.00257	<1.0 E-6	1.90 E-4	4.02 E-4	0.00103

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-70:** Results of the calculations obtained for FOE Oxalate at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	8.622	----	0.909	----
1	8.615	8.619	0.913	0.911
2	8.609	8.615	0.913	0.912
4	8.597	8.609	0.911	0.912
7	8.598	8.600	0.909	0.911
14	8.540	8.580	0.905	0.909
21	8.497	8.559	0.901	0.907
28	8.456	8.538	0.896	0.905
42	8.374	8.497	0.888	0.901
50	8.328	8.474	0.883	0.898
100	8.044	8.329	0.853	0.883

**Table B.8.5\_CP-71:** Results of the calculations obtained for FOE Oxalate Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.386	----	0.359	----	2.719	----	0.288	----
1	3.384	3.385	0.358	0.359	2.717	2.718	0.288	0.288
2	3.381	3.384	0.358	0.358	2.715	2.717	0.288	0.288
4	3.377	3.381	0.358	0.358	2.711	2.715	0.287	0.288
7	3.369	3.378	0.357	0.358	2.705	2.712	0.287	0.287
14	3.353	3.370	0.355	0.357	2.692	2.705	0.285	0.287
21	3.337	3.361	0.354	0.356	2.679	2.699	0.284	0.286
28	3.321	3.353	0.352	0.355	2.666	2.692	0.283	0.285
42	3.289	3.337	0.348	0.354	2.640	2.679	0.280	0.284
50	3.271	3.328	0.346	0.353	2.626	2.672	0.278	0.283
100	3.159	3.271	0.335	0.347	2.536	2.626	0.269	0.278

**Table B.8.5.\_CP-72:** Results of the calculations obtained for FOE Sulfonic acid at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	10.588	----	1.171	----
1	10.580	10.584	1.174	1.173
2	10.573	10.581	1.174	1.173
4	10.558	10.573	1.172	1.173
7	10.537	10.562	1.170	1.172
14	10.486	10.537	1.164	1.169
21	10.435	10.511	1.158	1.167
28	10.384	10.486	1.153	1.164
42	10.284	10.435	1.142	1.158
50	10.227	10.406	1.135	1.155
100	9.879	10.229	1.097	1.135

**Table B.8.5.\_CP-73:** Results of the calculations obtained for FOE Sulfonic acid Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	4.997	----	0.554	----	4.005	----	0.444	----
1	4.993	4.995	0.554	0.554	4.002	4.003	0.444	0.444
2	4.990	4.993	0.554	0.554	3.999	4.002	0.444	0.444
4	4.983	4.990	0.553	0.554	3.993	3.999	0.443	0.444
7	4.973	4.985	0.552	0.553	3.985	3.995	0.442	0.443
14	4.949	4.973	0.549	0.552	3.966	3.985	0.440	0.442
21	4.925	4.961	0.546	0.550	3.947	3.976	0.438	0.441
28	4.901	4.949	0.544	0.549	3.928	3.966	0.436	0.440
42	4.853	4.925	0.538	0.546	3.890	3.947	0.431	0.438
50	4.827	4.911	0.535	0.545	3.868	3.936	0.429	0.437
100	4.662	4.828	0.517	0.536	3.736	3.869	0.414	0.429

**Table B.8.5.\_CP-74:** Results of the calculations obtained for FOE Methylsulfone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	2.528	----	1.494	----
1	2.520	2.524	1.538	1.516
2	2.519	2.522	1.537	1.527
4	2.515	2.519	1.535	1.532
7	2.510	2.517	1.532	1.532
14	2.498	2.510	1.524	1.530
21	2.486	2.504	1.517	1.527
28	2.474	2.498	1.510	1.524
42	2.450	2.486	1.495	1.517
50	2.436	2.479	1.487	1.513
100	2.353	2.437	1.436	1.487

**Table B.8.5.\_CP-75:** Results of the calculations obtained for FOE Methylsulfone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.259	----	0.767	----	1.022	----	0.622	----
1	1.256	1.257	0.766	0.776	1.020	1.021	0.622	0.622
2	1.255	1.257	0.766	0.766	1.019	1.020	0.621	0.622
4	1.253	1.255	0.764	0.766	1.017	1.019	0.621	0.621
7	1.251	1.254	0.763	0.765	1.015	1.018	0.619	0.621
14	1.245	1.251	0.759	0.763	1.010	1.015	0.616	0.619
21	1.239	1.248	0.756	0.761	1.006	1.013	0.613	0.618
28	1.233	1.245	0.752	0.756	1.001	1.010	0.610	0.616
42	1.221	1.239	0.745	0.756	0.991	1.006	0.604	0.613
50	1.214	1.235	0.740	0.753	0.985	1.003	0.601	0.612
100	1.173	1.214	0.715	0.741	0.952	0.986	0.581	0.601

**Table B.8.5.\_CP-76:** Results of the calculations obtained for FOE Methylsulfide at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	0.111	----	<0.001	----
1	0.062	0.087	0.371	0.185
2	0.062	0.074	0.371	0.278
4	0.062	0.068	0.370	0.324
7	0.062	0.065	0.369	0.343
14	0.061	0.064	0.367	0.356
21	0.061	0.063	0.366	0.359
28	0.061	0.062	0.364	0.361
42	0.060	0.062	0.360	0.361
50	0.060	0.061	0.358	0.361
100	0.058	0.060	0.346	0.356

**Table B.8.5.\_CP-77:** Results of the calculations obtained for FOE Methylsulfide at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.111	----	0.370	----	0.111	----	0.370	----
1	0.078	0.095	0.369	0.369	0.078	0.095	0.369	0.369
2	0.074	0.085	0.369	0.369	0.074	0.085	0.369	0.369
4	0.073	0.079	0.369	0.369	0.073	0.079	0.369	0.369
7	0.062	0.073	0.368	0.369	0.062	0.073	0.368	0.369
14	0.061	0.067	0.366	0.368	0.061	0.067	0.366	0.368
21	0.061	0.065	0.364	0.367	0.061	0.065	0.364	0.367
28	0.061	0.064	0.362	0.366	0.061	0.064	0.362	0.366
42	0.060	0.063	0.359	0.364	0.060	0.063	0.359	0.364
50	0.058	0.061	0.345	0.357	0.058	0.061	0.345	0.357
100	0.087	0.091	0.517	0.535	0.087	0.091	0.517	0.535

**Table B.8.5.\_CP-78:** Results of the calculations obtained for FOE Thiadone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.952	----	0.577	----
1	1.920	1.936	0.808	0.693
2	1.918	1.927	0.808	0.750
4	1.916	1.922	0.807	0.779
7	1.912	1.919	0.805	0.790
14	1.903	1.913	0.801	0.797
21	1.893	1.908	0.797	0.797
28	1.884	1.903	0.793	0.797
42	1.866	1.894	0.786	0.794
50	1.856	1.889	0.781	0.793
100	1.792	1.856	0.755	0.780

**Table B.8.5.\_CP-79:** Results of the calculations obtained for FOE Thiadone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.724	----	0.300	----	0.691	----	0.286	----
1	0.713	0.718	0.300	0.300	0.680	0.685	0.286	0.286
2	0.713	0.716	0.300	0.300	0.680	0.683	0.286	0.286
4	0.712	0.714	0.299	0.300	0.679	0.681	0.286	0.286
7	0.710	0.713	0.299	0.300	0.677	0.680	0.285	0.286
14	0.707	0.711	0.297	0.299	0.674	0.678	0.284	0.285
21	0.703	0.709	0.296	0.298	0.671	0.676	0.282	0.284
28	0.700	0.707	0.295	0.297	0.668	0.674	0.281	0.284
42	0.693	0.704	0.292	0.296	0.661	0.671	0.278	0.282
50	0.689	0.702	0.290	0.295	0.658	0.669	0.277	0.282
100	0.666	0.690	0.280	0.290	0.635	0.658	0.267	0.277

**Table B.8.5.\_CP-80:** Results of the calculations obtained for FOE TFESA at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.445	----	0.000	----
1	1.444	1.445	0.000	0.000
2	1.443	1.444	0.000	0.000
4	1.441	1.443	0.000	0.000
7	1.438	1.442	0.000	0.000
14	1.431	1.438	0.000	0.000
21	1.424	1.435	0.000	0.000
28	1.418	1.431	0.000	0.000
42	1.404	1.424	0.000	0.000
50	1.396	1.421	0.000	0.000
100	1.349	1.396	0.000	0.000

**Table B.8.5.\_CP-81:** Results of the calculations obtained for FOE TFESA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.469	----	0.000	----	0.375	----	0.000	----
1	0.469	0.469	0.000	0.000	0.375	0.375	0.000	0.000
2	0.468	0.469	0.000	0.000	0.375	0.375	0.000	0.000
4	0.468	0.468	0.000	0.000	0.374	0.375	0.000	0.000
7	0.467	0.468	0.000	0.000	0.373	0.374	0.000	0.000
14	0.464	0.467	0.000	0.000	0.372	0.373	0.000	0.000
21	0.462	0.466	0.000	0.000	0.370	0.373	0.000	0.000
28	0.460	0.464	0.000	0.000	0.368	0.372	0.000	0.000
42	0.455	0.462	0.000	0.000	0.364	0.370	0.000	0.000
50	0.453	0.461	0.000	0.000	0.362	0.369	0.000	0.000
100	0.438	0.453	0.000	0.000	0.350	0.362	0.000	0.000

**Table B.8.5.\_CP-82:** Results of the calculations obtained for FOE TFA at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	13.638	----	0.000	----
1	13.629	13.633	0.000	0.000
2	13.619	13.629	0.000	0.000
4	13.600	13.619	0.000	0.000
7	13.572	13.605	0.000	0.000
14	13.506	13.572	0.000	0.000
21	13.441	13.539	0.000	0.000
28	13.376	13.506	0.000	0.000
42	13.247	13.441	0.000	0.000
50	13.173	13.404	0.000	0.000
100	12.725	13.176	0.000	0.000

**Table B.8.5.\_CP-83:** Results of the calculations obtained for FOE TFA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.800	----	0.000	----	5.440	----	0.000	----
1	6.795	6.798	0.000	0.000	5.436	5.438	0.000	0.000
2	6.791	6.795	0.000	0.000	5.433	5.436	0.000	0.000
4	6.781	6.790	0.000	0.000	5.425	5.433	0.000	0.000
7	6.767	6.784	0.000	0.000	5.414	5.427	0.000	0.000
14	6.734	6.767	0.000	0.000	5.388	5.414	0.000	0.000
21	6.702	6.751	0.000	0.000	5.361	5.401	0.000	0.000
28	6.669	6.735	0.000	0.000	5.336	5.388	0.000	0.000
42	6.605	6.702	0.000	0.000	5.284	5.362	0.000	0.000
50	6.568	6.684	0.000	0.000	5.255	5.350	0.000	0.000
100	6.345	6.600	0.000	0.000	5.076	5.256	0.000	0.000

3) Results obtained for the use in autumn at 120 g Flufenacet/ha:

The results of the calculations are presented below. First, in the tables B.8.5.\_CA-84 – B.8.5.\_CA-86 are given the key results of the calculations – the maximum PEC values obtained for each compound at each STEP. Next,

in the tables B.8.5.\_CA-87 – B.8.5.\_CA- 118, are presented the detailed results of the calculations obtained for each compound of concern.

**Table B.8.5.\_CP-84:** The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for Flufenacet.

Results obtained at Step 1 and Step2					
STEP 1		STEP 2			
		North Europe		South Europe	
PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]
31.227	75.061	13.797	33.271	11.217	27.015
Results obtained at Step 3					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	2.680	2.679	7.476	Drainage	16. 03.1982/15:59
D1 stream	1.672	1.671	4.470	Drainage	16. 03. 1982/8:00
D2 ditch	3.227	3.226	4.085	Drainage	20. 11. 1986/6:59
D2 stream	2.021	2.020	2.424	Drainage	20. 11. 1986/6:59
D3 ditch	0.758	0.757	0.207	Spray drift	14. 11. 1992/9:00
D4 pond	0.398	0.397	1.324	Drainage	24. 12. 1985/15:00
D4 stream	0.658	0.658	0.580	Spray drift	12. 09. 1985/9:00
D5 pond	0.560	0.559	1.672	Drainage	15. 02. 1979/18:59
D5 stream	0.710	0.710	0.532	Spray drift	27. 11. 1978/9:00
D6 ditch	2.764	2.763	2.013	Drainage	25. 12. 1986/12:00
R1 pond	0.0609	0.0609	0.216	Run-off	31. 12. 1978/15:00
R1 stream	2.800	2.800	0.629	Run-off	25. 11. 1978/7:59
R3 stream	3.783	3.782	5.248	Run-off	26. 11. 1980/1:59
R4 stream	1.167	1.166	0.315	Run-off	21. 12. 1979/2:00
Results obtained at Step 4, 10-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	2.680	2.679	7.476	Drainage	16. 03.1982/15:59
D1 stream	1.672	1.671	4.470	Drainage	16. 03. 1982/8:00
D2 ditch	3.227	3.226	4.036	Drainage	20. 11. 1986/6:59
D2 stream	2.021	2.020	2.385	Drainage	20. 11. 1986/6:59
D3 ditch	0.109	0.109	0.0315	Spray drift	14. 11. 1992/9:00
D4 pond	0.394	0.393	1.304	Drainage	24. 12. 1985/17:00
D4 stream	0.550	0.549	0.577	Drainage	07. 12. 1985/9:00
D5 pond	0.556	0.556	1.654	Drainage	15. 02. 1979/18:59
D5 stream	0.579	0.579	0.526	Spray drift	04. 02. 1979/11:00
D6 ditch	2.764	2.763	1.834	Drainage	25. 12. 1986/12:00
R1 pond	0.0283	0.0282	0.106	Run-off	31. 12. 1978/15:00
R1 stream	1.354	1.253	0.281	Run-off	25. 11. 1978/7:59
R3 stream	1.728	1.727	1.213	Run-off	26. 11. 1980/1:59
R4 stream	0.527	0.526	0.144	Run-off	21. 12. 1979/2:00
Results obtained at Step 4, 20-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	2.680	2.679	7.476	Drainage	16. 03.1982/15:59
D1 stream	1.672	1.671	4.470	Drainage	16. 03. 1982/8:00
D2 ditch	3.227	3.226	4.032	Drainage	20. 11. 1986/6:59
D2 stream	2.021	2.020	2.380	Drainage	20. 11. 1986/6:59
D3 ditch	0.0567	0.0567	0.0167	Spray drift	14. 11. 1992/9:00
D4 pond	0.391	0.391	1.293	Drainage	24. 12. 1985/17:00
D4 stream	0.550	0.549	0.576	Drainage	07. 12. 1985/9:00
D5 pond	0.554	0.554	1.644	Drainage	15. 02. 1979/18:59
D5 stream	0.579	0.579	0.526	Spray drift	04. 02. 1979/11:00
D6 ditch	2.764	2.763	1.819	Drainage	25. 12. 1986/12:00
R1 pond	0.0158	0.0158	0.0615	Run-off	31. 12. 1978/15:00
R1 stream	0.652	0.652	0.148	Run-off	25. 11. 1978/7:59
R3 stream	0.907	0.906	0.532	Run-off	26. 11. 1980/1:59
R4 stream	0.275	0.275	0.0761	Run-off	21. 12. 1979/2:00

Table B.8.5.\_CP-85: The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for Flufenacet - continued.

Results obtained at Step 4, 10-metres buffer zone, VFS-modFOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
<i>D1 ditch</i>	2.680	2.679	7.476	Drainage	16. 03.1982/15:59
<i>D1 stream</i>	1.672	1.671	4.470	Drainage	16. 03. 1982/8:009
<i>D2 ditch</i>	3.227	3.226	4.036	Drainage	20. 11. 1986/6:59
<i>D2 stream</i>	2.021	2.020	2.385	Drainage	20. 11. 1986/6:59
<i>D3 ditch</i>	0.109	0.109	0.0315	Spray drift	14. 11. 1992/9:00
<i>D4 pond</i>	0.394	0.393	1.304	Drainage	24. 12. 1985/15:00
<i>D4 stream</i>	0.550	0.549	0.577	Spray drift	12. 09. 1985/9:00
<i>D5 pond</i>	0.556	0.556	1.654	Drainage	15. 02. 1979/18:59
<i>D5 stream</i>	0.579	0.579	0.526	Spray drift	27. 11. 1978/9:00
<i>D6 ditch</i>	2.764	2.763	1.834	Drainage	25. 12. 1986/12:00
<i>R1 pond</i>	0.0164	0.0164	0.0517	Spray drift	14. 11. 1978/9:00
<i>R1 stream</i>	0.0969	0.0969	0.0108	Spray drift	14. 11. 1978/9:00
<i>R3 stream</i>	1.275	1.274	2.078	Run-off	26. 12. 1980/1:59
<i>R4 stream</i>	0.0975	0.0975	0.0125	Spray drift	03. 11. 1979/9:00

Table B.8.5.\_CP-86: The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for the degradation products of Flufenacet.

Compound	Obtained results:					
	STEP 1		STEP 2			
	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	North Europe		South Europe	
			PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]
<i>FOE Oxalate</i>	6.466	0.685	2.540	0.269	2.039	0.216
<i>FOE Sulfonic acid</i>	7.941	0.881	3.748	0.416	3.004	0.333
<i>FOE Methylsulfone</i>	1.896	1.154	0.944	0.575	0.767	0.467
<i>FOE Methylsulfide</i>	0.084	0.278	0.084	0.277	0.084	0.277
<i>FOE Thiadone</i>	1.464	0.606	0.543	0.225	0.518	0.215
<i>FOE 5043-Trifluoroethanesulfonic acid</i>	1.084	0.000	0.352	0.000	0.281	0.000
<i>Trifluoroacetic acid (TFA)</i>	10.228	0.000	5.100	0.000	4.080	0.000

#### Detailed results

Table B.8.5.\_CP-87: Results of the calculations obtained for Flufenacet at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	31.227	----	74.074	----
1	30.525	30.876	75.061	74.567
2	30.101	30.594	74.019	74.553
4	29.272	30.140	71.979	73.774
7	28.070	29.508	69.024	72.367
14	25.454	28.125	62.592	69.061
21	23.082	26.833	56.759	65.917
28	20.931	25.622	51.469	62.955
42	17.212	23.418	42.323	57.553
50	15.391	22.277	37.847	54.751
100	7.653	16.676	18.818	40.992

Table B.8.5.\_CP-88: Results of the calculations obtained for Flufenacet at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	13.797	----	33.271	----	11.217	----	27.015	----
1	13.711	13.754	33.139	33.205	11.133	11.175	26.908	26.961
2	13.657	13.719	33.084	33.139	11.089	11.143	26.802	26.908
4	13.549	13.661	32.748	33.009	11.002	11.094	26.591	26.802
7	13.389	13.579	32.362	32.814	10.872	11.027	26.277	26.644
14	13.024	13.392	31.478	32.366	10.575	10.875	25.559	26.280
21	12.668	13.210	30.618	31.926	10.286	10.726	24.861	25.923
28	12.322	13.031	29.782	31.494	10.005	10.581	24.182	25.572
42	11.658	12.683	28.177	30.654	9.466	10.298	22.879	24.890
50	11.294	12.490	27.299	30.187	9.171	10.142	22.166	24.511
100	9.268	11.369	22.400	27.478	7.525	9.231	18.188	22.311

Table B.8.5.\_CP-89: Data on application pattern for Flufenacet – STEP 3.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	15. 09 – 15. 10	15. 09 1982/9:00	16. 03.1982/15:59	Drainage
<i>D1 – stream</i>	15. 09 – 15. 10	15. 09. 1982/ 9:00	16. 03. 1982/8:00	Drainage
<i>D2 – ditch</i>	15. 10 – 15. 11	15. 10. 1986/9:00	20. 11. 1986/6:59	Drainage
<i>D2 – stream</i>	15. 10 – 15. 11	15. 10. 1986/9:00	20. 11. 1986/6:59	Drainage
<i>D3 – ditch</i>	11. 11 – 11. 12	14. 11. 1992/9:00	14. 11. 1992/9:00	Spray drift
<i>D4 – pond</i>	12. 09 – 12. 10	12. 09. 1985/9:00	24. 12. 1985/15:00	Drainage
<i>D4 – stream</i>	12. 09 – 12. 10	12. 09. 1986/9:00	12. 09. 1985/9:00	Spray drift
<i>D5 – pond</i>	31. 10 – 30. 11	27. 11. 1978/9:00	15. 02. 1979/18:59	Drainage
<i>D5 – stream</i>	31. 10 – 30. 11	27. 11. 1978/9:00	27. 11. 1978/9:00	Spray drift
<i>D6 – ditch</i>	20. 11 – 20. 12	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
<i>R1 – pond</i>	02. 11 – 02. 12	14. 11. 1978/9:00	31. 12. 1978/15:00	Run-off
<i>R1 – stream</i>	02. 11 – 02. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	21. 11 – 21. 12	21. 11. 1980/9:00	26. 11. 1980/1:59	Run-off
<i>R4 – stream</i>	31. 10 – 30. 11	03. 11. 1979/9:00	21. 12. 1979/2:00	Run-off

**Table B.8.5.\_CP-90:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.680 <sup>1)</sup> ----- 2.679 <sup>2)</sup>	----	7.476	----	1.672 <sup>1)</sup> ----- 1.671 <sup>2)</sup>	----	4.470	----
1	2.640	2.672	7.475	7.476	1.655	1.668	4.469	4.470
2	2.591	2.661	7.471	7.476	1.621	1.660	4.466	4.469
4	2.455	2.634	7.459	7.474	1.531	1.641	4.455	4.468
7	2.248	2.578	7.433	7.469	1.392	1.603	4.423	4.465
14	1.922	2.457	7.327	7.451	1.169	1.523	4.105	4.447
21	1.710	2.436	7.025	7.424	1.003	1.511	3.278	4.418
28	1.732	2.339	6.979	7.414	1.069	1.446	3.502	4.410
42	1.391	2.171	6.360	7.384	0.608	1.331	2.551	4.372
50	1.104	2.132	5.908	7.339	0.00749	1.308	2.270	4.295
100	0.333	1.772	3.148	6.830	0.00116	0.953	1.129	3.647
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.227 <sup>1)</sup> ----- 3.226 <sup>2)</sup>	----	4.085	----	2.021 <sup>1)</sup> ----- 2.020 <sup>2)</sup>	----	2.424	----
1	1.779	2.142	4.031	4.068	0.994	1.237	2.386	2.409
2	3.069	1.856	3.993	4.046	1.871	1.071	2.365	2.394
4	1.219	1.788	3.979	4.011	0.708	1.032	2.369	2.375
7	1.203	1.644	3.945	3.995	0.696	0.949	2.346	2.369
14	0.896	1.428	3.820	3.949	0.507	0.808	2.271	2.344
21	1.535	1.292	3.715	3.917	0.785	0.732	2.211	2.325
28	1.079	1.235	3.627	3.902	0.648	0.717	2.147	2.310
42	0.971	1.176	3.615	3.853	0.561	0.678	2.125	2.282
50	0.737	1.145	3.482	3.820	0.436	0.662	2.055	2.260
100	0.663	0.888	2.269	3.655	0.388	0.509	1.949	2.156
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.758 <sup>1)</sup> ----- 0.757 <sup>2)</sup>	----	0.207	----	0.398 <sup>1)</sup> ----- 0.397 <sup>2)</sup>	----	1.324	----
1	0.154	0.492	0.138	0.191	0.397	0.397	1.324	1.324
2	0.00871	0.273	0.100	0.165	0.397	0.397	1.324	1.324
4	8.87 E-4	0.138	0.0718	0.129	0.394	0.397	1.324	1.324
7	3.03 E-4	0.0789	0.0545	0.102	0.387	0.396	1.324	1.324
14	9.2 E-5	0.0395	0.0383	0.0745	0.370	0.392	1.322	1.323
21	4.8 E-5	0.0264	0.0310	0.0613	0.352	0.386	1.316	1.323
28	3.0 E-5	0.0198	0.0265	0.0553	0.331	0.379	1.301	1.322
42	1.8 E-5	0.0132	0.0209	0.0434	0.291	0.365	n. c. <sup>3)</sup>	1.320
50	1.4 E-5	0.0111	0.0187	0.0397	0.276	0.355	n. c. <sup>3)</sup>	1.318
100	4 E-6	0.00555	0.0113	0.0271	0.211	0.307	n. c. <sup>3)</sup>	1.295

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-91:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.658 <sup>1)</sup> 0.658 <sup>2)</sup>	----	0.580	----	0.560 <sup>1)</sup> 0.559 <sup>2)</sup>	----	1.672	----
1	0.00128	0.483	0.578	0.580	0.558	0.559	1.672	1.672
2	3.06 E-4	0.460	0.574	0.579	0.555	0.559	1.672	1.672
4	8.6 E-5	0.445	0.564	0.578	0.548	0.557	n. c. <sup>3)</sup>	1.672
7	3.5 E-5	0.417	0.537	0.574	0.536	0.554	n. c. <sup>3)</sup>	1.672
14	1.1 E-5	0.349	0.467	0.558	0.511	0.544	n. c. <sup>3)</sup>	1.671
21	6 E-6	0.285	0.403	0.537	0.490	0.533	n. c. <sup>3)</sup>	1.670
28	4 E-6	0.235	0.351	0.513	0.471	0.522	n. c. <sup>3)</sup>	1.669
42	2 E-6	0.168	0.310	0.464	0.412	0.501	n. c. <sup>3)</sup>	1.657
50	2 E-6	0.145	0.282	0.441	0.383	0.488	n. c. <sup>3)</sup>	1.640
100	0.182	0.0775	0.171	0.341	n. c. <sup>3)</sup>	0.372	n. c. <sup>3)</sup>	1.232
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.710 <sup>1)</sup> 0.710 <sup>2)</sup>	----	0.532	----	2.764 <sup>1)</sup> 2.763 <sup>2)</sup>	----	2.013	----
1	0.00577	0.374	0.524	0.531	1.551	2.112	1.981	2.008
2	6.96 E-4	0.373	0.508	0.530	1.151	1.881	1.927	1.994
4	1.83 E-4	0.365	0.470	0.523	0.711	1.761	1.767	1.953
7	7.2 E-5	0.334	0.418	0.508	0.305	1.408	1.494	1.858
14	2.3 E-5	0.275	0.335	0.467	0.0904	0.903	1.107	1.633
21	1.2 E-5	0.205	0.282	0.429	0.103	0.661	0.966	1.455
28	8 E-6	0.161	0.274	0.398	0.502	0.618	1.432	1.361
42	0.00354	0.114	0.233	0.350	0.0833	0.469	0.985	1.326
50	0.0317	0.102	0.222	0.332	0.0603	0.462	0.868	1.269
100	0.0154	0.0612	n. c. <sup>3)</sup>	0.248	0.0767	0.287	0.707	1.051
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0609 <sup>1)</sup> 0.0609 <sup>2)</sup>	----	0.216	----	2.800 <sup>1)</sup> 2.800 <sup>2)</sup>	----	0.629	----
1	0.0601	0.0605	0.216	0.216	0.00280	1.163	0.304	0.483
2	0.0594	0.0601	0.216	0.216	8.85 E-4	0.583	0.224	0.385
4	0.0583	0.0595	0.216	0.216	2.96 E-4	0.292	0.164	0.293
7	0.0567	0.0587	0.215	0.216	5.4 E-5	0.167	0.127	0.231
14	0.0533	0.0569	0.213	0.216	1.07 E-4	0.0897	0.1000	0.170
21	0.0502	0.0552	0.211	0.216	0.00600	0.0599	0.0810	0.142
28	0.0474	0.0537	0.209	0.215	7 E-6	0.0455	0.0668	0.125
42	0.0427	0.0510	0.202	0.214	3.6 E-5	0.0348	0.0800	0.112
50	0.0398	0.0495	0.198	0.214	1.4 E-5	0.0310	0.0659	0.106
100	0.0267	0.0456	0.151	0.208	2 E-6	0.0156	0.0379	0.0776

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-92:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.783 <sup>1)</sup> ----- 3.782 <sup>2)</sup>	----	5.248	----	1.167 <sup>1)</sup> ----- 1.166 <sup>2)</sup>	----	0.315	----
1	2.373	2.169	4.602	5.006	0.614	0.605	0.288	0.267
2	1.781	2.008	4.424	4.824	0.00135	0.436	0.176	0.255
4	0.0101	1.272	3.896	4.527	2.48 E-4	0.218	0.120	0.204
7	0.00483	0.730	3.471	4.193	9.1 E-5	0.125	0.0903	0.163
14	0.00235	0.375	2.866	3.699	2.8 E-5	0.0624	0.0636	0.120
21	0.00694	0.266	2.546	3.387	1.5 E-5	0.0416	0.0517	0.0990
28	0.00116	0.204	2.228	3.153	1.0 E-5	0.0312	0.0442	0.0863
42	9.34 E-4	0.142	1.843	2.797	6 E-6	0.0208	0.0349	0.0707
50	7.14 E-4	0.119	1.677	2.636	5 E-6	0.0196	0.0309	0.0647
100	2.65 E-4	0.0598	1.061	1.996	2 E-6	0.00982	0.0178	0.0440

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone:****Table B.8.5\_CP-93:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	15. 09 – 15. 10	15. 09. 1982/9:00	16. 03.1982/15:59	Drainage
<i>D1 – stream</i>	15. 09 – 15. 10	15. 09. 1982/ 9:00	16. 03. 1982/8:00	Drainage
<i>D2 – ditch</i>	15. 10 – 15. 11	15. 10. 1986/9:00	20. 11. 1986/6:59	Drainage
<i>D2 – stream</i>	15. 10 – 15. 11	15. 10. 1986/9:00	20. 11. 1986/6:59	Drainage
<i>D3 – ditch</i>	11. 11 – 11. 12	14. 11. 1992/9:00	14. 11. 1992/9:00	Spray drift
<i>D4 – pond</i>	12. 09 – 12. 10	12. 09. 1985/9:00	24. 12. 1985/17:00	Drainage
<i>D4 – stream</i>	12. 09 – 12. 10	12. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
<i>D5 – pond</i>	31. 10 – 30. 11	27. 11. 1978/9:00	15. 02. 1979/18:59	Drainage
<i>D5 – stream</i>	31. 10 – 30. 11	27. 11. 1978/9:00	04. 02. 1979/11:00	Spray drift
<i>D6 – ditch</i>	20. 11 – 20. 12	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
<i>R1 – pond</i>	02. 11 – 02. 12	14. 11. 1978/9:00	31. 12. 1978/15:00	Run-off
<i>R1 – stream</i>	02. 11– 02. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	21. 11 – 21. 12	21. 11. 1980/9:00	26. 11. 1980/1:59	Run-off
<i>R4 – stream</i>	31. 10 – 30. 11	03. 11. 1979/9:00	21. 12. 1979/2:00	Run-off

**Table B.8.5\_CP-94:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.680 <sup>1)</sup> ----- 2.679 <sup>2)</sup>	----	7.476	----	1.672 <sup>1)</sup> ----- 1.671 <sup>2)</sup>	----	4.470	----
1	2.640	2.672	7.475	7.476	1.655	1.668	4.469	4.470
2	2.591	2.661	7.471	7.476	1.621	1.660	4.466	4.469
4	2.455	2.634	7.459	7.474	1.531	1.641	4.455	4.468
7	2.248	2.578	7.433	7.469	1.392	1.603	4.423	4.465
14	1.922	2.457	7.327	7.451	1.169	1.523	4.105	4.447
21	1.710	2.436	7.025	7.424	1.003	1.511	3.278	4.418
28	1.732	2.339	6.979	7.414	1.069	1.446	3.502	4.410
42	1.391	2.171	6.360	7.384	0.608	1.331	2.551	4.372
50	1.104	2.132	5.908	7.339	0.00749	1.308	2.270	4.295
100	0.333	1.772	3.148	6.830	0.00116	0.953	1.129	3.647
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.227 <sup>1)</sup> ----- 3.226 <sup>2)</sup>	----	4.036	----	2.021 <sup>1)</sup> ----- 2.020 <sup>2)</sup>	----	2.385	----
1	1.779	2.142	3.982	4.019	0.994	1.237	2.347	2.369
2	3.069	1.856	3.945	3.997	1.871	1.071	2.326	2.355
4	1.219	1.788	3.932	3.962	0.708	1.032	2.331	2.336
7	1.203	1.644	3.899	3.948	0.696	0.949	2.309	2.331
14	0.895	1.428	3.777	3.903	0.507	0.808	2.236	2.307
21	1.535	1.292	3.675	3.869	0.785	0.732	2.179	2.286
28	1.079	1.234	3.588	3.851	0.648	0.717	2.116	2.270
42	0.971	1.176	3.580	3.805	0.561	0.678	2.097	2.244
50	0.737	1.145	3.450	3.773	0.436	0.662	2.029	2.222
100	0.663	0.888	3.246	3.613	0.388	0.509	1.931	2.123
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.109 <sup>1)</sup> ----- 0.109 <sup>2)</sup>	----	0.0315	----	0.394 <sup>1)</sup> ----- 0.393 <sup>2)</sup>	----	1.304	----
1	0.0220	0.0705	0.0216	0.0292	0.393	0.393	1.304	1.304
2	0.00128	0.0391	0.0157	0.0253	0.393	0.393	1.304	1.304
4	1.40 E-4	0.0197	0.0112	0.0199	0.390	0.393	1.303	1.304
7	4.7 E-5	0.0113	0.00847	0.0158	0.384	0.392	1.301	1.304
14	1.4 E-5	0.00567	0.00593	0.0115	0.366	0.388	1.296	1.303
21	7 E-6	0.00379	0.00480	0.00950	0.349	0.382	1.289	1.303
28	5 E-6	0.00284	0.00411	0.00825	0.327	0.375	1.281	1.302
42	3 E-6	0.00189	0.00325	0.00673	0.288	0.361	n. c. <sup>3)</sup>	1.300
50	2 E-6	0.00159	0.00291	0.00615	0.273	0.352	n. c. <sup>3)</sup>	1.298
100	1 E-6	7.97 E-4	0.00176	0.00420	0.209	0.304	n. c. <sup>3)</sup>	1.274

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-95:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.550 <sup>1)</sup> ----- 0.549 <sup>2)</sup>	----	0.577	----	0.556 <sup>1)</sup> ----- 0.556 <sup>2)</sup>	----	1.654	----
1	0.405	0.483	0.575	0.577	0.554	0.556	n. c. <sup>3)</sup>	1.654
2	0.489	0.460	0.571	0.576	0.552	0.555	n. c. <sup>3)</sup>	1.654
4	0.384	0.445	0.561	0.575	0.545	0.554	n. c. <sup>3)</sup>	1.654
7	0.327	0.417	0.535	0.571	0.533	0.550	n. c. <sup>3)</sup>	1.654
14	0.182	0.349	0.465	0.555	0.508	0.540	n. c. <sup>3)</sup>	1.653
21	0.0933	0.285	0.400	0.535	0.487	0.529	n. c. <sup>3)</sup>	1.652
28	0.0473	0.235	0.348	0.510	0.468	0.519	n. c. <sup>3)</sup>	1.650
42	0.0181	0.168	0.308	0.461	0.409	0.498	n. c. <sup>3)</sup>	1.638
50	0.0306	0.145	0.280	0.438	0.380	0.485	n. c. <sup>3)</sup>	1.620
100	0.00271	0.0775	0.169	0.339	n. c. <sup>3)</sup>	0.369	n. c. <sup>3)</sup>	1.210
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.579 <sup>1)</sup> ----- 0.579 <sup>2)</sup>	----	0.526	----	2.764 <sup>1)</sup> ----- 2.763 <sup>2)</sup>	----	1.834	----
1	0.280	0.374	0.519	0.526	1.551	2.112	1.804	1.829
2	0.354	0.373	0.503	0.525	1.151	1.881	1.754	1.817
4	0.401	0.365	0.465	0.518	0.711	1.760	1.602	1.780
7	0.402	0.334	0.414	0.503	0.305	1.408	1.343	1.690
14	0.0996	0.275	0.330	0.462	0.0902	0.902	0.984	1.474
21	0.0363	0.205	0.278	0.424	0.103	0.657	0.861	1.308
28	0.0188	0.161	0.243	0.393	0.502	0.516	1.338	1.229
42	0.0315	0.114	0.230	0.345	0.0833	0.469	0.910	1.206
50	0.0283	0.102	0.219	0.327	0.0602	0.409	0.801	1.157
100	n. c. <sup>3)</sup>	0.0612	n. c. <sup>3)</sup>	0.244	0.0767	0.255	0.668	0.969
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0283 <sup>1)</sup> ----- 0.0282 <sup>2)</sup>	----	0.106	----	1.254 <sup>1)</sup> ----- 1.253 <sup>2)</sup>	----	0.281	----
1	0.0279	0.0281	0.106	0.106	0.00129	0.518	0.135	0.216
2	0.0276	0.0279	0.106	0.106	4.10 E-4	0.260	0.0982	0.171
4	0.0271	0.0276	0.106	0.106	1.35 E-4	0.130	0.0711	0.129
7	0.0263	0.0272	0.105	0.106	2.4 E-5	0.0743	0.0544	0.101
14	0.0248	0.0264	0.104	0.106	4.3 E-5	0.0384	0.0420	0.0738
21	0.0233	0.0256	0.103	0.106	0.00241	0.0256	0.0338	0.0614
28	0.0220	0.0249	0.102	0.105	3 E-6	0.0194	0.0278	0.0537
42	0.0199	0.0237	0.0990	0.105	1.6 E-5	0.0155	0.0345	0.0481
50	0.0186	0.0231	0.0970	0.105	6 E-6	0.0134	0.0282	0.0454
100	0.0124	0.0217	0.0750	0.102	1 E-6	0.00673	0.0160	0.0332

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-96:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.728 <sup>1)</sup> ----- 1.727 <sup>2)</sup>	----	1.213	----	0.527 <sup>1)</sup> ----- 0.526 <sup>2)</sup>	----	0.144	----
1	1.084	0.993	0.989	1.142	0.275	0.272	0.132	0.127
2	0.790	0.923	0.954	1.082	6.23 E-4	0.196	0.0809	0.117
4	0.00364	0.583	0.786	0.992	1.15 E-4	0.0981	0.0548	0.0934
7	0.00124	0.334	0.678	0.890	4.2 E-5	0.0561	0.0409	0.0743
14	4.83 E-4	0.169	0.548	0.761	1.3 E-5	0.0281	0.0286	0.0544
21	0.00276	0.121	0.504	0.687	7 E-6	0.0187	0.0231	0.0449
28	2.46 E-4	0.0918	0.432	0.636	4 E-6	0.0140	0.0197	0.0391
42	1.92 E-4	0.0636	0.358	0.561	3 E-6	0.00935	0.0155	0.0319
50	1.43 E-4	0.0534	0.325	0.527	3 E-6	0.00826	0.0137	0.0292
100	6.4 E-5	0.0268	0.205	0.394	1 E-6	0.00414	0.00789	0.0198

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 20 metres buffer zone:****Table B.8.5\_CP-97:** Data on application pattern for Flufenacet – STEP 4, 20-metres buffer zone.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	15. 09 – 15. 10	15. 09. 1982/9:00	16. 03.1982/15:59	Drainage
<i>D1 – stream</i>	15. 09 – 15. 10	15. 09. 1982/ 9:00	16. 03. 1982/8:00	Drainage
<i>D2 – ditch</i>	15. 10 – 15. 11	15. 10. 1986/9:00	20. 11. 1986/6:59	Drainage
<i>D2 – stream</i>	15. 10 – 15. 11	15. 10. 1986/9:00	20. 11. 1986/6:59	Drainage
<i>D3 – ditch</i>	11. 11 – 11. 12	14. 11. 1992/9:00	14. 11. 1992/9:00	Spray drift
<i>D4 – pond</i>	12. 09 – 12. 10	12. 09. 1985/9:00	24. 12. 1985/17:00	Drainage
<i>D4 – stream</i>	12. 09 – 12. 10	12. 09. 1986/9:00	07. 12. 1985/9:00	Drainage
<i>D5 – pond</i>	31. 10 – 30. 11	27. 11. 1978/9:00	15. 02. 1979/18:59	Drainage
<i>D5 – stream</i>	31. 10 – 30. 11	27. 11. 1978/9:00	04. 02. 1979/11:00	Spray drift
<i>D6 – ditch</i>	20. 11 – 20. 12	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
<i>R1 – pond</i>	02. 11 – 02. 12	14. 11. 1978/9:00	31. 12. 1978/15:00	Run-off
<i>R1 – stream</i>	02. 11– 02. 12	14. 11. 1978/9:00	25. 11. 1978/7:59	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	21. 11 – 21. 12	21. 11. 1980/9:00	26. 11. 1980/1:59	Run-off
<i>R4 – stream</i>	31. 10 – 30. 11	03. 11. 1979/9:00	21. 12. 1979/2:00	Run-off

**Table B.8.5\_CP-98:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.680 <sup>1)</sup> ----- 2.679 <sup>2)</sup>	----	7.476	----	1.672 <sup>1)</sup> ----- 1.671 <sup>2)</sup>	----	4.470	----
1	2.640	2.672	7.475	7.476	1.655	1.668	4.469	4.470
2	2.591	2.661	7.471	7.476	1.621	1.660	4.466	4.469
4	2.455	2.634	7.459	7.474	1.531	1.641	4.455	4.468
7	2.248	2.578	7.433	7.469	1.392	1.603	4.423	4.465
14	1.922	2.457	7.327	7.451	1.169	1.523	4.105	4.447
21	1.710	2.436	7.025	7.424	1.003	1.511	3.278	4.418
28	1.732	2.339	6.979	7.414	1.069	1.446	3.502	4.410
42	1.391	2.171	6.360	7.384	0.608	1.331	2.551	4.372
50	1.104	2.132	5.908	7.339	0.00749	1.308	2.270	4.295
100	0.333	1.772	3.148	6.830	0.00116	0.953	1.129	3.647
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.227 <sup>1)</sup> ----- 3.226 <sup>2)</sup>	----	4.032	----	2.021 <sup>1)</sup> ----- 2.020 <sup>2)</sup>	----	2.380	----
1	1.779	2.142	3.979	4.015	0.994	1.237	2.342	2.365
2	3.069	1.856	3.941	3.993	1.871	1.071	2.322	2.350
4	1.219	1.788	3.928	3.959	0.708	1.032	2.327	2.331
7	1.203	1.644	3.896	3.944	0.696	0.949	2.305	2.326
14	0.895	1.428	3.773	3.899	0.507	0.808	2.232	2.302
21	1.535	1.292	3.671	3.865	0.785	0.732	2.175	2.282
28	1.079	1.234	3.585	3.847	0.648	0.717	2.113	2.266
42	0.971	1.176	3.577	3.801	0.561	0.678	2.094	2.239
50	0.737	1.145	3.447	3.769	0.436	0.662	2.026	2.218
100	0.663	0.888	3.244	3.609	0.388	0.509	1.929	2.119
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0567 <sup>1)</sup> ----- 0.0567 <sup>2)</sup>	----	0.0167	----	0.391 <sup>1)</sup> ----- 0.391 <sup>2)</sup>	----	1.293	----
1	0.0114	0.0367	0.0116	0.0155	0.391	0.391	1.293	1.293
2	6.75 E-4	0.0204	0.00839	0.0135	0.390	0.391	1.293	1.293
4	7.5 E-5	0.0103	0.00599	0.0106	0.388	0.391	1.292	1.293
7	2.5 E-5	0.00590	0.00454	0.00845	0.382	0.390	1.290	1.293
14	8 E-6	0.00296	0.00317	0.00617	0.364	0.386	1.285	1.292
21	4 E-6	0.00197	0.00257	0.00508	0.347	0.380	1.278	1.292
28	3 E-6	0.00148	0.00220	0.00441	0.326	0.373	1.270	1.291
42	1 E-6	9.87 E-4	0.00174	0.00360	0.286	0.359	n. c. <sup>3)</sup>	1.288
50	1 E-6	8.30 E-4	0.00156	0.00329	0.282	0.350	n. c. <sup>3)</sup>	1.287
100	<1.0 E-6	4.15 E-4	9.41 E-4	0.00225	0.208	0.303	n. c. <sup>3)</sup>	1.262

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-99:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.550 <sup>1)</sup> ----- 0.549 <sup>2)</sup>	----	0.576	----	0.554 <sup>1)</sup> ----- 0.554 <sup>2)</sup>	----	1.644	----
1	0.405	0.483	0.575	0.576	0.552	0.554	n. c. <sup>3)</sup>	1.644
2	0.489	0.460	0.571	0.576	0.550	0.553	n. c. <sup>3)</sup>	1.644
4	0.384	0.445	0.560	0.574	0.543	0.552	n. c. <sup>3)</sup>	1.644
7	0.327	0.417	0.534	0.570	0.531	0.548	n. c. <sup>3)</sup>	1.644
14	0.182	0.349	0.465	0.555	0.506	0.538	n. c. <sup>3)</sup>	1.643
21	0.0933	0.285	0.400	0.534	0.485	0.527	n. c. <sup>3)</sup>	1.642
28	0.0473	0.235	0.348	0.510	0.467	0.517	n. c. <sup>3)</sup>	1.639
42	0.0181	0.168	0.308	0.461	0.408	0.496	n. c. <sup>3)</sup>	1.627
50	0.0306	0.145	0.279	0.438	0.379	0.483	n. c. <sup>3)</sup>	1.609
100	0.00271	0.0775	0.169	0.339	n. c. <sup>3)</sup>	0.367	n. c. <sup>3)</sup>	1.197
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.579 <sup>1)</sup> ----- 0.579 <sup>2)</sup>	----	0.526	----	2.764 <sup>1)</sup> ----- 2.763 <sup>2)</sup>	----	1.819	----
1	0.280	0.374	0.518	0.525	1.551	2.112	1.790	1.814
2	0.354	0.373	0.502	0.524	1.151	1.881	1.741	1.802
4	0.401	0.365	0.464	0.518	0.711	1.760	1.590	1.765
7	0.402	0.334	0.413	0.502	0.305	1.408	1.331	1.677
14	0.0996	0.275	0.329	0.461	0.0902	0.902	0.974	1.461
21	0.0363	0.205	0.277	0.423	0.103	0.657	0.852	1.296
28	0.0188	0.161	0.243	0.392	0.502	0.516	1.330	1.218
42	0.0315	0.114	0.229	0.345	0.0833	0.469	0.904	1.196
50	0.0283	0.102	0.219	0.327	0.0602	0.409	0.796	1.148
100	n. c. <sup>3)</sup>	0.0612	n. c. <sup>3)</sup>	0.244	0.0767	0.255	0.665	0.962
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0158 <sup>1)</sup> ----- 0.0158 <sup>2)</sup>	----	0.0615	----	0.652 <sup>1)</sup> ----- 0.652 <sup>2)</sup>	----	0.148	----
1	0.0156	0.0157	0.0615	0.0615	6.87 E-4	0.269	0.0723	0.114
2	0.0154	0.0156	0.0615	0.0615	2.21 E-4	0.135	0.0522	0.0907
4	0.0151	0.0155	0.0615	0.0615	7.2 E-5	0.0676	0.0377	0.0686
7	0.0147	0.0152	0.0615	0.0615	1.3 E-5	0.0386	0.0288	0.0537
14	0.0139	0.0148	0.0614	0.0615	2.1 E-5	0.0199	0.0221	0.0390
21	0.0131	0.0144	0.0608	0.0614	0.00121	0.0133	0.0178	0.0324
28	0.0123	0.0140	0.0602	0.0613	2 E-6	0.0101	0.0146	0.0284
42	0.0112	0.0133	0.0577	0.0611	9 E-6	0.00805	0.0183	0.0254
50	0.0104	0.0133	0.0565	0.0609	3 E-6	0.00694	0.0149	0.0240
100	0.00697	0.0124	0.0442	0.0592	<1.0 E-6	0.00350	0.00845	0.0175

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-100:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.907 <sup>1)</sup> 0.906 <sup>2)</sup>	----	0.532	----	0.275 <sup>1)</sup> 0.275 <sup>2)</sup>	----	0.0761	----
1	0.596	0.521	0.420	0.498	0.143	0.142	0.0705	0.0652
2	0.409	0.485	0.406	0.468	3.32 E-4	0.102	0.0434	0.0622
4	0.001854	0.307	0.322	0.425	6.2 E-5	0.0511	0.0293	0.0499
7	5.72 E-4	0.176	0.273	0.376	2.3 E-5	0.0292	0.0219	0.0397
14	2.02 E-4	0.0889	0.217	0.316	7 E-6	0.0146	0.0153	0.0291
21	0.00141	0.0636	0.203	0.282	4 E-6	0.00975	0.0124	0.0240
28	1.04 E-4	0.0482	0.172	0.260	2 E-6	0.00731	0.0106	0.0209
42	8.0 E-5	0.0334	0.143	0.228	1 E-6	0.00488	0.00830	0.0171
50	5.8 E-5	0.0280	0.129	0.214	1 E-6	0.00430	0.00734	0.0156
100	2.8 E-5	0.0140	0.0815	0.159	<1.0 E-6	0.00216	0.00422	0.0106

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone VFS-mod:****Table B.8.5.\_CP-101:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone VFS.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	15. 09 – 15. 10	15. 09. 1982/9:00	16. 03.1982/15:59	Drainage
<i>D1 – stream</i>	15. 09 – 15. 10	15. 09. 1982/ 9:00	16. 03. 1982/8:009	Drainage
<i>D2 – ditch</i>	15. 10 – 15. 11	15. 10. 1986/9:00	20. 11. 1986/6:59	Drainage
<i>D2 – stream</i>	15. 10 – 15. 11	15. 10. 1986/9:00	20. 11. 1986/6:59	Drainage
<i>D3 – ditch</i>	11. 11 – 11. 12	14. 11. 1992/9:00	14. 11. 1992/9:00	Spray drift
<i>D4 – pond</i>	12. 09 – 12. 10	12. 09. 1985/9:00	24. 12. 1985/15:00	Drainage
<i>D4 – stream</i>	12. 09 – 12. 10	12. 09. 1986/9:00	12. 09. 1985/9:00	Spray drift
<i>D5 – pond</i>	31. 10 – 30. 11	27. 11. 1978/9:00	15. 02. 1979/18:59	Drainage
<i>D5 – stream</i>	31. 10 – 30. 11	27. 11. 1978/9:00	27. 11. 1978/9:00	Spray drift
<i>D6 – ditch</i>	20. 11 – 20. 12	06. 12. 1986/ 9:00	25. 12. 1986/12:00	Drainage
<i>R1 – pond</i>	02. 11 – 02. 12	14. 11. 1978/9:00	14. 11. 1978/9:00	Spray drift
<i>R1 – stream</i>	02. 11– 02. 12	14. 11. 1978/9:00	14. 11. 1978/9:00	Spray drift
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	21. 11 – 21. 12	21. 11. 1980/9:00	26. 12. 1980/1:59	Run-off
<i>R4 – stream</i>	31. 10 – 30. 11	03. 11. 1979/9:00	03. 11. 1979/9:00	Spray drift

**Table B.8.5.\_CP-102:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS,  
– results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.680 <sup>1)</sup> ----- 2.679 <sup>2)</sup>	----	7.476	----	1.672 <sup>1)</sup> ----- 1.671 <sup>2)</sup>	----	4.470	----
1	2.640	2.672	7.475	7.476	1.655	1.668	4.469	4.470
2	2.591	2.661	7.471	7.476	1.621	1.660	4.466	4.469
4	2.455	2.634	7.459	7.474	1.531	1.641	4.455	4.468
7	2.248	2.578	7.433	7.469	1.392	1.603	4.423	4.465
14	1.922	2.457	7.327	7.451	1.169	1.523	4.105	4.447
21	1.710	2.436	7.025	7.424	1.003	1.511	3.278	4.418
28	1.732	2.339	6.979	7.414	1.069	1.446	3.502	4.410
42	1.391	2.171	6.360	7.384	0.608	1.331	2.551	4.372
50	1.104	2.132	5.908	7.339	0.00749	1.308	2.270	4.295
100	0.333	1.772	3.148	6.830	0.00116	0.953	1.129	3.647
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.227 <sup>1)</sup> ----- 3.226 <sup>2)</sup>	----	4.036	----	2.021 <sup>1)</sup> ----- 2.020 <sup>2)</sup>	----	2.385	----
1	1.779	2.142	3.982	4.019	0.994	1.237	2.347	2.369
2	3.069	1.856	3.945	3.997	1.871	1.071	2.326	2.355
4	1.219	1.788	3.932	3.962	0.708	1.032	2.331	2.336
7	1.203	1.644	3.899	3.948	0.696	0.949	2.309	2.331
14	0.895	1.428	3.777	3.903	0.507	0.808	2.236	2.307
21	1.535	1.292	3.675	3.869	0.785	0.732	2.179	2.286
28	1.079	1.234	3.588	3.851	0.648	0.717	2.116	2.270
42	0.971	1.176	3.580	3.805	0.561	0.678	2.097	2.244
50	0.737	1.145	3.450	3.773	0.436	0.662	2.029	2.222
100	0.663	0.888	3.246	3.613	0.388	0.509	1.931	2.123
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.109 <sup>1)</sup> ----- 0.109 <sup>2)</sup>	----	0.0315	----	0.394 <sup>1)</sup> ----- 0.393 <sup>2)</sup>	----	1.304	----
1	0.0220	0.0705	0.0216	0.0292	0.393	0.393	1.304	1.304
2	0.00128	0.0391	0.0157	0.0253	0.393	0.393	1.304	1.304
4	1.40 E-4	0.0197	0.0112	0.0199	0.390	0.393	1.303	1.304
7	4.7 E-5	0.0113	0.00847	0.0158	0.384	0.392	1.301	1.304
14	1.4 E-5	0.00567	0.00593	0.0115	0.366	0.388	1.296	1.303
21	7 E-6	0.00379	0.00480	0.00950	0.349	0.382	1.289	1.303
28	5 E-6	0.00284	0.00411	0.00825	0.327	0.375	1.281	1.302
42	3 E-6	0.00189	0.00325	0.00673	0.288	0.361	n. c. <sup>3)</sup>	1.300
50	2 E-6	0.00159	0.00291	0.00615	0.273	0.352	n. c. <sup>3)</sup>	1.298
100	1 E-6	7.97 E-4	0.00176	0.00420	0.209	0.304	n. c. <sup>3)</sup>	1.274

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-103:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.550 <sup>1)</sup> ----- 0.549 <sup>2)</sup>	----	0.577	----	0.556 <sup>1)</sup> ----- 0.556 <sup>2)</sup>	----	1.654	----
1	0.405	0.483	0.575	0.577	0.554	0.556	n. c. <sup>3)</sup>	1.654
2	0.489	0.460	0.571	0.576	0.552	0.555	n. c. <sup>3)</sup>	1.654
4	0.384	0.445	0.561	0.575	0.545	0.554	n. c. <sup>3)</sup>	1.654
7	0.327	0.417	0.535	0.571	0.533	0.550	n. c. <sup>3)</sup>	1.654
14	0.182	0.349	0.465	0.555	0.508	0.540	n. c. <sup>3)</sup>	1.653
21	0.0933	0.285	0.400	0.535	0.487	0.529	n. c. <sup>3)</sup>	1.652
28	0.0473	0.235	0.348	0.510	0.468	0.519	n. c. <sup>3)</sup>	1.650
42	0.0181	0.168	0.308	0.461	0.409	0.498	n. c. <sup>3)</sup>	1.638
50	0.0306	0.145	0.280	0.438	0.380	0.485	n. c. <sup>3)</sup>	1.620
100	0.00271	0.0775	0.169	0.339	n. c. <sup>3)</sup>	0.369	n. c. <sup>3)</sup>	1.210
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.579 <sup>1)</sup> ----- 0.579 <sup>2)</sup>	----	0.526	----	2.764 <sup>1)</sup> ----- 2.763 <sup>2)</sup>	----	1.834	----
1	0.280	0.374	0.519	0.526	1.551	2.112	1.804	1.829
2	0.354	0.373	0.503	0.525	1.151	1.881	1.754	1.817
4	0.401	0.365	0.465	0.518	0.711	1.760	1.602	1.780
7	0.402	0.334	0.414	0.503	0.305	1.408	1.343	1.690
14	0.0996	0.275	0.330	0.462	0.0902	0.902	0.984	1.474
21	0.0363	0.205	0.278	0.424	0.103	0.657	0.861	1.308
28	0.0188	0.161	0.243	0.393	0.502	0.516	1.338	1.229
42	0.0315	0.114	0.230	0.345	0.0833	0.469	0.910	1.206
50	0.0283	0.102	0.219	0.327	0.0602	0.409	0.801	1.157
100	n. c. <sup>3)</sup>	0.0612	n. c. <sup>3)</sup>	0.244	0.0767	0.255	0.668	0.969
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0164 <sup>1)</sup> ----- 0.0164 <sup>2)</sup>	----	0.0517	----	0.0969 <sup>1)</sup> ----- 0.0969 <sup>2)</sup>	----	0.0108	----
1	0.0159	0.0161	0.0517	0.0517	3.9 E-5	0.0175	0.00530	0.00814
2	0.0157	0.0160	0.0517	0.0517	1.2 E-5	0.00874	0.00373	0.00642
4	0.0152	0.0157	0.0517	0.0517	4 E-6	0.00437	0.00264	0.00482
7	0.0147	0.0154	0.0516	0.0517	2 E-6	0.00250	0.00199	0.00374
14	0.0137	0.0148	0.0513	0.0516	1 E-6	0.00125	0.00140	0.00270
21	0.0128	0.0143	0.0508	0.0516	<1.0 E-6	8.34 E-4	0.00113	0.00225
28	0.0119	0.0138	0.0501	0.0515	<1.0 E-6	6.25 E-4	9.67 E-4	0.00201
42	0.0104	0.0129	0.0487	0.0514	<1.0 E-6	4.17 E-4	7.65 E-4	0.00174
50	0.0118	0.0126	0.0477	0.0512	<1.0 E-6	5.99 E-4	0.00287	0.00168
100	0.00779	0.0111	0.0383	0.0498	<1.0 E-6	3.04 E-4	9.34 E-4	0.00154

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-104:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.275 <sup>1)</sup> 1.274 <sup>2)</sup>	----	2.078	----	0.0975 <sup>1)</sup> 0.0975 <sup>2)</sup>	----	0.0125	----
1	1.131	1.035	1.729	1.915	5.8 E-5	0.0208	0.00622	0.00960
2	0.00294	0.832	1.639	1.821	1.8 E-5	0.0104	0.00439	0.00759
4	0.00325	0.450	1.460	1.699	5 E-6	0.00522	0.00310	0.00570
7	0.00174	0.258	1.307	1.573	2 E-6	0.00298	0.00234	0.00443
14	8.60 E-4	0.131	1.087	1.391	1 E-6	0.00149	0.00162	0.00319
21	5.65 E-4	0.0877	0.943	1.269	<1.0 E-6	9.95 E-4	0.00130	0.00261
28	4.06 E-4	0.0659	0.838	1.178	<1.0 E-6	7.47 E-4	0.00110	0.00226
42	3.35 E-4	0.0441	0.692	1.044	<1.0 E-6	4.98 E-4	8.58 E-4	0.00183
50	2.62 E-4	0.0371	0.631	0.984	<1.0 E-6	4.18 E-4	7.64 E-4	0.00167
100	8.2 E-5	0.0186	0.401	0.748	<1.0 E-6	2.09 E-4	4.49 E-4	0.00113

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-105:** Results of the calculations obtained for FOE Oxalate at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	6.466	----	0.682	----
1	6.461	6.464	0.685	0.683
2	6.457	6.462	0.684	0.684
4	6.448	6.457	0.684	0.684
7	6.435	6.450	0.682	0.683
14	6.404	6.435	0.679	0.682
21	6.373	6.419	0.676	0.680
28	6.342	6.404	0.672	0.679
42	6.280	6.373	0.666	0.676
50	6.246	6.355	0.662	0.674
100	6.033	6.247	0.640	0.662

**Table B.8.5\_CP-106:** Results of the calculations obtained for FOE Oxalate Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.540	----	0.269	----	2.039	----	0.216	----
1	2.538	2.539	0.269	0.269	2.037	2.038	0.216	0.216
2	2.536	2.538	0.269	0.269	2.036	2.037	0.216	0.216
4	2.532	2.536	0.268	0.269	2.033	2.036	0.215	0.216
7	2.527	2.533	0.268	0.268	2.029	2.034	0.215	0.215
14	2.515	2.527	0.266	0.268	2.019	2.029	0.214	0.215
21	2.503	2.521	0.265	0.267	2.009	2.024	0.213	0.214
28	2.491	2.515	0.264	0.266	2.000	2.019	0.212	0.214
42	2.467	2.503	0.261	0.265	1.980	2.009	0.210	0.213
50	2.453	2.496	0.260	0.264	1.969	2.004	0.209	0.212
100	2.369	2.453	0.251	0.260	1.902	1.970	0.202	0.209

**Table B.8.5\_CP-107:** Results of the calculations obtained for FOE Sulfonic acid at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	7.941	----	0.879	----
1	7.935	7.938	0.881	0.880
2	7.930	7.935	0.880	0.880
4	7.919	7.930	0.879	0.880
7	7.902	7.921	0.877	0.879
14	7.864	7.902	0.873	0.877
21	7.826	7.883	0.869	0.875
28	7.788	7.864	0.865	0.873
42	7.713	7.826	0.865	0.869
50	7.670	7.805	0.851	0.866
100	7.409	7.672	0.822	0.852

**Table B.8.5\_CP-108:** Results of the calculations obtained for FOE Sulfonic acid Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	3.748	----	0.416	----	3.004	----	0.333	----
1	3.745	3.746	0.415	0.416	3.001	3.002	0.333	0.333
2	3.742	3.745	0.415	0.415	2.999	3.001	0.333	0.333
4	3.737	3.742	0.415	0.415	2.995	2.999	0.332	0.333
7	3.730	3.739	0.414	0.415	2.989	2.996	0.332	0.332
14	3.711	3.730	0.412	0.414	2.974	2.989	0.330	0.332
21	3.693	3.721	0.410	0.413	2.960	2.982	0.328	0.331
28	3.676	3.712	0.408	0.412	2.946	2.974	0.328	0.330
42	3.640	3.694	0.404	0.410	2.917	2.960	0.324	0.328
50	3.620	3.683	0.402	0.409	2.901	2.952	0.322	0.327
100	3.497	3.621	0.388	0.402	2.802	2.902	0.311	0.322

**Table B.8.5\_CP-109:** Results of the calculations obtained for FOE Methylsulfone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.896	----	1.121	----
1	1.890	1.893	1.154	1.137
2	1.889	1.891	1.153	1.145
4	1.886	1.890	1.151	1.149
7	1.883	1.887	1.149	1.149
14	1.873	1.883	1.143	1.148
21	1.864	1.878	1.138	1.145
28	1.855	1.874	1.132	1.143
42	1.837	1.864	1.121	1.137
50	1.827	1.859	1.115	1.134
100	1.765	1.828	1.077	1.115

**Table B.8.5.\_CP-110:** Results of the calculations obtained for FOE Methylsulfone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.944	----	0.575	----	0.767	----	0.467	----
1	0.942	0.943	0.575	0.575	0.765	0.766	0.466	0.467
2	0.941	0.942	0.574	0.575	0.764	0.765	0.466	0.466
4	0.940	0.942	0.573	0.574	0.763	0.764	0.465	0.466
7	0.938	0.941	0.572	0.574	0.761	0.763	0.464	0.466
14	0.934	0.938	0.569	0.572	0.758	0.762	0.462	0.464
21	0.929	0.936	0.567	0.571	0.754	0.760	0.460	0.463
28	0.925	0.934	0.564	0.569	0.750	0.758	0.458	0.462
42	0.916	0.929	0.558	0.567	0.743	0.754	0.453	0.460
50	0.911	0.927	0.555	0.565	0.739	0.752	0.451	0.459
100	0.880	0.911	0.536	0.555	0.714	0.739	0.435	0.451

**Table B.8.5.\_CP-111:** Results of the calculations obtained for FOE Methylsulfide at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	0.084	----	0.001	----
1	0.047	0.065	0.278	0.139
2	0.046	0.056	0.278	0.208
4	0.046	0.051	0.277	0.243
7	0.046	0.049	0.277	0.258
14	0.046	0.048	0.275	0.267
21	0.046	0.047	0.274	0.270
28	0.046	0.047	0.273	0.271
42	0.045	0.046	0.270	0.271
50	0.0450	0.046	0.269	0.271
100	0.043	0.045	0.260	0.267

**Table B.8.5.\_CP-112:** Results of the calculations obtained for FOE Methylsulfide at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.084	----	0.277	----	0.084	----	0.277	----
1	0.059	0.071	0.277	0.277	0.059	0.071	0.277	0.277
2	0.055	0.064	0.277	0.277	0.055	0.064	0.277	0.277
4	0.054	0.059	0.276	0.277	0.054	0.059	0.276	0.277
7	0.046	0.054	0.276	0.276	0.046	0.054	0.276	0.276
14	0.046	0.050	0.274	0.276	0.046	0.050	0.274	0.276
21	0.046	0.049	0.273	0.275	0.046	0.049	0.273	0.275
28	0.046	0.048	0.272	0.274	0.046	0.048	0.272	0.274
42	0.045	0.047	0.269	0.273	0.045	0.047	0.269	0.273
50	0.045	0.047	0.268	0.272	0.045	0.047	0.268	0.272
100	0.043	0.046	0.259	0.268	0.043	0.046	0.259	0.268

**Table B.8.5.\_CP-113:** Results of the calculations obtained for FOE Thiadone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.464	----	0.433	----
1	1.440	1.452	0.606	0.520
2	1.439	1.446	0.606	0.563
4	1.437	1.442	0.605	0.584
7	1.434	1.439	0.604	0.593
14	1.430	1.435	0.601	0.597
21	1.420	1.431	0.598	0.598
28	1.413	1.427	0.595	0.598
42	1.399	1.420	0.589	0.596
50	1.392	1.416	0.586	0.594
100	1.344	1.392	0.566	0.585

**Table B.8.5.\_CP-114:** Results of the calculations obtained for FOE Thiadone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.543	----	0.225	----	0.518	----	0.215	----
1	0.535	0.539	0.225	0.225	0.510	0.514	0.215	0.215
2	0.535	0.537	0.225	0.225	0.510	0.512	0.215	0.215
4	0.534	0.536	0.225	0.225	0.509	0.511	0.214	0.215
7	0.533	0.535	0.224	0.225	0.508	0.510	0.214	0.214
14	0.530	0.533	0.223	0.224	0.506	0.508	0.213	0.214
21	0.528	0.532	0.222	0.224	0.503	0.507	0.212	0.213
28	0.525	0.530	0.221	0.223	0.501	0.506	0.211	0.213
42	0.520	0.528	0.219	0.222	0.496	0.503	0.209	0.212
50	0.517	0.526	0.218	0.221	0.493	0.502	0.208	0.211
100	0.500	0.517	0.210	0.218	0.476	0.493	0.200	0.208

**Table B.8.5.\_CP-115:** Results of the calculations obtained for FOE TFESA at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.084	----	0.000	----
1	1.083	1.084	0.000	0.000
2	1.082	1.083	0.000	0.000
4	1.081	1.082	0.000	0.000
7	1.079	1.081	0.000	0.000
14	1.074	1.079	0.000	0.000
21	1.068	1.076	0.000	0.000
28	1.063	1.074	0.000	0.000
42	1.054	1.068	0.000	0.000
50	1.047	1.065	0.000	0.000
100	1.011	1.047	0.000	0.000

**Table B.8.5.\_CP-116:** Results of the calculations obtained for FOE TFESA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.352	----	0.000	----	0.281	----	0.000	----
1	0.351	0.351	0.000	0.000	0.281	0.281	0.000	0.000
2	0.351	0.351	0.000	0.000	0.281	0.281	0.000	0.000
4	0.351	0.351	0.000	0.000	0.281	0.281	0.000	0.000
7	0.350	0.351	0.000	0.000	0.280	0.281	0.000	0.000
14	0.348	0.350	0.000	0.000	0.279	0.280	0.000	0.000
21	0.347	0.349	0.000	0.000	0.277	0.279	0.000	0.000
28	0.345	0.348	0.000	0.000	0.276	0.279	0.000	0.000
42	0.342	0.347	0.000	0.000	0.273	0.277	0.000	0.000
50	0.340	0.346	0.000	0.000	0.272	0.277	0.000	0.000
100	0.328	0.340	0.000	0.000	0.263	0.272	0.000	0.000

**Table B.8.5.\_CP-117:** Results of the calculations obtained for FOE TFA at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	10.228	----	0.000	----
1	10.221	10.225	0.000	0.000
2	10.214	10.221	0.000	0.000
4	10.200	10.214	0.000	0.000
7	10.179	10.204	0.000	0.000
14	10.130	10.179	0.000	0.000
21	10.081	10.154	0.000	0.000
28	10.032	10.130	0.000	0.000
42	9.935	10.081	0.000	0.000
50	9.880	10.053	0.000	0.000
100	9.544	9.882	0.000	0.000

**Table B.8.5.\_CP-118:** Results of the calculations obtained for FOE TFA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	5.100	----	0.000	----	4.080	----	0.000	----
1	5.097	5.098	0.000	0.000	4.077	4.079	0.000	0.000
2	5.093	5.097	0.000	0.000	4.074	4.077	0.000	0.000
4	5.086	5.093	0.000	0.000	4.069	4.074	0.000	0.000
7	5.075	5.088	0.000	0.000	4.060	4.070	0.000	0.000
14	5.051	5.075	0.000	0.000	4.041	4.060	0.000	0.000
21	5.026	5.063	0.000	0.000	4.021	4.051	0.000	0.000
28	5.002	5.051	0.000	0.000	4.002	4.041	0.000	0.000
42	4.954	5.027	0.000	0.000	3.963	4.021	0.000	0.000
50	4.926	5.013	0.000	0.000	3.941	4.010	0.000	0.000
100	4.759	4.927	0.000	0.000	3.807	3.942	0.000	0.000

4) Results obtained for the use at spring at 160 g Flufenacet/ha:

The results of the calculations are presented below. First, in the tables B.8.5.\_CA-119 – B.8.5.\_CA-121 are given the key results of the calculations – the maximum PEC values obtained for each compound at each STEP.

Next, in the tables B.8.5.\_CA-122 – B.8.5.\_CA- 153, are presented the detailed results of the calculations obtained for each compound of concern.

**Table B.8.5.\_CP-119:** The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for Flufenacet.

Results obtained at Step 1 and Step2					
STEP 1		STEP 2			
		North Europe		South Europe	
PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]
41.636	100.081	8.076	19.337	14.956	36.020
Results obtained at Step 3					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	1.129	1.128	0.884	Spray drift	29. 03.1982/9:00
D1 stream	0.838	0.838	0.322	Spray drift	29. 03. 1982/9:00
D2 ditch	2.412	2.412	1.088	Drainage	19. 05. 1986/7:00
D2 stream	1.574	1.573	0.530	Drainage	19. 05. 1986/6:00
D3 ditch	1.014	1.013	0.336	Spray drift	20. 04. 1992/9:00
D4 pond	0.0357	0.0356	0.0968	Spray drift	19. 03. 1985/9:00
D4 stream	0.763	0.763	0.0252	Spray drift	19. 03. 1985/9:00
D5 pond	0.0387	0.0387	0.114	Spray drift	08. 04. 1978/9:00
D5 stream	0.818	0.818	0.0322	Spray drift	08. 04. 1978/9:00
D6 ditch	1.009	1.009	0.215	Spray drift	27. 02. 1986/9:00
R1 pond	0.0913	0.0912	0.254	Run-off	30. 05. 1984/12:00
R1 stream	1.021	1.020	0.333	Run-off	20. 05. 1984/2:00
R3 stream	1.450	1.449	0.606	Run-off	20. 04. 1980/1:59
R4 stream	0.668	0.668	0.203	Spray drift	21. 03. 1984/9:00
Results obtained at Step 4, 10-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	0.259	0.259	0.561	Spray drift	29. 03.1982/9:00
D1 stream	0.218	0.218	0.308	Spray drift	29. 03. 1982/9:00
D2 ditch	2.412	2.412	1.076	Drainage	19. 05. 1986/7:00
D2 stream	1.574	1.573	0.530	Drainage	19. 05. 1986/6:00
D3 ditch	0.146	0.146	0.0514	Spray drift	20. 04. 1992/9:00
D4 pond	0.0224	0.0224	0.0690	Spray drift	19. 03. 1985/9:00
D4 stream	0.148	0.148	0.0189	Spray drift	19. 03. 1985/9:00
D5 pond	0.0255	0.0255	0.0778	Spray drift	08. 04. 1978/9:00
D5 stream	0.160	0.160	0.0134	Spray drift	08. 04. 1978/9:00
D6 ditch	0.153	0.152	0.0565	Spray drift	27. 02. 1986/9:00
R1 pond	0.0422	0.0422	0.124	Run-off	30. 05. 1984/12:00
R1 stream	0.464	0.464	0.148	Run-off	20. 05. 1984/2:00
R3 stream	0.662	0.662	0.262	Run-off	20. 04. 1980/1:59
R4 stream	0.287	0.286	0.0927	Run-off	15. 05. 1984/12:59
Results obtained at Step 4, 20-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	0.232	0.232	0.534	Drainage	20. 11.1982/2:00
D1 stream	0.168	0.168	0.308	Drainage	26. 10. 1982/15:59
D2 ditch	2.412	2.412	1.075	Drainage	19. 05. 1986/7:00
D2 stream	1.574	1.574	0.530	Drainage	19. 05. 1986/6:00
D3 ditch	0.0756	0.0756	0.0273	Spray drift	20. 04. 1992/9:00
D4 pond	0.0153	0.0152	0.0599	Spray drift	19. 03. 1985/9:00
D4 stream	0.0769	0.0769	0.0189	Spray drift	19. 03. 1985/9:00
D5 pond	0.0183	0.0183	0.0582	Spray drift	08. 04. 1978/9:00
D5 stream	0.0836	0.0835	0.0113	Spray drift	08. 04. 1978/9:00
D6 ditch	0.0834	0.0834	0.0448	Spray drift	27. 02. 1986/9:00
R1 pond	0.0237	0.0237	0.0725	Run-off	30. 05. 1984/12:00
R1 stream	0.0243	0.0243	0.0780	Run-off	20. 05. 1984/2:00
R3 stream	0.348	0.348	0.138	Run-off	20. 04. 1980/1:59
R4 stream	0.150	0.150	0.0492	Run-off	15. 05. 1984/12:59

**Table B.8.5.\_CP-120:** The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for Flufenacet - continued.

Results obtained at Step 4, 10-metres buffer zone, VFS-modFOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
<i>D1 ditch</i>	0.259	0.259	0.561	Spray drift	29. 03.1982/9:00
<i>D1 stream</i>	0.218	0.218	0.308	Spray drift	29. 03. 1982/9:00
<i>D2 ditch</i>	2.412	2.412	1.076	Drainage	19. 05. 1986/7:00
<i>D2 stream</i>	1.574	1.574	0.530	Drainage	19. 05. 1986/6:00
<i>D3 ditch</i>	0.146	0.146	0.0514	Spray drift	20. 04. 1992/9:00
<i>D4 pond</i>	0.0224	0.0224	0.0690	Spray drift	19. 03. 1985/9:00
<i>D4 stream</i>	0.148	0.148	0.0189	Spray drift	19. 03. 1985/9:00
<i>D5 pond</i>	0.0255	0.0255	0.0778	Spray drift	08. 04. 1978/9:00
<i>D5 stream</i>	0.160	0.160	0.0134	Spray drift	08. 04. 1978/9:00
<i>D6 ditch</i>	0.153	0.152	0.0565	Spray drift	27. 02. 1986/9:00
<i>R1 pond</i>	0.0218	0.0217	0.0541	Spray drift	26. 04. 1984/9:00
<i>R1 stream</i>	0.129	0.129	0.0149	Spray drift	26. 04. 1984/9:00
<i>R3 stream</i>	0.452	0.452	0.190	Run-off	20. 04. 1980/1:59
<i>R4 stream</i>	0.129	0.129	0.0150	Spray drift	21. 03. 1984/9:00

**Table B.8.5.\_CP-121:** The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for the degradation products of Flufenacet.

Compound	Obtained results:					
	STEP 1		STEP 2			
	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	North Europe		South Europe	
			PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]
<i>FOE Oxalate</i>	8.622	0.913	1.384	0.147	2.719	0.288
<i>FOE Sulfonic acid</i>	10.588	1.174	2.020	0.224	4.005	0.444
<i>FOE Methylsulfone</i>	2.528	1.538	0.549	0.334	1.022	0.622
<i>FOE Methylsulfide</i>	0.111	0.371	0.111	0.369	0.111	0.369
<i>FOE Thiadone</i>	1.952	0.808	0.624	0.259	0.691	0.286
<i>FOE 5043-Trifluoroethanesulfonic acid</i>	1.445	0.000	0.188	0.000	0.375	0.000
<i>Trifluoroacetic acid (TFA)</i>	13.638	0.000	2.720	0.000	5.438	0.000

#### Detailed results

**Table B.8.5.\_CP-122:** Results of the calculations obtained for Flufenacet at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	41.636	----	98.765	----
1	40.700	41.168	100.081	99.423
2	40.135	40.793	98.693	99.404
4	39.029	40.186	95.972	98.365
7	37.427	39.344	92.032	96.489
14	33.939	37.499	83.455	92.082
21	30.776	35.777	75.678	87.889
28	27.908	34.162	68.626	83.940
42	22.949	31.224	56.431	76.737
50	20.521	29.702	50.462	73.001
100	10.204	22.234	25.090	54.656

Table B.8.5.\_CP-123: Results of the calculations obtained for Flufenacet at Step 2

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	8.076	----	19.337	----	14.956	----	36.020	----
1	7.969	8.022	19.261	19.299	14.844	14.900	35.877	35.949
2	7.938	7.988	19.185	19.261	14.785	14.857	35.736	35.878
4	7.875	7.947	19.034	19.185	14.669	14.792	35.454	35.736
7	7.782	7.896	18.809	19.072	14.496	14.702	35.036	35.526
14	7.570	7.786	18.295	18.812	14.100	14.500	34.079	35.040
21	7.363	7.679	17.796	18.556	13.715	14.302	33.148	34.564
28	7.162	7.575	17.310	18.305	13.340	14.108	32.243	34.096
42	6.776	7.372	16.377	17.816	12.621	13.731	30.505	33.186
50	6.565	7.260	15.867	17.545	12.228	13.522	29.555	32.681
100	5.387	6.608	13.019	15.971	10.036	12.308	24.251	29.748

Table B.8.5.\_CP-124: Data on application pattern for Flufenacet – STEP 3.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	25. 03 – 24. 04	29. 03. 1982/9:00	29. 03.1982/9:00	Spray drift
<i>D1 – stream</i>	25. 03 – 24. 04	29. 03. 1982/ 9:00	29. 03. 1982/9:00	Spray drift
<i>D2 – ditch</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/7:00	Drainage
<i>D2 – stream</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/6:00	Drainage
<i>D3 – ditch</i>	16. 04 – 16. 05	20. 04. 1992/9:00	20. 04. 1992/9:00	Spray drift
<i>D4 – pond</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D4 – stream</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D5 – pond</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D5 – stream</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D6 – ditch</i>	16. 02 – 18. 03	27. 02. 1986/ 9:00	27. 02. 1986/9:00	Spray drift
<i>R1 – pond</i>	01. 04 – 01. 05	26. 04. 1984/9:00	30. 05. 1984/12:00	Run-off
<i>R1 – stream</i>	01. 04 – 01. 05	26. 04. 1984/9:00	20. 05. 1984/2:00	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	15. 03 – 14. 04	28. 03. 1980/9:00	20. 04. 1980/1:59	Run-off
<i>R4 – stream</i>	15. 03 – 14. 04	21. 03. 1984/9:00	21. 03. 1984/9:00	Spray drift

**Table B.8.5\_CP-125:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.129 <sup>1)</sup> ----- 1.128 <sup>2)</sup>	----	0.884	----	0.838 <sup>1)</sup> ----- 0.838 <sup>2)</sup>	----	0.322	----
1	0.773	0.964	0.826	0.875	0.0676	0.148	0.307	0.313
2	0.327	0.749	0.757	0.853	0.0666	0.146	0.304	0.310
4	0.130	0.470	0.685	0.803	0.0646	0.144	0.303	0.310
7	0.108	0.319	0.641	0.749	0.0615	0.141	0.301	0.309
14	0.107	0.222	0.607	0.687	0.0661	0.125	0.307	0.308
21	0.0996	0.194	0.592	0.659	0.0598	0.114	0.310	0.306
28	0.0920	0.181	0.579	0.641	0.0455	0.106	0.302	0.306
42	0.0897	0.165	0.550	0.615	0.0450	0.0902	0.264	0.302
50	0.0721	0.161	0.527	0.603	4.23 E-4	0.0834	0.211	0.298
100	0.0165	0.126	0.309	0.541	5.8 E-5	0.0599	0.103	0.260
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.412 <sup>1)</sup> ----- 2.412 <sup>2)</sup>	----	1.088	----	1.574 <sup>1)</sup> ----- 1.573 <sup>2)</sup>	----	0.530	----
1	0.543	1.162	1.088	1.088	0.274	0.561	0.530	0.530
2	0.378	0.899	1.088	1.088	0.169	0.373	0.530	0.530
4	0.284	0.697	1.086	1.088	0.125	0.299	0.528	0.530
7	0.245	0.628	1.082	1.088	0.0849	0.272	0.524	0.530
14	0.210	0.450	1.068	1.086	0.0819	0.191	0.507	0.528
21	0.183	0.372	1.049	1.082	0.0758	0.177	0.511	0.525
28	0.162	0.347	1.024	1.078	0.0672	0.173	0.499	0.521
42	0.133	0.318	0.941	1.066	0.0485	0.162	0.467	0.517
50	0.120	0.302	0.886	1.056	0.0393	0.153	0.442	0.513
100	0.426	0.216	0.602	0.968	0.194	0.113	0.309	0.474
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.014 <sup>1)</sup> ----- 1.013 <sup>2)</sup>	----	0.336	----	0.0357 <sup>1)</sup> ----- 0.0356 <sup>2)</sup>	----	0.0968	----
1	0.484	0.787	0.256	0.321	0.0347	0.0351	0.0966	0.0968
2	0.0684	0.511	0.190	0.291	0.0342	0.0348	0.0964	0.0967
4	0.00342	0.265	0.135	0.236	0.0332	0.0342	0.0961	0.0967
7	9.49 E-4	0.152	0.102	0.189	0.0321	0.0335	0.0956	0.0966
14	2.84 E-4	0.0763	0.0701	0.139	0.0294	0.0321	0.0945	0.0964
21	1.35 E-4	0.0509	0.0546	0.114	0.0274	0.0309	0.0933	0.0962
28	8.8 E-5	0.0382	0.0448	0.0981	0.0257	0.0298	0.0920	0.0960
42	5.2 E-5	0.0255	0.0325	0.0784	0.0234	0.0280	0.0873	0.0955
50	3.8 E-5	0.0214	0.0275	0.0707	0.0221	0.0272	0.0846	0.0951
100	1.0 E-5	0.0107	0.0110	0.0445	0.0167	0.0232	0.0711	0.0917

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-126:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.763 <sup>1)</sup> ----- 0.763 <sup>2)</sup>	----	0.0252	----	0.0387 <sup>1)</sup> ----- 0.0387 <sup>2)</sup>	----	0.114	----
1	2.83 E-4	0.0353	0.0120	0.0190	0.0378	0.0382	0.114	0.114
2	2.60 E-4	0.0178	0.00888	0.0190	0.0373	0.0379	0.114	0.114
4	2.61 E-4	0.0115	0.00677	0.0189	0.0365	0.0374	0.114	0.114
7	2.65 E-4	0.0108	0.00557	0.0188	0.0355	0.0368	0.113	0.114
14	4.49 E-4	0.00944	0.00468	0.0184	0.0338	0.0357	0.112	0.113
21	3.33 E-4	0.00816	0.00425	0.0179	0.0324	0.0348	0.111	0.113
28	2.31 E-4	0.00693	0.00389	0.0172	0.0312	0.0341	0.109	0.113
42	7.8 E-5	0.00508	0.00314	0.0159	0.0291	0.0328	0.105	0.113
50	1.05 E-4	0.00442	0.00286	0.0152	0.0280	0.0321	0.103	0.112
100	<1.0 E-6	0.00239	0.00145	0.0120	0.0222	0.0285	0.0902	0.109
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.818 <sup>1)</sup> ----- 0.818 <sup>2)</sup>	----	0.0322	----	1.009 <sup>1)</sup> ----- 1.009 <sup>2)</sup>	----	0.215	----
1	0.00152	0.0369	0.0189	0.0244	0.0299	0.409	0.133	0.188
2	0.00149	0.0192	0.0157	0.0208	0.0112	0.212	0.104	0.158
4	0.00142	0.0104	0.0135	0.0177	0.0104	0.111	0.0835	0.127
7	0.00137	0.00659	0.0123	0.0156	0.0104	0.0681	0.0719	0.106
14	0.00120	0.00412	0.0110	0.0136	0.00935	0.0391	0.0616	0.0865
21	0.00108	0.00328	0.0103	0.0126	0.00867	0.0291	0.0568	0.0774
28	7.20 E-4	0.00286	0.00936	0.0119	0.00584	0.0239	0.0516	0.0718
42	4.4 E-5	0.00249	0.00722	0.0109	0.00720	0.0183	0.0482	0.0642
50	3 E-6	0.00236	0.00610	0.0106	0.00174	0.0168	0.0398	0.0611
100	1 E-6	0.00215	0.00276	0.00924	5.6 E-5	0.0116	0.0136	0.0443
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0913 <sup>1)</sup> ----- 0.0912 <sup>2)</sup>	----	0.254	----	1.021 <sup>1)</sup> ----- 1.020 <sup>2)</sup>	----	0.333	----
1	0.0902	0.0907	0.254	0.254	0.00230	0.544	0.191	0.276
2	0.0893	0.0902	0.254	0.254	5.94 E-4	0.273	0.150	0.230
4	0.0876	0.0894	0.254	0.254	4.89 E-4	0.137	0.120	0.185
7	0.0851	0.0881	0.253	0.254	6.96 E-4	0.111	0.139	0.163
14	0.0798	0.0854	0.251	0.254	0.00312	0.0711	0.116	0.147
21	0.0750	0.0831	0.247	0.253	3.9 E-5	0.0557	0.0813	0.130
28	0.0738	0.0816	0.241	0.252	2.1 E-5	0.0477	0.0663	0.116
42	0.0654	0.0794	0.227	0.250	1.4 E-5	0.0348	0.0517	0.101
50	0.0610	0.0777	0.219	0.249	9 E-6	0.0293	0.0430	0.0934
100	0.0392	0.0659	0.186	0.235	2 E-6	0.0151	0.0173	0.0647

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5.\_CP-127:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.450 <sup>1)</sup> 1.449 <sup>2)</sup>	----	0.606	----	0.668 <sup>1)</sup> 0.668 <sup>2)</sup>	----	0.203	----
1	0.300	1.231	0.382	0.527	2.89 E-4	0.410	0.108	0.168
2	0.00594	0.656	0.290	0.449	8.6 E-5	0.206	0.0803	0.146
4	0.00133	0.329	0.221	0.359	2.6 E-5	0.152	0.147	0.128
7	5.19 E-4	0.189	0.176	0.293	1.0 E-5	0.103	0.0877	0.124
14	1.46 E-4	0.0944	0.129	0.223	3.4 E-5	0.0540	0.0606	0.100
21	7.9 E-5	0.0630	0.104	0.188	8 E-6	0.0360	0.0455	0.0848
28	3.14 E-4	0.0567	0.117	0.173	4 E-6	0.0270	0.0363	0.0740
42	5.5 E-5	0.0381	0.0818	0.149	2 E-6	0.0180	0.0251	0.0595
50	3.6 E-5	0.0363	0.0667	0.137	1 E-6	0.0160	0.0205	0.0537
100	5 E-6	0.0187	0.0236	0.0894	5 E-6	0.00967	0.00650	0.0335

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone:****Table B.8.5.\_CP-128:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	25. 03 – 24. 04	29. 03. 1982/9:00	29. 03. 1982/9:00	Spray drift
<i>D1 – stream</i>	25. 03 – 24. 04	29. 03. 1982/ 9:00	29. 03. 1982/9:00	Spray drift
<i>D2 – ditch</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/7:00	Drainage
<i>D2 – stream</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/6:00	Drainage
<i>D3 – ditch</i>	16. 04 – 16. 05	20. 04. 1992/9:00	20. 04. 1992/9:00	Spray drift
<i>D4 – pond</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D4 – stream</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D5 – pond</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D5 – stream</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D6 – ditch</i>	16. 02 – 18. 03	27. 02. 1986/ 9:00	27. 02. 1986/9:00	Spray drift
<i>R1 – pond</i>	01. 04 – 01. 05	26. 04. 1984/9:00	30. 05. 1984/12:00	Run-off
<i>R1 – stream</i>	01. 04 – 01. 05	26. 04. 1984/9:00	20. 05. 1984/2:00	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	15. 03 – 14. 04	28. 03. 1980/9:00	20. 04. 1980/1:59	Run-off
<i>R4 – stream</i>	15. 03 – 14. 04	21. 03. 1984/9:00	15. 05. 1984/12:59	Run-off

**Table B.8.5.\_CP-129:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.259 <sup>1)</sup> ----- 0.259 <sup>2)</sup>	----	0.561	----	0.218 <sup>1)</sup> ----- 0.218 <sup>2)</sup>	----	0.308	----
1	0.206	0.234	0.552	0.560	0.0676	0.148	0.308	0.308
2	0.141	0.231	0.542	0.556	0.0666	0.146	0.308	0.308
4	0.110	0.228	0.532	0.549	0.0646	0.144	0.307	0.308
7	0.104	0.220	0.525	0.541	0.0615	0.141	0.302	0.308
14	0.107	0.197	0.528	0.533	0.0661	0.125	0.247	0.307
21	0.0994	0.182	0.528	0.531	0.0598	0.114	0.263	0.305
28	0.0915	0.168	0.524	0.530	0.0455	0.106	0.217	0.303
42	0.0895	0.144	0.508	0.524	0.0450	0.0902	0.171	0.300
50	0.0716	0.136	0.490	0.521	4.23 E-4	0.0834	0.152	0.296
100	0.0160	0.113	0.288	0.492	5.8 E-5	0.0598	0.0757	0.260
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.412 <sup>1)</sup> ----- 2.412 <sup>2)</sup>	----	1.076	----	1.574 <sup>1)</sup> ----- 1.573 <sup>2)</sup>	----	0.530	----
1	0.543	1.162	1.076	1.076	0.274	0.561	0.530	0.530
2	0.378	0.812	1.076	1.076	0.169	0.373	0.529	0.530
4	0.284	0.696	1.074	1.076	0.125	0.299	0.528	0.530
7	0.245	0.628	1.070	1.076	0.0849	0.272	0.523	0.529
14	0.209	0.450	1.057	1.074	0.0819	0.191	0.507	0.527
21	0.182	0.372	1.038	1.071	0.0758	0.177	0.511	0.525
28	0.161	0.346	1.013	1.066	0.0672	0.173	0.499	0.521
42	0.132	0.317	0.931	1.055	0.0485	0.162	0.467	0.516
50	0.119	0.302	0.876	1.044	0.0393	0.153	0.441	0.512
100	0.426	0.215	0.595	0.958	0.194	0.113	0.309	0.474
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.146 <sup>1)</sup> ----- 0.146 <sup>2)</sup>	----	0.0514	----	0.0224 <sup>1)</sup> ----- 0.0224 <sup>2)</sup>	----	0.0690	----
1	0.0692	0.113	0.0394	0.0493	0.0218	0.0221	0.0690	0.0690
2	0.00984	0.0732	0.0293	0.0447	0.0215	0.0219	0.0690	0.0690
4	5.33 E-4	0.0380	0.0209	0.0365	0.0209	0.0215	0.0690	0.0690
7	1.48 E-4	0.0218	0.0158	0.0293	0.0202	0.0211	0.0690	0.0690
14	4.5 E-5	0.0110	0.0109	0.0215	0.0185	0.0202	0.0689	0.0690
21	2.1 E-5	0.00731	0.00845	0.0176	0.0173	0.0194	0.0688	0.0689
28	1.4 E-5	0.00549	0.00694	0.0152	0.0162	0.0188	0.0685	0.0689
42	8 E-6	0.00366	0.00504	0.0121	0.0148	0.0177	0.0672	0.0688
50	6 E-6	0.00308	0.00427	0.0110	0.0140	0.0171	0.0668	0.0687
100	2 E-6	0.00154	0.00171	0.00690	0.0105	0.0146	n. c. <sup>3)</sup>	0.0678

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-130:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.148 <sup>1)</sup> ----- 0.148 <sup>2)</sup>	----	0.0189	----	0.0255 <sup>1)</sup> ----- 0.0255 <sup>2)</sup>	----	0.0778	----
1	2.69 E-4	0.0126	0.0188	0.0189	0.0249	0.0252	0.0778	0.0778
2	2.55 E-4	0.0119	0.0187	0.0189	0.0246	0.0250	0.0778	0.0778
4	2.65 E-4	0.0115	0.0183	0.0188	0.0241	0.0246	0.0778	0.0778
7	4.49 E-4	0.0108	0.0176	0.0187	0.0235	0.0243	0.0777	0.0778
14	3.32 E-4	0.00944	0.0154	0.0183	0.0224	0.0236	0.0774	0.0778
21	2.31 E-4	0.00816	0.0135	0.0178	0.0215	0.0230	0.0761	0.0777
28	1.78 E-4	0.0693	0.0120	0.0171	0.0207	0.0225	0.0748	0.0777
42	7.8 E-5	0.00508	0.0108	0.0158	0.0193	0.0217	0.0720	0.0774
50	1.05 E-4	0.00442	0.00975	0.0151	0.0186	0.0213	0.0705	0.0771
100	<1.0 E-6	0.00239	0.00595	0.0119	0.0147	0.0189	0.0617	0.0746
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.160 <sup>1)</sup> ----- 0.160 <sup>2)</sup>	----	0.0134	----	0.153 <sup>1)</sup> ----- 0.152 <sup>2)</sup>	----	0.0565	----
1	0.00150	0.00836	0.0109	0.0120	0.0122	0.0663	0.0453	0.0527
2	0.00149	0.00495	0.0103	0.0113	0.00976	0.0383	0.0412	0.0486
4	0.00142	0.00325	0.00980	0.0106	0.00995	0.0241	0.0390	0.0486
7	0.00136	0.00252	0.00951	0.0102	0.0101	0.0181	0.0385	0.0447
14	0.00120	0.00225	0.00909	0.00975	0.00918	0.0140	0.0387	0.0445
21	0.00108	0.00222	0.00878	0.00949	0.00856	0.0123	0.0387	0.0442
28	7.20 E-4	0.00208	0.00811	0.00933	0.00571	0.0113	0.0364	0.0439
42	4.4 E-5	0.00198	0.00629	0.00912	0.00715	0.00986	0.0371	0.0431
50	3 E-6	0.00195	0.00530	0.00901	0.00167	0.00979	0.0302	0.0425
100	1 E-6	0.00187	0.00241	0.00834	4.2 E-5	0.00829	0.00984	0.0390
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0422 <sup>1)</sup> ----- 0.0422 <sup>2)</sup>	----	0.124	----	0.464 <sup>1)</sup> ----- 0.464 <sup>2)</sup>	----	0.148	----
1	0.0418	0.0420	0.124	0.124	0.00106	0.248	0.0830	0.121
2	0.0413	0.0418	0.124	0.124	2.78 E-4	0.124	0.0641	0.101
4	0.0406	0.0414	0.124	0.124	2.05 E-4	0.0622	0.0499	0.0800
7	0.0394	0.0408	0.124	0.124	3.16 E-4	0.0491	0.0593	0.0699
14	0.0370	0.0395	0.122	0.124	0.00107	0.0310	0.0489	0.0627
21	0.0347	0.0386	0.121	0.124	1.7 E-5	0.0244	0.0338	0.0552
28	0.0343	0.0381	0.118	0.123	9 E-6	0.0210	0.0273	0.0491
42	0.0304	0.0370	0.111	0.122	6 E-6	0.0146	0.0214	0.0423
50	0.0283	0.0362	0.107	0.121	4 E-6	0.0122	0.0177	0.0392
100	0.0184	0.0184	0.0917	0.114	1 E-6	0.00633	0.00707	0.0269

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-131:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.662 <sup>1)</sup> ----- 0.662 <sup>2)</sup>	----	0.262	----	0.287 <sup>1)</sup> ----- 0.286 <sup>2)</sup>	----	0.0927	----
1	0.152	0.567	0.164	0.230	5.39 E-4	0.185	0.0495	0.0764
2	0.00282	0.304	0.120	0.194	1.79 E-4	0.0927	0.0364	0.0673
4	6.10 E-4	0.153	0.0878	0.153	0.0484	0.0691	0.0674	0.0586
7	2.30 E-4	0.0873	0.0678	0.122	8.6 E-5	0.0467	0.0400	0.0568
14	6.1 E-5	0.0437	0.0479	0.0901	2.3 E-5	0.0245	0.0273	0.0458
21	3.1 E-5	0.0292	0.0380	0.0746	9 E-6	0.0164	0.0203	0.0386
28	1.43 E-4	0.0254	0.0454	0.0683	5 E-6	0.0123	0.0162	0.0335
42	2.3 E-5	0.0175	0.0312	0.0585	2 E-6	0.00818	0.0111	0.0269
50	1.5 E-5	0.0153	0.0252	0.0537	2 E-6	0.00717	0.00909	0.0242
100	2 E-6	0.00789	0.00877	0.0347	1.6 E-5	0.00402	0.00286	0.0148

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 20 metres buffer zone:****Table B.8.5\_CP-132:** Data on application pattern for Flufenacet – STEP 4, 20-metres buffer zone.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	25. 03 – 24. 04	29. 03. 1982/9:00	20. 11.1982/2:00	Drainage
<i>D1 – stream</i>	25. 03 – 24. 04	29. 03. 1982/ 9:00	26. 10. 1982/15:59	Drainage
<i>D2 – ditch</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/7:00	Drainage
<i>D2 – stream</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/6:00	Drainage
<i>D3 – ditch</i>	16. 04 – 16. 05	20. 04. 1992/9:00	20. 04. 1992/9:00	Spray drift
<i>D4 – pond</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D4 – stream</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D5 – pond</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D5 – stream</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D6 – ditch</i>	16. 02 – 18. 03	27. 02. 1986/ 9:00	27. 02. 1986/9:00	Spray drift
<i>R1 – pond</i>	01. 04 – 01. 05	26. 04. 1984/9:00	30. 05. 1984/12:00	Run-off
<i>R1 – stream</i>	01. 04 – 01. 05	26. 04. 1984/9:00	20. 05. 1984/2:00	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	15. 03 – 14. 04	28. 03. 1980/9:00	20. 04. 1980/1:59	Run-off
<i>R4 – stream</i>	15. 03 – 14. 04	21. 03. 1984/9:00	15. 05. 1984/12:59	Run-off

**Table B.8.5.\_CP-133:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.232 <sup>1)</sup> ----- 0.232 <sup>2)</sup>	----	0.534	----	0.168 <sup>1)</sup> ----- 0.168 <sup>2)</sup>	----	0.308	----
1	0.230	0.232	0.530	0.534	0.0646	0.148	0.308	0.308
2	0.226	0.231	0.525	0.532	0.00481	0.146	0.308	0.308
4	0.212	0.228	0.519	0.528	4.42 E-4	0.144	0.307	0.308
7	0.178	0.220	0.516	0.524	1.55 E-4	0.141	0.302	0.308
14	0.144	0.197	0.522	0.522	5.2 E-5	0.125	0.247	0.307
21	0.111	0.182	0.523	0.521	0.143	0.114	0.263	0.304
28	0.100	0.168	0.520	0.521	0.132	0.106	0.217	0.303
42	0.0749	0.144	0.505	0.517	0.0805	0.0902	0.170	0.300
50	0.0692	0.134	0.487	0.515	0.0637	0.0834	0.152	0.296
100	0.0456	0.112	0.287	0.488	0.0344	0.0598	0.0756	0.260
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.412 <sup>1)</sup> ----- 2.412 <sup>2)</sup>	----	1.075	----	1.574 <sup>1)</sup> ----- 1.573 <sup>2)</sup>	----	0.530	----
1	0.543	1.162	1.075	1.075	0.274	0.561	0.530	0.530
2	0.378	0.812	1.075	1.075	0.169	0.373	0.529	0.530
4	0.284	0.696	1.073	1.075	0.125	0.299	0.527	0.529
7	0.245	0.628	1.069	1.075	0.0849	0.272	0.523	0.529
14	0.209	0.450	1.056	1.073	0.0819	0.191	0.507	0.527
21	0.182	0.372	1.037	1.070	0.0758	0.177	0.511	0.525
28	0.161	0.346	1.012	1.065	0.0672	0.173	0.499	0.521
42	0.131	0.317	0.930	1.054	0.0485	0.162	0.467	0.516
50	0.119	0.302	0.875	1.043	0.0393	0.153	0.441	0.512
100	0.426	0.215	0.594	0.957	0.194	0.113	0.309	0.474
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0756 <sup>1)</sup> ----- 0.0756 <sup>2)</sup>	----	0.0273	----	0.0153 <sup>1)</sup> ----- 0.0152 <sup>2)</sup>	----	0.0599	----
1	0.0359	0.0586	0.0210	0.0261	0.0149	0.0150	0.0599	0.0599
2	0.00511	0.0380	0.0156	0.0237	0.0146	0.0149	0.0599	0.0599
4	2.84 E-4	0.0197	0.0112	0.0194	0.0142	0.0146	0.0599	0.0599
7	7.9 E-5	0.0113	0.00845	0.0156	0.0137	0.0144	0.0598	0.0599
14	2.4 E-5	0.00569	0.00579	0.0115	0.0126	0.0138	0.0598	0.0598
21	1.1 E-5	0.00380	0.00450	0.00940	0.0118	0.0132	0.0597	0.0598
28	7 E-6	0.00285	0.00370	0.00810	0.0111	0.0128	0.0592	0.0598
42	4 E-6	0.00190	0.00269	0.00647	0.0101	0.0120	0.0584	0.0597
50	3 E-6	0.00160	0.00228	0.00584	0.00956	0.0117	0.0577	0.0597
100	1 E-6	8.00 E-4	9.14 E-4	0.00368	0.00719	0.0102	n. c. <sup>3)</sup>	0.0590

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-134:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0769 <sup>1)</sup> ----- 0.0769 <sup>2)</sup>	----	0.0189	----	0.0183 <sup>1)</sup> ----- 0.0183 <sup>2)</sup>	----	0.0582	----
1	2.67 E-4	0.0126	0.0188	0.0189	0.0179	0.0181	0.0582	0.0582
2	2.55 E-4	0.0119	0.0187	0.0189	0.0177	0.0180	0.0582	0.0582
4	2.59 E-4	0.0115	0.0182	0.0188	0.0174	0.0177	0.0582	0.0582
7	2.65 E-4	0.0108	0.0176	0.0187	0.0169	0.0175	0.0582	0.0582
14	4.49 E-4	0.00944	0.0154	0.0183	0.0162	0.0170	0.0579	0.0582
21	3.32 E-4	0.00816	0.0134	0.0178	0.0156	0.0166	0.0574	0.0582
28	2.31 E-4	0.00693	0.0120	0.0171	0.0150	0.0163	0.0563	0.0581
42	7.8 E-5	0.00508	0.0108	0.0158	0.0140	0.0157	0.0541	0.0579
50	1.05 E-4	0.00422	0.00974	0.0151	0.0135	0.0154	0.0529	0.0577
100	<1.0 E-6	0.00239	0.00594	0.0119	0.0107	0.0137	0.0461	0.0558
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0836 <sup>1)</sup> ----- 0.0835 <sup>2)</sup>	----	0.0113	----	0.0834 <sup>1)</sup> ----- 0.0834 <sup>2)</sup>	----	0.0448	----
1	0.00150	0.00507	0.00995	0.0105	0.0107	0.0388	0.0448	0.0448
2	0.00149	0.00330	0.00960	0.0101	0.00963	0.0243	0.0446	0.0448
4	0.00142	0.00242	0.00935	0.00980	0.00991	0.0170	0.0440	0.0448
7	0.00136	0.00234	0.00918	0.00957	0.0101	0.0140	0.0422	0.0447
14	0.00120	0.00225	0.00887	0.00930	0.00917	0.0119	0.0357	0.0445
21	0.00108	0.00222	0.00860	0.00915	0.00856	0.0109	0.0303	0.0442
28	7.20 E-4	0.00208	0.00797	0.00906	0.00570	0.0103	n. c. <sup>3)</sup>	0.0439
42	4.4 E-5	0.00298	0.00619	0.00892	0.00715	0.00918	n. c. <sup>3)</sup>	0.0431
50	3 E-6	0.00195	0.00521	0.00884	0.00166	0.00922	n. c. <sup>3)</sup>	0.0425
100	1 E-6	0.00183	0.00236	0.00824	4.1 E-5	0.00829	n. c. <sup>3)</sup>	0.0390
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0237 <sup>1)</sup> ----- 0.0237 <sup>2)</sup>	----	0.0725	----	0.243 <sup>1)</sup> ----- 0.243 <sup>2)</sup>	----	0.0780	----
1	0.0235	0.0236	0.0725	0.0725	5.58 E-4	0.130	0.0441	0.0643
2	0.0232	0.0235	0.0725	0.0725	1.51 E-4	0.0652	0.0339	0.0534
4	0.0228	0.0232	0.0725	0.0725	1.06 E-4	0.0326	0.0262	0.0423
7	0.0222	0.0229	0.0723	0.0725	1.67 E-4	0.0255	0.0313	0.0369
14	0.0208	0.0222	0.0717	0.0723	1.8 E-5	0.0160	0.0257	0.0331
21	0.0195	0.0218	0.0707	0.0721	9 E-6	0.0126	0.0177	0.0291
28	0.0192	0.0216	0.0693	0.0719	5 E-6	0.0108	0.0143	0.0259
42	0.0170	0.0209	0.0655	0.0712	3 E-6	0.00753	0.0112	0.0223
50	0.0159	0.0204	0.0631	0.0707	1 E-6	0.00633	0.00930	0.0206
100	0.0103	0.0173	0.0536	0.0667	<1.0 E-6	0.00328	0.00370	0.0141

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-135:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.348 <sup>1)</sup> ----- 0.348 <sup>2)</sup>	----	0.138	----	0.150 <sup>1)</sup> ----- 0.150 <sup>2)</sup>	----	0.0492	----
1	0.0825	0.298	0.0859	0.122	2.88 E-4	0.0965	0.0266	0.0407
2	0.00153	0.160	0.0629	0.103	9.7 E-5	0.0484	0.0195	0.0360
4	3.29 E-4	0.0804	0.0460	0.0809	0.0254	0.0362	0.0362	0.0314
7	1.23 E-4	0.0460	0.0354	0.0645	4.6 E-5	0.0244	0.0215	0.0304
14	3.2 E-5	0.0231	0.0248	0.0474	1.2 E-5	0.0128	0.0146	0.0245
21	1.6 E-5	0.0154	0.0196	0.0391	5 E-6	0.00856	0.0109	0.0207
28	7.6 E-5	0.0134	0.0236	0.0358	3 E-6	0.00642	0.00865	0.0180
42	1.2 E-5	0.00923	0.0162	0.0306	1 E-6	0.00428	0.00596	0.0144
50	8 E-6	0.00803	0.0131	0.0281	1 E-6	0.00374	0.00486	0.0130
100	1 E-6	0.00415	0.00454	0.0181	9 E-6	0.00209	0.00153	0.00791

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone VFS-mod:****Table B.8.5.\_CP-136:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone VFS.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	25. 03 – 24. 04	29. 03. 1982/9:00	29. 03. 1982/9:00	Spray drift
<i>D1 – stream</i>	25. 03 – 24. 04	29. 03. 1982/ 9:00	29. 03. 1982/9:00	Spray drift
<i>D2 – ditch</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/7:00	Drainage
<i>D2 – stream</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/6:00	Drainage
<i>D3 – ditch</i>	16. 04 – 16. 05	20. 04. 1992/9:00	20. 04. 1992/9:00	Spray drift
<i>D4 – pond</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D4 – stream</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D5 – pond</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D5 – stream</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D6 – ditch</i>	16. 02 – 18. 03	27. 02. 1986/ 9:00	27. 02. 1986/9:00	Spray drift
<i>R1 – pond</i>	01. 04 – 01. 05	26. 04. 1984/9:00	26. 04. 1984/9:00	Spray drift
<i>R1 – stream</i>	01. 04 – 01. 05	26. 04. 1984/9:00	26. 04. 1984/9:00	Spray drift
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	15. 03 – 14. 04	28. 03. 1980/9:00	20. 04. 1980/1:59	Run-off
<i>R4 – stream</i>	15. 03 – 14. 04	21. 03. 1984/9:00	21. 03. 1984/9:00	Spray drift

**Table B.8.5.\_CP-137:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.259 <sup>1)</sup> ----- 0.259 <sup>2)</sup>	----	0.561	----	0.218 <sup>1)</sup> ----- 0.218 <sup>2)</sup>	----	0.308	----
1	0.206	0.234	0.552	0.560	0.0676	0.148	0.308	0.308
2	0.141	0.231	0.542	0.556	0.0666	0.146	0.308	0.308
4	0.110	0.228	0.532	0.549	0.0646	0.144	0.307	0.308
7	0.104	0.220	0.525	0.541	0.0615	0.141	0.302	0.308
14	0.107	0.197	0.528	0.533	0.0661	0.125	0.247	0.307
21	0.0994	0.182	0.528	0.531	0.0598	0.114	0.263	0.305
28	0.0915	0.168	0.524	0.530	0.0455	0.106	0.217	0.303
42	0.0895	0.144	0.508	0.524	0.0450	0.0902	0.171	0.300
50	0.0716	0.136	0.490	0.521	4.23 E-4	0.0834	0.152	0.296
100	0.0160	0.113	0.288	0.492	5.8 E-5	0.0598	0.0757	0.260
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.412 <sup>1)</sup> ----- 2.412 <sup>2)</sup>	----	1.076	----	1.574 <sup>1)</sup> ----- 1.573 <sup>2)</sup>	----	0.530	----
1	0.543	1.162	1.076	1.076	0.274	0.561	0.530	0.530
2	0.378	0.812	1.076	1.076	0.169	0.373	0.529	0.530
4	0.284	0.696	1.074	1.076	0.125	0.299	0.528	0.530
7	0.245	0.628	1.070	1.076	0.0849	0.272	0.523	0.529
14	0.209	0.450	1.057	1.074	0.0819	0.191	0.507	0.527
21	0.182	0.372	1.038	1.071	0.0758	0.177	0.511	0.525
28	0.161	0.346	1.013	1.066	0.0672	0.173	0.499	0.521
42	0.132	0.317	0.931	1.055	0.0485	0.162	0.467	0.516
50	0.119	0.302	0.876	1.044	0.0393	0.153	0.441	0.512
100	0.426	0.215	0.595	0.958	0.194	0.113	0.309	0.474
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.146 <sup>1)</sup> ----- 0.146 <sup>2)</sup>	----	0.0514	----	0.0224 <sup>1)</sup> ----- 0.0224 <sup>2)</sup>	----	0.0690	----
1	0.0692	0.113	0.0394	0.0493	0.0218	0.0221	0.0690	0.0690
2	0.00984	0.0732	0.0293	0.0447	0.0215	0.0219	0.0690	0.0690
4	5.33 E-4	0.0380	0.0209	0.0365	0.0209	0.0215	0.0690	0.0690
7	1.48 E-4	0.0218	0.0158	0.0293	0.0202	0.0211	0.0690	0.0690
14	4.5 E-5	0.0110	0.0109	0.0215	0.0185	0.0202	0.0689	0.0690
21	2.1 E-5	0.00731	0.00845	0.0176	0.0173	0.0194	0.0688	0.0689
28	1.4 E-5	0.00549	0.00694	0.0152	0.0162	0.0188	0.0685	0.0689
42	8 E-6	0.00366	0.00504	0.0121	0.0148	0.0177	0.0672	0.0688
50	6 E-6	0.00308	0.00427	0.0110	0.0140	0.0171	0.0668	0.0687
100	2 E-6	0.00154	0.00171	0.00690	0.0105	0.0146	n. c. <sup>3)</sup>	0.0678

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-138:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.148 <sup>1)</sup> 0.148 <sup>2)</sup>	----	0.0189	----	0.0255 <sup>1)</sup> 0.0255 <sup>2)</sup>	----	0.0778	----
1	2.69 E-4	0.0126	0.0188	0.0189	0.0249	0.0252	0.0778	0.0778
2	2.55 E-4	0.0119	0.0187	0.0189	0.0246	0.0250	0.0778	0.0778
4	2.65 E-4	0.0115	0.0183	0.0188	0.0241	0.0246	0.0778	0.0778
7	4.49 E-4	0.0108	0.0176	0.0187	0.0235	0.0243	0.0777	0.0778
14	3.32 E-4	0.00944	0.0154	0.0183	0.0224	0.0236	0.0774	0.0778
21	2.31 E-4	0.00816	0.0135	0.0178	0.0215	0.0230	0.0761	0.0777
28	1.78 E-4	0.0693	0.0120	0.0171	0.0207	0.0225	0.0748	0.0777
42	7.8 E-5	0.00508	0.0108	0.0158	0.0193	0.0217	0.0720	0.0774
50	1.05 E-4	0.00442	0.00975	0.0151	0.0186	0.0213	0.0705	0.0771
100	<1.0 E-6	0.00239	0.00595	0.0119	0.0147	0.0189	0.0617	0.0746
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.160 <sup>1)</sup> 0.160 <sup>2)</sup>	----	0.0134	----	0.153 <sup>1)</sup> 0.152 <sup>2)</sup>	----	0.0565	----
1	0.00150	0.00836	0.0109	0.0120	0.0122	0.0663	0.0453	0.0527
2	0.00149	0.00495	0.0103	0.0113	0.00976	0.0383	0.0412	0.0486
4	0.00142	0.00325	0.00980	0.0106	0.00995	0.0241	0.0390	0.0486
7	0.00136	0.00252	0.00951	0.0102	0.0101	0.0181	0.0385	0.0447
14	0.00120	0.00225	0.00909	0.00975	0.00918	0.0140	0.0387	0.0445
21	0.00108	0.00222	0.00878	0.00949	0.00856	0.0123	0.0387	0.0442
28	7.20 E-4	0.00208	0.00811	0.00933	0.00571	0.0113	0.0364	0.0439
42	4.4 E-5	0.00198	0.00629	0.00912	0.00715	0.00986	0.0371	0.0431
50	3 E-6	0.00195	0.00530	0.00901	0.00167	0.00979	0.0302	0.0425
100	1 E-6	0.00187	0.00241	0.00834	4.2 E-5	0.00829	0.00984	0.0390
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0218 <sup>1)</sup> 0.0217 <sup>2)</sup>	----	0.0541	----	0.129 <sup>1)</sup> 0.129 <sup>2)</sup>	----	0.0149	----
1	0.0212	0.0214	0.0541	0.0541	5.7 E-5	0.0244	0.00731	0.0113
2	0.0208	0.0212	0.0541	0.0541	1.8 E-5	0.0122	0.00514	0.00886
4	0.0203	0.0209	0.0540	0.0541	5 E-6	0.00611	0.00361	0.00663
7	0.0196	0.0205	0.0539	0.0541	2 E-6	0.00349	0.00271	0.00515
14	0.0182	0.0197	0.0528	0.0541	1 E-6	0.00175	0.00186	0.00370
21	0.0170	0.0190	0.0516	0.0540	<1.0 E-6	0.00117	0.00148	0.00302
28	0.0160	0.0184	0.0502	0.0538	<1.0 E-6	8.74 E-4	0.00124	0.00260
42	0.0141	0.0172	0.0472	0.0534	<1.0 E-6	5.83 E-4	9.23 E-4	0.00209
50	0.0132	0.0167	0.0452	0.0531	<1.0 E-6	4.90 E-4	7.92 E-4	0.00190
100	0.00867	0.0137	0.0366	0.0501	<1.0 E-6	2.55 E-4	3.69 E-4	0.00125

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-139:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.452 <sup>1)</sup> ----- 0.452 <sup>2)</sup>	----	0.190	----	0.129 <sup>1)</sup> ----- 0.129 <sup>2)</sup>	----	0.0150	----
1	0.106	0.388	0.123	0.168	5.8 E-5	0.0245	0.00734	0.0113
2	0.00199	0.208	0.0919	0.143	1.8 E-5	0.0123	0.00516	0.00890
4	4.36 E-4	0.104	0.0690	0.114	5 E-6	0.00614	0.00363	0.00666
7	1.68 E-4	0.0598	0.0545	0.0927	2 E-6	0.00351	0.00274	0.00517
14	4.6 E-5	0.0300	0.0394	0.0700	1 E-6	0.00176	0.00189	0.00372
21	2.4 E-5	0.0200	0.0316	0.0587	<1.0 E-6	0.00117	0.00149	0.00304
28	1.6 E-5	0.0168	0.0265	0.0514	<1.0 E-6	8.78 E-4	0.00125	0.00263
42	8 E-6	0.0112	0.0197	0.0420	<1.0 E-6	5.85 E-4	9.44 E-4	0.00211
50	7 E-6	0.00944	0.0166	0.0382	<1.0 E-6	4.92 E-4	8.19 E-4	0.00192
100	1 E-6	0.00472	0.00611	0.0244	<1.0 E-6	4.24 E-4	9.38 E-4	0.00187

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-140:** Results of the calculations obtained for FOE Oxalate at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	8.622	----	0.909	----
1	8.615	8.619	0.913	0.911
2	8.609	8.615	0.913	0.912
4	8.597	8.609	0.911	0.912
7	8.580	8.600	0.909	0.911
14	8.538	8.580	0.905	0.909
21	8.500	8.559	0.901	0.907
28	8.456	8.538	0.896	0.905
42	8.374	8.497	0.888	0.901
50	8.328	8.474	0.883	0.898
100	8.044	8.330	0.853	0.883

**Table B.8.5\_CP-141:** Results of the calculations obtained for FOE Oxalate Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.384	----	0.147	----	2.719	----	0.288	----
1	1.382	1.383	0.146	0.147	2.717	2.718	0.288	0.288
2	1.382	1.383	0.146	0.146	2.715	2.717	0.288	0.288
4	1.380	1.382	0.146	0.146	2.711	2.715	0.287	0.288
7	1.377	1.380	0.146	0.146	2.705	2.712	0.287	0.287
14	1.370	1.377	0.145	0.146	2.692	2.705	0.285	0.287
21	1.363	1.373	0.144	0.146	2.679	2.699	0.284	0.286
28	1.357	1.370	0.144	0.145	2.666	2.692	0.282	0.285
42	1.344	1.364	0.142	0.144	2.640	2.679	0.280	0.284
50	1.336	1.360	0.142	0.144	2.626	2.672	0.278	0.283
100	1.291	1.337	0.137	0.142	2.536	2.626	0.269	0.278

**Table B.8.5\_CP-142:** Results of the calculations obtained for FOE Sulfonic acid at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	10.588	----	1.171	----
1	10.580	10.584	1.174	1.173
2	10.573	10.581	1.174	1.173
4	10.558	10.573	1.172	1.173
7	10.537	10.562	1.170	1.172
14	10.486	10.537	1.164	1.169
21	10.435	10.511	1.158	1.167
28	10.384	10.486	1.153	1.164
42	10.284	10.435	1.142	1.158
50	10.227	10.406	1.135	1.155
100	9.879	10.229	1.097	1.135

**Table B.8.5\_CP-143:** Results of the calculations obtained for FOE Sulfonic acid Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.020	----	0.224	----	4.005	----	0.444	----
1	2.018	2.019	0.224	0.224	4.002	4.003	0.444	0.444
2	2.017	2.018	0.224	0.224	3.999	4.002	0.444	0.444
4	2.014	2.017	0.223	0.224	3.993	3.999	0.443	0.444
7	2.010	2.015	0.223	0.224	3.985	3.995	0.442	0.443
14	2.000	2.010	0.222	0.223	3.966	3.985	0.440	0.442
21	1.991	2.005	0.221	0.222	3.947	3.976	0.438	0.441
28	1.981	2.000	0.220	0.222	3.928	3.966	0.436	0.440
42	1.962	1.991	0.218	0.221	3.890	3.947	0.431	0.438
50	1.951	1.985	0.216	0.220	3.868	3.936	0.429	0.437
100	1.885	1.951	0.209	0.216	3.736	3.869	0.414	0.429

**Table B.8.5\_CP-144:** Results of the calculations obtained for FOE Methylsulfone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	2.528	----	1.494	----
1	2.520	2.524	1.538	1.516
2	2.519	2.522	1.537	1.527
4	2.515	2.519	1.535	1.532
7	2.510	2.517	1.532	1.532
14	2.498	2.510	1.524	1.530
21	2.486	2.504	1.517	1.527
28	2.474	2.498	1.510	1.524
42	2.450	2.486	1.495	1.517
50	2.436	2.479	1.487	1.513
100	2.353	2.437	1.436	1.487

**Table B.8.5.\_CP-145:** Results of the calculations obtained for FOE Methylsulfone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.549	----	0.334	----	1.022	----	0.622	----
1	0.547	0.548	0.333	0.333	1.020	1.021	0.622	0.622
2	0.546	0.547	0.333	0.333	1.019	1.010	0.621	0.622
4	0.545	0.546	0.333	0.333	1.017	1.019	0.621	0.621
7	0.544	0.546	0.332	0.333	1.015	1.018	0.619	0.621
14	0.542	0.544	0.330	0.332	1.010	1.015	0.616	0.619
21	0.539	0.543	0.329	0.331	1.006	1.013	0.613	0.618
28	0.536	0.542	0.327	0.330	1.001	1.010	0.610	0.616
42	0.531	0.539	0.324	0.329	0.991	1.006	0.604	0.613
50	0.528	0.538	0.322	0.328	0.985	1.003	0.601	0.612
100	0.510	0.528	0.311	0.322	0.952	0.986	0.581	0.601

**Table B.8.5.\_CP-146:** Results of the calculations obtained for FOE Methylsulfide at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	0.111	----	0.001	----
1	0.062	0.087	0.371	0.185
2	0.062	0.074	0.370	0.278
4	0.062	0.068	0.370	0.324
7	0.062	0.065	0.369	0.343
14	0.061	0.064	0.367	0.356
21	0.061	0.063	0.366	0.359
28	0.061	0.062	0.364	0.361
42	0.060	0.062	0.360	0.361
50	0.060	0.061	0.358	0.361
100	0.058	0.060	0.346	0.356

**Table B.8.5.\_CP-147:** Results of the calculations obtained for FOE Methylsulfide at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.111	----	0.369	----	0.111	----	0.369	----
1	0.078	0.095	0.369	0.369	0.078	0.095	0.369	0.369
2	0.074	0.085	0.369	0.369	0.074	0.085	0.369	0.369
4	0.073	0.079	0.368	0.369	0.073	0.079	0.368	0.369
7	0.062	0.073	0.368	0.369	0.062	0.073	0.368	0.369
14	0.061	0.067	0.366	0.368	0.061	0.067	0.366	0.368
21	0.061	0.065	0.364	0.367	0.061	0.065	0.364	0.367
28	0.061	0.064	0.362	0.366	0.061	0.064	0.362	0.366
42	0.060	0.063	0.359	0.364	0.060	0.063	0.359	0.364
50	0.060	0.062	0.357	0.363	0.060	0.062	0.357	0.363
100	0.058	0.061	0.345	0.357	0.058	0.061	0.345	0.357

**Table B.8.5.\_CP-148:** Results of the calculations obtained for FOE Thiadone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.952	----	0.577	----
1	1.920	1.936	0.808	0.693
2	1.918	1.927	0.808	0.750
4	1.916	1.922	0.807	0.779
7	1.912	1.919	0.805	0.790
14	1.903	1.913	0.801	0.797
21	1.893	1.908	0.797	0.797
28	1.884	1.903	0.793	0.797
42	1.866	1.894	0.786	0.794
50	1.856	1.889	0.781	0.793
100	1.792	1.856	0.755	0.780

**Table B.8.5.\_CP-149:** Results of the calculations obtained for FOE Thiadone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.624	----	0.259	----	0.691	----	0.286	----
1	0.614	0.619	0.258	0.258	0.680	0.685	0.286	0.286
2	0.614	0.617	0.258	0.258	0.680	0.683	0.286	0.286
4	0.613	0.615	0.258	0.258	0.679	0.681	0.286	0.286
7	0.612	0.614	0.257	0.258	0.677	0.680	0.285	0.286
14	0.609	0.612	0.256	0.257	0.674	0.678	0.284	0.285
21	0.606	0.610	0.255	0.257	0.671	0.676	0.282	0.284
28	0.603	0.609	0.254	0.256	0.668	0.674	0.281	0.284
42	0.597	0.606	0.251	0.255	0.661	0.671	0.278	0.282
50	0.594	0.604	0.250	0.254	0.658	0.669	0.277	0.282
100	0.573	0.594	0.241	0.250	0.635	0.658	0.267	0.277

**Table B.8.5.\_CP-150:** Results of the calculations obtained for FOE TFESA at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.445	----	0.000	----
1	1.444	1.445	0.000	0.000
2	1.443	1.444	0.000	0.000
4	1.441	1.443	0.000	0.000
7	1.438	1.442	0.000	0.000
14	1.431	1.438	0.000	0.000
21	1.424	1.435	0.000	0.000
28	1.418	1.431	0.000	0.000
42	1.404	1.424	0.000	0.000
50	1.396	1.421	0.000	0.000
100	1.486	1.396	0.000	0.000

**Table B.8.5.\_CP-151:** Results of the calculations obtained for FOE TFESA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.188	----	0.000	----	0.375	----	0.000	----
1	0.187	0.188	0.000	0.000	0.375	0.375	0.000	0.000
2	0.187	0.187	0.000	0.000	0.375	0.375	0.000	0.000
4	0.187	0.187	0.000	0.000	0.374	0.375	0.000	0.000
7	0.187	0.187	0.000	0.000	0.373	0.374	0.000	0.000
14	0.186	0.187	0.000	0.000	0.372	0.373	0.000	0.000
21	0.185	0.186	0.000	0.000	0.370	0.372	0.000	0.000
28	0.184	0.186	0.000	0.000	0.368	0.372	0.000	0.000
42	0.182	0.185	0.000	0.000	0.364	0.370	0.000	0.000
50	0.181	0.184	0.000	0.000	0.362	0.369	0.000	0.000
100	0.175	0.181	0.000	0.000	0.350	0.362	0.000	0.000

**Table B.8.5.\_CP-152:** Results of the calculations obtained for FOE TFA at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	13.638	----	0.000	----
1	13.629	13.633	0.000	0.000
2	13.619	13.629	0.000	0.000
4	13.600	13.619	0.000	0.000
7	13.572	13.605	0.000	0.000
14	13.506	13.572	0.000	0.000
21	13.441	13.539	0.000	0.000
28	13.376	13.506	0.000	0.000
42	13.247	13.441	0.000	0.000
50	13.173	13.404	0.000	0.000
100	12.725	13.176	0.000	0.000

**Table B.8.5.\_CP-153:** Results of the calculations obtained for FOE TFA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.720	----	0.000	----	5.438	----	0.000	----
1	2.718	2.719	0.000	0.000	5.436	5.438	0.000	0.000
2	2.716	2.718	0.000	0.000	5.433	5.436	0.000	0.000
4	2.713	2.716	0.000	0.000	5.425	5.433	0.000	0.000
7	2.707	2.713	0.000	0.000	5.414	5.427	0.000	0.000
14	2.694	2.707	0.000	0.000	5.388	5.414	0.000	0.000
21	2.681	2.700	0.000	0.000	5.361	5.401	0.000	0.000
28	2.668	2.694	0.000	0.000	5.336	5.388	0.000	0.000
42	2.642	2.681	0.000	0.000	5.284	5.362	0.000	0.000
50	2.627	2.673	0.000	0.000	5.255	5.347	0.000	0.000
100	2.538	2.628	0.000	0.000	5.076	5.256	0.000	0.000

5) Results obtained for the use at spring at 120 g Flufenacet/ha:

The results of the calculations are presented below. First, in the tables B.8.5.\_CA-154 – B.8.5.\_CA-156 are given the key results of the calculations – the maximum PEC values obtained for each compound at each STEP.

Next, in the tables B.8.5.\_CA-157 – B.8.5.\_CA-188, are presented the detailed results of the calculations obtained for each compound of concern.

**Table B.8.5.\_CP-154:** The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for Flufenacet.

Results obtained at Step 1 and Step2					
STEP 1		STEP 2			
		North Europe		South Europe	
PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]
31.227	75.061	6.057	14.503	11.217	27.015
Results obtained at Step 3					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	0.846	0.846	0.665	Spray drift	29. 03.1982/9:00
D1 stream	0.629	0.628	0.421	Spray drift	29. 03. 1982/9:00
D2 ditch	1.702	1.701	0.786	Drainage	19. 05. 1986/7:00
D2 stream	1.111	1.010	0.379	Drainage	19. 05. 1986/6:00
D3 ditch	0.760	0.760	0.254	Spray drift	20. 04. 1992/9:00
D4 pond	0.0267	0.0267	0.0733	Spray drift	19. 03. 1985/9:00
D4 stream	0.572	0.572	0.0189	Spray drift	19. 03. 1985/9:00
D5 pond	0.0289	0.0288	0.0852	Spray drift	08. 04. 1978/9:00
D5 stream	0.614	0.613	0.0238	Spray drift	08. 04. 1978/9:00
D6 ditch	0.756	0.756	0.161	Spray drift	27. 02. 1986/9:00
R1 pond	0.0687	0.0687	0.193	Run-off	30. 05. 1984/12:00
R1 stream	0.764	0.764	0.251	Run-off	20. 05. 1984/2:00
R3 stream	1.080	1.080	0.457	Run-off	20. 04. 1980/1:59
R4 stream	0.501	0.501	0.155	Spray drift	21. 03. 1984/9:00
Results obtained at Step 4, 10-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	0.194	0.194	0.420	Spray drift	29. 03.1982/9:00
D1 stream	0.163	0.163	0.231	Spray drift	29. 03. 1982/9:00
D2 ditch	1.702	1.701	0.777	Drainage	19. 05. 1986/7:00
D2 stream	1.111	1.110	0.379	Drainage	19. 05. 1986/6:00
D3 ditch	0.109	0.109	0.0389	Spray drift	20. 04. 1992/9:00
D4 pond	0.0169	0.0169	0.0520	Spray drift	19. 03. 1985/9:00
D4 stream	0.111	0.111	0.0142	Spray drift	19. 03. 1985/9:00
D5 pond	0.0190	0.0190	0.0583	Spray drift	08. 04. 1978/9:00
D5 stream	0.120	0.120	0.00969	Spray drift	08. 04. 1978/9:00
D6 ditch	0.114	0.114	0.0410	Spray drift	27. 02. 1986/9:00
R1 pond	0.0318	0.0318	0.0945	Run-off	30. 05. 1984/12:00
R1 stream	0.347	0.347	0.111	Run-off	20. 05. 1984/2:00
R3 stream	0.493	0.493	0.197	Run-off	20. 04. 1980/1:59
R4 stream	0.217	0.217	0.0707	Run-off	15. 05. 1984/12:59
Results obtained at Step 4, 20-metres buffer zone, FOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
D1 ditch	0.169	0.169	0.400	Drainage	20. 11.1982/2:00
D1 stream	0.121	0.121	0.231	Drainage	26. 10. 1982/15:15
D2 ditch	1.702	1.701	0.776	Drainage	19. 05. 1986/7:00
D2 stream	1.111	1.110	0.379	Drainage	19. 05. 1986/6:00
D3 ditch	0.0569	0.0568	0.0207	Spray drift	20. 04. 1992/9:00
D4 pond	0.0114	0.0114	0.0450	Spray drift	19. 03. 1985/9:00
D4 stream	0.0577	0.0577	0.0142	Spray drift	19. 03. 1985/9:00
D5 pond	0.0135	0.0135	0.0431	Spray drift	08. 04. 1978/9:00
D5 stream	0.0626	0.0626	0.00804	Spray drift	08. 04. 1978/9:00
D6 ditch	0.0622	0.0622	0.0314	Spray drift	27. 02. 1986/9:00
R1 pond	0.0178	0.0178	0.0550	Run-off	30. 05. 1984/12:00
R1 stream	0.182	0.182	0.0588	Run-off	20. 05. 1984/2:00
R3 stream	0.259	0.259	0.104	Run-off	20. 04. 1980/1:59
R4 stream	0.114	0.113	0.0375	Run-off	15. 05. 1984/12:59

Table B.8.5.\_CP-155: The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for Flufenacet - continued.

Results obtained at Step 4, 10-metres buffer zone, VFS-modFOCUS					
FOCUS Scenario	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg]	Dominant migration route	Date of maximum
	total	dissolved			
<i>D1 ditch</i>	0.194	0.194	0.420	Spray drift	29. 03.1982/9:00
<i>D1 stream</i>	0.163	0.163	0.231	Spray drift	29. 03. 1982/9:00
<i>D2 ditch</i>	1.702	1.701	0.777	Drainage	19. 05. 1986/7:00
<i>D2 stream</i>	1.111	1.110	0.379	Drainage	19. 05. 1986/6:00
<i>D3 ditch</i>	0.109	0.109	0.0389	Spray drift	20. 04. 1992/9:00
<i>D4 pond</i>	0.0169	0.0169	0.0520	Spray drift	19. 03. 1985/9:00
<i>D4 stream</i>	0.111	0.111	0.0142	Spray drift	19. 03. 1985/9:00
<i>D5 pond</i>	0.0190	0.0190	0.0583	Spray drift	08. 04. 1978/9:00
<i>D5 stream</i>	0.120	0.120	0.00969	Spray drift	08. 04. 1978/9:00
<i>D6 ditch</i>	0.114	0.114	0.0410	Spray drift	27. 02. 1986/9:00
<i>R1 pond</i>	0.0164	0.0164	0.0411	Spray drift	26. 04. 1984/9:00
<i>R1 stream</i>	0.0971	0.0971	0.0112	Spray drift	26. 04. 1984/9:00
<i>R3 stream</i>	0.337	0.337	0.143	Run-off	20. 04. 1980/1:59
<i>R4 stream</i>	0.0971	0.0970	0.0113	Spray drift	21. 03. 1984/9:00

Table B.8.5.\_CP-156: The maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values obtained for the degradation products of Flufenacet.

Compound	Obtained results:					
	STEP 1		STEP 2			
			North Europe		South Europe	
	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]	PEC <sub>SW</sub> [µg/L]	PEC <sub>SED</sub> [µg/kg]
<i>FOE Oxalate</i>	6.466	0.685	1.038	0.110	2.039	0.216
<i>FOE Sulfonic acid</i>	7.941	0.881	1.515	0.168	3.004	0.333
<i>FOE Methylsulfone</i>	1.896	1.154	0.412	0.250	0.767	0.467
<i>FOE Methylsulfide</i>	0.084	0.278	0.084	0.277	0.084	0.277
<i>FOE Thiadone</i>	1.464	0.606	0.468	0.194	0.518	0.215
<i>FOE 5043-Trifluoroethanesulfonic acid</i>	1.084	0.000	0.141	0.000	0.281	0.000
<i>Trifluoroacetic acid (TFA)</i>	10.228	0.000	2.040	0.000	4.080	0.000

#### Detailed results

Table B.8.5.\_CP-157: Results of the calculations obtained for Flufenacet at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	31.227	----	74.074	----
1	30.525	30.876	75.061	74.567
2	30.101	30.594	74.019	74.553
4	29.272	30.140	71.979	73.774
7	28.070	29.508	69.024	72.367
14	25.454	28.125	62.592	69.061
21	23.082	26.833	56.759	65.917
28	20.931	25.622	51.469	62.955
42	17.212	23.418	42.323	57.553
50	15.391	22.277	37.487	54.751
100	7.653	16.676	18.818	40.992

Table B.8.5.\_CP-158: Results of the calculations obtained for Flufenacet at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	6.057	----	14.503	----	11.217	----	27.015	----
1	5.977	6.017	14.446	14.474	11.133	11.175	26.908	26.961
2	5.953	5.991	14.389	14.446	11.089	11.143	26.802	26.908
4	5.906	5.960	14.275	14.389	11.002	11.094	26.591	26.802
7	5.837	5.922	14.107	14.304	10.872	11.027	26.277	26.644
14	5.677	5.839	13.722	14.109	10.575	10.875	25.559	26.280
21	5.522	5.759	13.347	13.917	10.286	10.726	24.861	25.923
28	5.371	5.681	12.982	13.729	10.005	10.581	24.182	25.572
42	5.082	5.529	12.283	13.262	9.466	10.298	22.879	24.890
50	4.924	5.445	11.900	13.159	9.171	10.142	22.166	24.511
100	4.040	4.956	9.764	11.978	7.525	9.231	18.188	22.311

Table B.8.5.\_CP-159: Data on application pattern for Flufenacet – STEP 3.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	25. 03 – 24. 04	29. 03. 1982/9:00	29. 03.1982/9:00	Spray drift
<i>D1 – stream</i>	25. 03 – 24. 04	29. 03. 1982/ 9:00	29. 03. 1982/9:00	Spray drift
<i>D2 – ditch</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/7:00	Drainage
<i>D2 – stream</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/6:00	Drainage
<i>D3 – ditch</i>	16. 04 – 16. 05	20. 04. 1992/9:00	20. 04. 1992/9:00	Spray drift
<i>D4 – pond</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D4 – stream</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D5 – pond</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D5 – stream</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D6 – ditch</i>	16. 02 – 18. 03	27. 02. 1986/ 9:00	27. 02. 1986/9:00	Spray drift
<i>R1 – pond</i>	01. 04 – 01. 05	26. 04. 1984/9:00	30. 05. 1984/12:00	Run-off
<i>R1 – stream</i>	01. 04 – 01. 05	26. 04. 1984/9:00	20. 05. 1984/2:00	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	15. 03 – 14. 04	28. 03. 1980/9:00	20. 04. 1980/1:59	Run-off
<i>R4 – stream</i>	15. 03 – 14. 04	21. 03. 1984/9:00	21. 03. 1984/9:00	Spray drift

**Table B.8.5\_CP-160:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.846 <sup>1)</sup> ----- 0.846 <sup>2)</sup>	----	0.665	----	0.629 <sup>1)</sup> ----- 0.628 <sup>2)</sup>	----	0.421	----
1	0.579	0.723	0.619	0.659	0.0506	0.107	0.230	0.235
2	0.245	0.561	0.568	0.642	0.0498	0.106	0.228	0.232
4	0.0970	0.353	0.514	0.604	0.0483	0.104	0.227	0.232
7	0.0810	0.239	0.481	0.564	0.0460	0.103	0.226	0.232
14	0.0794	0.166	0.456	0.517	0.0489	0.0915	0.230	0.231
21	0.0736	0.145	0.443	0.495	0.0442	0.0837	0.232	0.229
28	0.0680	0.135	0.433	0.481	0.0335	0.0775	0.226	0.229
42	0.0659	0.122	0.411	0.461	0.0330	0.0665	0.197	0.226
50	0.0530	0.119	0.394	0.452	3.16 E-4	0.0616	0.157	0.223
100	0.0122	0.0934	0.231	0.404	4.3 E-5	0.0443	0.0770	0.195
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.702 <sup>1)</sup> ----- 1.701 <sup>2)</sup>	----	0.786	----	1.111 <sup>1)</sup> ----- 1.110 <sup>2)</sup>	----	0.379	----
1	0.369	0.809	0.786	0.786	0.184	0.386	0.379	0.379
2	0.254	0.674	0.785	0.786	0.112	0.255	0.379	0.379
4	0.190	0.479	0.784	0.786	0.0826	0.204	0.378	0.379
7	0.163	0.431	0.782	0.785	0.0558	0.185	0.375	0.379
14	0.140	0.306	0.772	0.784	0.0540	0.131	0.363	0.378
21	0.122	0.257	0.758	0.782	0.0500	0.125	0.368	0.376
28	0.108	0.250	0.741	0.779	0.0443	0.123	0.360	0.373
42	0.0886	0.229	0.683	0.771	0.0321	0.115	0.339	0.370
50	0.0801	0.218	0.643	0.763	0.0260	0.109	0.321	0.368
100	0.306	0.156	0.438	0.700	0.137	0.0811	0.225	0.341
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.760 <sup>1)</sup> ----- 0.760 <sup>2)</sup>	----	0.254	----	0.0267 <sup>1)</sup> ----- 0.0267 <sup>2)</sup>	----	0.0733	----
1	0.363	0.590	0.195	0.243	0.0260	0.0263	0.0731	0.0732
2	0.0513	0.383	0.144	0.220	0.0256	0.0261	0.0730	0.0732
4	0.00259	0.199	0.102	0.179	0.0249	0.0257	0.0728	0.0732
7	7.21 E-4	0.114	0.0775	0.144	0.0240	0.0251	0.0724	0.0731
14	2.16 E-4	0.0572	0.0532	0.105	0.0220	0.0241	0.0715	0.0730
21	1.02 E-4	0.0382	0.0414	0.0864	0.0205	0.0231	0.0706	0.0729
28	6.7 E-5	0.0287	0.0340	0.0744	0.0193	0.0223	0.0696	0.0727
42	3.9 E-5	0.0191	0.0246	0.0595	0.0175	0.0210	0.0661	0.0723
50	2.9 E-5	0.0161	0.0208	0.0536	0.0166	0.0204	0.0640	0.0720
100	7 E-6	0.00804	0.00838	0.0337	0.0125	0.0173	0.0538	0.0694

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-161:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.572 <sup>1)</sup> ----- 0.572 <sup>2)</sup>	----	0.0189	----	0.0289 <sup>1)</sup> ----- 0.0288 <sup>2)</sup>	----	0.0852	----
1	2.10 E-4	0.0265	0.00912	0.0143	0.0282	0.0285	0.0852	0.0852
2	1.93 E-4	0.0133	0.00672	0.0143	0.0278	0.0282	0.0852	0.0852
4	1.93 E-4	0.00853	0.00511	0.0142	0.0272	0.0278	0.0852	0.0852
7	1.96 E-4	0.00797	0.00420	0.0141	0.0264	0.0274	0.0851	0.0852
14	3.31 E-4	0.00700	0.00352	0.0139	0.0252	0.0266	0.0843	0.0852
21	2.45 E-4	0.00607	0.00319	0.0135	0.0241	0.0259	0.0829	0.0851
28	1.70 E-4	0.00516	0.00292	0.0130	0.0232	0.0254	0.0815	0.0850
42	5.6 E-5	0.00379	0.00235	0.0120	0.0216	0.0244	0.0786	0.0847
50	7.6 E-5	0.00330	0.00214	0.0115	0.0208	0.0239	0.0771	0.0844
100	<1.0 E-6	0.00178	0.00108	0.00906	0.0165	0.0212	0.0676	0.0817
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.614 <sup>1)</sup> ----- 0.613 <sup>2)</sup>	----	0.0238	----	0.756 <sup>1)</sup> ----- 0.756 <sup>2)</sup>	----	0.161	----
1	0.00105	0.0276	0.0139	0.0180	0.0218	0.306	0.0997	0.140
2	0.00104	0.0143	0.0114	0.0153	0.00785	0.159	0.0772	0.118
4	9.84 E-4	0.00769	0.00981	0.0129	0.00720	0.0830	0.0616	0.0948
7	9.43 E-4	0.0486	0.00886	0.0114	0.00717	0.0505	0.0527	0.0789
14	8.29 E-4	0.00300	0.00787	0.00984	0.00646	0.0287	0.0447	0.0638
21	7.40 E-4	0.00237	0.00734	0.00909	0.00598	0.0212	0.0410	0.0568
28	4.95 E-4	0.00206	0.00667	0.00858	0.00403	0.0174	0.0371	0.0525
42	3.0 E-5	0.00177	0.00514	0.00782	0.00497	0.0132	0.0345	0.0467
50	2 E-6	0.00168	0.00435	0.00755	0.00121	0.0121	0.0285	0.0444
100	<1.0 E-6	0.00152	0.00197	0.00658	4.0 E-5	0.00824	0.00981	0.0320
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0687 <sup>1)</sup> ----- 0.0687 <sup>2)</sup>	----	0.193	----	0.764 <sup>1)</sup> ----- 0.764 <sup>2)</sup>	----	0.251	----
1	0.0679	0.0683	0.193	0.193	0.00173	0.407	0.145	0.208
2	0.0672	0.0679	0.193	0.193	4.52 E-4	0.204	0.114	0.174
4	0.0659	0.0673	0.193	0.193	3.70 E-4	0.102	0.0907	0.140
7	0.0641	0.0663	0.193	0.193	5.33 E-4	0.0826	0.106	0.124
14	0.0601	0.0643	0.191	0.193	0.00242	0.0529	0.0889	0.112
21	0.0564	0.0625	0.188	0.193	3.0 E-5	0.0417	0.0621	0.0990
28	0.0557	0.0613	0.183	0.192	1.6 E-5	0.0358	0.0506	0.0885
42	0.0493	0.0597	0.173	0.191	1.1 E-5	0.0261	0.0396	0.0766
50	0.0460	0.0585	0.166	0.189	7 E-6	0.0220	0.0329	0.0711
100	0.0296	0.0496	0.142	0.179	1 E-6	0.0114	0.0132	0.0493

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5.\_CP-162:** Results of the calculations obtained for Flufenacet at Step 3 – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.080 <sup>1)</sup> ----- 1.080 <sup>2)</sup>	----	0.457	----	0.501 <sup>1)</sup> ----- 0.501 <sup>2)</sup>	----	0.155	----
1	0.224	0.917	0.289	0.398	2.18 E-4	0.310	0.0830	0.128
2	0.00449	0.489	0.220	0.340	6.6 E-5	0.156	0.0616	0.113
4	0.00100	0.245	0.168	0.272	1.9 E-5	0.116	0.114	0.0988
7	3.92 E-4	0.141	0.134	0.222	8 E-6	0.0785	0.0679	0.0956
14	1.11 E-4	0.0704	0.0980	0.170	1.6 E-5	0.0414	0.0470	0.0776
21	6.0 E-5	0.0469	0.0789	0.143	6 E-6	0.0276	0.0352	0.0655
28	2.44 E-4	0.0423	0.0892	0.131	3 E-6	0.0207	0.0280	0.0571
42	4.2 E-5	0.0285	0.0627	0.113	1 E-6	0.0138	0.0194	0.0460
50	2.8 E-5	0.0271	0.0511	0.104	1 E-6	0.0122	0.0159	0.0415
100	4 E-6	0.0140	0.0181	0.0682	4 E-6	0.00737	0.00502	0.0258

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone:****Table B.8.5.\_CP-163:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	25. 03 – 24. 04	29. 03. 1982/9:00	29. 03. 1982/9:00	Spray drift
<i>D1 – stream</i>	25. 03 – 24. 04	29. 03. 1982/ 9:00	29. 03. 1982/9:00	Spray drift
<i>D2 – ditch</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/7:00	Drainage
<i>D2 – stream</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/6:00	Drainage
<i>D3 – ditch</i>	16. 04 – 16. 05	20. 04. 1992/9:00	20. 04. 1992/9:00	Spray drift
<i>D4 – pond</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D4 – stream</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D5 – pond</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D5 – stream</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D6 – ditch</i>	16. 02 – 18. 03	27. 02. 1986/ 9:00	27. 02. 1986/9:00	Spray drift
<i>R1 – pond</i>	01. 04 – 01. 05	26. 04. 1984/9:00	30. 05. 1984/12:00	Run-off
<i>R1 – stream</i>	01. 04 – 01. 05	26. 04. 1984/9:00	20. 05. 1984/2:00	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	15. 03 – 14. 04	28. 03. 1980/9:00	20. 04. 1980/1:59	Run-off
<i>R4 – stream</i>	15. 03 – 14. 04	21. 03. 1984/9:00	15. 05. 1984/12:59	Run-off

**Table B.8.5.\_CP-164:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.194 <sup>1)</sup> ----- 0.194 <sup>2)</sup>	----	0.420	----	0.163 <sup>1)</sup> ----- 0.163 <sup>2)</sup>	----	0.231	----
1	0.154	0.175	0.414	0.419	0.0506	0.107	0.231	0.231
2	0.105	0.168	0.406	0.417	0.0498	0.106	0.231	0.231
4	0.0826	0.166	0.399	0.412	0.0483	0.104	0.230	0.231
7	0.0780	0.160	0.394	0.406	0.0460	0.103	0.227	0.231
14	0.0793	0.144	0.395	0.399	0.0489	0.0915	0.186	0.230
21	0.0734	0.133	0.395	0.398	0.0442	0.0837	0.196	0.228
28	0.0676	0.124	0.392	0.397	0.0335	0.0775	0.163	0.227
42	0.0657	0.106	0.379	0.392	0.0330	0.0665	0.128	0.225
50	0.0526	0.101	0.365	0.390	3.16 E-4	0.0616	0.114	0.222
100	0.0118	0.0837	0.215	0.367	4.3 E-5	0.0442	0.0568	0.195
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.702 <sup>1)</sup> ----- 1.701 <sup>2)</sup>	----	0.777	----	1.111 <sup>1)</sup> ----- 1.110 <sup>2)</sup>	----	0.379	----
1	0.369	0.809	0.777	0.777	0.184	0.386	0.379	0.379
2	0.254	0.560	0.776	0.777	0.112	0.255	0.379	0.379
4	0.190	0.479	0.775	0.777	0.0826	0.204	0.377	0.379
7	0.163	0.431	0.773	0.776	0.0558	0.185	0.374	0.379
14	0.139	0.306	0.763	0.775	0.0540	0.131	0.362	0.377
21	0.122	0.257	0.750	0.773	0.0500	0.125	0.368	0.375
28	0.108	0.250	0.732	0.770	0.0443	0.123	0.360	0.373
42	0.0877	0.229	0.675	0.762	0.0320	0.115	0.338	0.370
50	0.0792	0.218	0.636	0.755	0.0260	0.109	0.320	0.367
100	0.306	0.156	0.433	0.692	0.137	0.0811	0.225	0.341
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.109 <sup>1)</sup> ----- 0.109 <sup>2)</sup>	----	0.0389	----	0.0169 <sup>1)</sup> ----- 0.0169 <sup>2)</sup>	----	0.0520	----
1	0.0518	0.0846	0.0299	0.0373	0.0164	0.0166	0.0520	0.0520
2	0.00738	0.0548	0.0222	0.0338	0.0161	0.0164	0.0520	0.0520
4	4.04 E-4	0.0285	0.0159	0.0276	0.0157	0.0162	0.0520	0.0520
7	1.12 E-4	0.0164	0.0120	0.0222	0.0152	0.0159	0.0520	0.0520
14	3.4 E-5	0.00821	0.00824	0.0163	0.0139	0.0152	0.0519	0.0520
21	1.6 E-5	0.00548	0.00641	0.0134	0.0130	0.0146	0.0517	0.0520
28	1.0 E-5	0.00411	0.00526	0.0115	0.0122	0.0141	0.0514	0.0520
42	6 E-6	0.00274	0.00382	0.00921	0.0111	0.0133	0.0508 <sup>3)</sup>	0.0519
50	4 E-6	0.00231	0.00324	0.00831	0.0105	0.0129	0.0504	0.0518
100	1 E-6	0.00115	0.00130	0.00523	0.00788	0.0110	n. c. <sup>3)</sup>	0.0511

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-165:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.111 <sup>1)</sup> ----- 0.111 <sup>2)</sup>	----	0.0142	----	0.0190 <sup>1)</sup> ----- 0.0190 <sup>2)</sup>	----	0.0583	----
1	1.99 E-4	0.00930	0.0142	0.0142	0.0186	0.0187	0.0583	0.0583
2	1.89 E-4	0.00882	0.0141	0.0142	0.0183	0.0186	0.0583	0.0583
4	1.92 E-4	0.00853	0.0138	0.0142	0.0179	0.0183	0.0582	0.0583
7	1.96 E-4	0.00797	0.0133	0.0141	0.0175	0.0181	0.0582	0.0583
14	3.31 E-4	0.00700	0.0117	0.0138	0.0166	0.0175	0.0579	0.0582
21	2.44 E-4	0.00607	0.0102	0.0134	0.0160	0.0171	0.0570	0.0582
28	1.70 E-4	0.00516	0.00913	0.0129	0.0154	0.0168	0.0559	0.0581
42	5.6 E-5	0.00379	0.00816	0.0119	0.0143	0.0161	0.0539	0.0579
50	7.6 E-5	0.00330	0.00737	0.0114	0.0138	0.0158	0.0528	0.0577
100	<1.0 E-6	0.00178	0.00449	0.00900	0.0109	0.0140	0.0462	0.0558
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.120 <sup>1)</sup> ----- 0.120 <sup>2)</sup>	----	0.00969	----	0.114 <sup>1)</sup> ----- 0.114 <sup>2)</sup>	----	0.0410	----
1	0.00104	0.00619	0.00781	0.00861	0.00855	0.0492	0.0326	0.0382
2	0.00103	0.00362	0.00731	0.00808	0.00674	0.0282	0.0294	0.0351
4	9.83 E-4	0.00235	0.00696	0.00760	0.00686	0.0175	0.0277	0.0319
7	9.43 E-4	0.00181	0.00674	0.00727	0.00696	0.0130	0.0273	0.0313
14	8.29 E-4	0.00156	0.00642	0.00692	0.00633	0.00987	0.0273	0.0312
21	7.40 E-4	0.00154	0.00619	0.00672	0.00590	0.00862	0.0272	0.0310
28	4.95 E-4	0.00145	0.00572	0.00660	0.00394	0.00793	0.0256	0.0308
42	3.0 E-5	0.00138	0.00444	0.00645	0.00493	0.00688	0.0260	0.0302
50	2 E-6	0.00136	0.00374	0.00637	0.00115	0.00681	0.0212	0.0298
100	<1.0 E-6	0.00130	0.00170	0.00590	3.0 E-5	0.00573	0.00692	0.0273
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0318 <sup>1)</sup> ----- 0.0318 <sup>2)</sup>	----	0.0945	----	0.347 <sup>1)</sup> ----- 0.347 <sup>2)</sup>	----	0.111	----
1	0.0314	0.0316	0.0945	0.0945	7.94 E-4	0.186	0.0629	0.0917
2	0.0311	0.0315	0.0945	0.0945	2.12 E-4	0.0931	0.0485	0.0762
4	0.0305	0.0312	0.0944	0.0945	1.56 E-4	0.0466	0.0377	0.0605
7	0.0297	0.0307	0.0942	0.0945	2.42 E-4	0.0366	0.0452	0.0529
14	0.0278	0.0298	0.0932	0.0944	8.28 E-4	0.0231	0.0374	0.0476
21	0.0261	0.0291	0.0918	0.0941	1.3 E-5	0.0182	0.0257	0.0420
28	0.0259	0.0286	0.0899	0.0938	7 E-6	0.0157	0.0208	0.0374
42	0.0229	0.0278	0.0847	0.0930	5 E-6	0.0109	0.0163	0.0322
50	0.0214	0.0272	0.0815	0.0923	3 E-6	0.00918	0.0135	0.0298
100	0.0139	0.0231	0.0698	0.0871	<1.0 E-6	0.00476	0.00539	0.0205

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-166:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.493 <sup>1)</sup> ----- 0.493 <sup>2)</sup>	----	0.197	----	0.217 <sup>1)</sup> ----- 0.217 <sup>2)</sup>	----	0.0707	----
1	0.113	0.422	0.124	0.173	4.13 E-4	0.140	0.0380	0.0584
2	0.00213	0.226	0.0906	0.146	1.38 E-4	0.0703	0.0279	0.0521
4	4.61 E-4	0.114	0.0664	0.115	0.0378	0.0527	0.0523	0.0454
7	1.74 E-4	0.0650	0.0513	0.0920	6.7 E-5	0.0357	0.0309	0.0438
14	4.6 E-5	0.0326	0.0363	0.0681	1.8 E-5	0.0188	0.0212	0.0354
21	2.4 E-5	0.0217	0.0288	0.0564	7 E-6	0.0125	0.0158	0.0298
28	1.11 E-4	0.0190	0.0346	0.0517	4 E-6	0.00940	0.0125	0.0259
42	1.8 E-5	0.0131	0.0238	0.0443	2 E-6	0.00627	0.00862	0.0208
50	1.1 E-5	0.0114	0.0192	0.0407	1 E-6	0.00547	0.00703	0.0187
100	2 E-6	0.00591	0.00669	0.0263	1.3 E-5	0.00307	0.00221	0.0114

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 20 metres buffer zone:****Table B.8.5\_CP-167:** Data on application pattern for Flufenacet – STEP 4, 20-metres buffer zone.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	25. 03 – 24. 04	29. 03. 1982/9:00	20. 11.1982/2:00	Drainage
<i>D1 – stream</i>	25. 03 – 24. 04	29. 03. 1982/ 9:00	26. 10. 1982/15:15	Drainage
<i>D2 – ditch</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/7:00	Drainage
<i>D2 – stream</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/6:00	Drainage
<i>D3 – ditch</i>	16. 04 – 16. 05	20. 04. 1992/9:00	20. 04. 1992/9:00	Spray drift
<i>D4 – pond</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D4 – stream</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D5 – pond</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D5 – stream</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D6 – ditch</i>	16. 02 – 18. 03	27. 02. 1986/ 9:00	27. 02. 1986/9:00	Spray drift
<i>R1 – pond</i>	01. 04 – 01. 05	26. 04. 1984/9:00	30. 05. 1984/12:00	Run-off
<i>R1 – stream</i>	01. 04 – 01. 05	26. 04. 1984/9:00	20. 05. 1984/2:00	Run-off
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	15. 03 – 14. 04	28. 03. 1980/9:00	20. 04. 1980/1:59	Run-off
<i>R4 – stream</i>	15. 03 – 14. 04	21. 03. 1984/9:00	15. 05. 1984/12:59	Run-off

**Table B.8.5.\_CP-168:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.169 <sup>1)</sup> ----- 0.169 <sup>2)</sup>	----	0.400	----	0.121 <sup>1)</sup> ----- 0.121 <sup>2)</sup>	----	0.231	----
1	0.167	0.169	0.397	0.400	0.0464	0.107	0.231	0.231
2	0.165	0.168	0.393	0.399	0.00347	0.106	0.230	0.231
4	0.155	0.166	0.389	0.396	3.23 E-4	0.104	0.230	0.231
7	0.131	0.160	0.387	0.393	1.13 E-4	0.103	0.227	0.230
14	0.107	0.144	0.391	0.391	3.8 E-5	0.0915	0.186	0.230
21	0.0824	0.133	0.391	0.390	0.104	0.0837	0.196	0.228
28	0.0746	0.124	0.388	0.390	0.0965	0.0775	0.163	0.227
42	0.0560	0.106	0.377	0.377	0.0598	0.0665	0.128	0.225
50	0.0516	0.0992	0.363	0.385	0.0475	0.0616	0.114	0.221
100	0.0335	0.0829	0.214	0.364	0.0255	0.0442	0.0567	0.195
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.702 <sup>1)</sup> ----- 1.701 <sup>2)</sup>	----	0.776	----	1.111 <sup>1)</sup> ----- 1.110 <sup>2)</sup>	----	0.379	----
1	0.369	0.809	0.776	0.776	0.184	0.386	0.379	0.370
2	0.254	0.560	0.776	0.776	0.112	0.255	0.378	0.379
4	0.190	0.479	0.775	0.776	0.0826	0.204	0.377	0.379
7	0.163	0.431	0.772	0.776	0.0558	0.185	0.374	0.378
14	0.139	0.306	0.762	0.776	0.0540	0.131	0.362	0.377
21	0.121	0.257	0.749	0.774	0.0500	0.125	0.367	0.375
28	0.108	0.250	0.732	0.769	0.0443	0.123	0.360	0.373
42	0.0877	0.229	0.674	0.761	0.0320	0.115	0.338	0.370
50	0.0792	0.218	0.635	0.754	0.0260	0.109	0.320	0.367
100	0.306	0.156	0.432	0.692	0.137	0.0811	0.225	0.341
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0569 <sup>1)</sup> ----- 0.0568 <sup>2)</sup>	----	0.0207	----	0.0114 <sup>1)</sup> ----- 0.0114 <sup>2)</sup>	----	0.0450	----
1	0.0270	0.0440	0.0160	0.0198	0.0111	0.0112	0.0450	0.0450
2	0.00384	0.0286	0.0119	0.0180	0.0109	0.0111	0.0450	0.0450
4	2.17 E-4	0.0148	0.00849	0.0147	0.0102	0.0109	0.0450	0.0450
7	6.0 E-5	0.00852	0.00643	0.0119	0.00942	0.0107	0.0450	0.0450
14	1.8 E-5	0.00428	0.00441	0.00871	0.00878	0.0103	0.0449	0.0450
21	9 E-6	0.00285	0.00343	0.00715	0.00827	0.00987	0.0447	0.0450
28	5 E-6	0.00214	0.00281	0.00616	0.00751	0.00953	0.0445	0.0450
42	3 E-6	0.00143	0.00205	0.00492	0.00712	0.00898	0.0439 <sup>3)</sup>	0.0449
50	2 E-6	0.00120	0.00173	0.00444	0.00535	0.00871	0.0434	0.0449
100	1 E-6	6.01 E-4	6.95 E-4	0.00280	0.613	0.00758	n. c. <sup>3)</sup>	0.0443

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5\_CP-169:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0577 <sup>1)</sup> ----- 0.0577 <sup>2)</sup>	----	0.0142	----	0.0135 <sup>1)</sup> ----- 0.0135 <sup>2)</sup>	----	0.0431	----
1	1.98 E-4	0.00930	0.0142	0.0142	0.0132	0.0133	0.0431	0.0431
2	1.88 E-4	0.00882	0.0141	0.0142	0.0130	0.0132	0.0431	0.0431
4	1.92 E-4	0.00853	0.0138	0.0141	0.0128	0.0131	0.0431	0.0431
7	1.96 E-4	0.00797	0.0133	0.0141	0.0125	0.0129	0.0431	0.0431
14	3.31 E-4	0.00700	0.0117	0.0138	0.0119	0.0125	0.0429	0.0431
21	2.44 E-4	0.00607	0.0102	0.0134	0.0114	0.0122	0.0424	0.0431
28	1.70 E-4	0.00516	0.00912	0.0129	0.0110	0.0120	0.0417	0.0430
42	5.6 E-5	0.00379	0.00815	0.0119	0.0103	0.0115	0.0401	0.0429
50	7.6 E-5	0.00330	0.00736	0.0114	0.00989	0.0113	0.0391	0.0427
100	<1.0 E-6	0.00178	0.00448	0.00899	0.00782	0.0101	0.0341	0.0413
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0626 <sup>1)</sup> ----- 0.0626 <sup>2)</sup>	----	0.00804	----	0.0622 <sup>1)</sup> ----- 0.0622 <sup>2)</sup>	----	0.0314	----
1	0.00104	0.00371	0.00708	0.00749	0.00748	0.0286	0.0314	0.0314
2	0.00103	0.00239	0.00681	0.00722	0.00664	0.0177	0.0313	0.0314
4	9.82 E-4	0.00173	0.00662	0.00696	0.00683	0.0122	0.0309	0.0314
7	9.42 E-4	0.00162	0.00649	0.00679	0.00695	0.00944	0.0296	0.0313
14	8.28 E-4	0.00156	0.00625	0.00658	0.00632	0.00836	0.0250	0.0312
21	7.40 E-4	0.00154	0.00606	0.00647	0.00589	0.00761	0.0213	0.0310
28	4.95 E-4	0.00145	0.00561	0.00640	0.00393	0.00717	n. c. <sup>3)</sup>	0.0308
42	3.0 E-5	0.00138	0.00436	0.00630	0.00493	0.00637	n. c. <sup>3)</sup>	0.0302
50	2 E-6	0.00136	0.00367	0.00624	0.00115	0.00639	n. c. <sup>3)</sup>	0.0298
100	<1.0 E-6	0.00128	0.00167	0.00582	2.9 E-5	0.00573	n. c. <sup>3)</sup>	0.0273
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0178 <sup>1)</sup> ----- 0.0178 <sup>2)</sup>	----	0.0550	----	0.182 <sup>1)</sup> ----- 0.182 <sup>2)</sup>	----	0.0588	----
1	0.0176	0.0177	0.0550	0.0550	4.19 E-4	0.0973	0.0334	0.0486
2	0.0174	0.0176	0.0550	0.0550	1.14 E-4	0.0488	0.0256	0.0404
4	0.0171	0.0174	0.0550	0.0550	8.0 E-5	0.0244	0.0198	0.0320
7	0.0166	0.0172	0.0549	0.0550	1.27 E-4	0.0190	0.0239	0.0279
14	0.0156	0.0167	0.0544	0.0549	4.02 E-4	0.0119	0.0197	0.0251
21	0.0146	0.0164	0.0536	0.0547	7 E-6	0.00942	0.0135	0.0222
28	0.0145	0.0162	0.0526	0.0545	4 E-6	0.00814	0.0109	0.0197
42	0.0128	0.0157	0.0497	0.0540	2 E-6	0.00566	0.00858	0.0169
50	0.0119	0.0153	0.0479	0.0536	2 E-6	0.00475	0.00710	0.0157
100	0.00777	0.0130	0.0407	0.0506	<1.0 E-6	0.00246	0.00283	0.0107

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-170:** Results of the calculations obtained for Flufenacet at Step 4, 20-metres buffer zone, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.259 <sup>1)</sup> ----- 0.259 <sup>2)</sup>	----	0.104	----	0.114 <sup>1)</sup> ----- 0.113 <sup>2)</sup>	----	0.0375	----
1	0.0614	0.222	0.0649	0.0920	2.21 E-4	0.0731	0.0204	0.0311
2	0.00116	0.119	0.0475	0.0778	7.5 E-5	0.0367	0.0150	0.0279
4	2.49 E-4	0.0599	0.0347	0.0610	0.0198	0.0276	0.0281	0.0243
7	9.3 E-5	0.0343	0.0267	0.0486	3.6 E-5	0.0187	0.0166	0.0234
14	2.4 E-5	0.0172	0.0188	0.0358	1.0 E-5	0.00983	0.0113	0.0190
21	1.2 E-5	0.0115	0.0148	0.0296	4 E-6	0.00656	0.00843	0.0160
28	5.9 E-5	0.0100	0.0180	0.0271	2 E-6	0.00492	0.00669	0.0139
42	9 E-6	0.00691	0.0124	0.0232	1 E-6	0.00328	0.00461	0.0111
50	6 E-6	0.00601	0.00997	0.0213	1 E-6	0.00285	0.00376	0.0100
100	1 E-6	0.00311	0.00346	0.0137	7 E-6	0.00160	0.00118	0.00611

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Step 4 – 10 metres buffer zone VFS-mod:****Table B.8.5.\_CP-171:** Data on application pattern for Flufenacet – STEP 4, 10 –metres buffer zone VFS.

FOCUS Scenario	Application window	Application date (determined by PAT)	Date of maximum	Identified dominant migration route
<i>D1 – ditch</i>	25. 03 – 24. 04	29. 03. 1982/9:00	29. 03. 1982/9:00	Spray drift
<i>D1 – stream</i>	25. 03 – 24. 04	29. 03. 1982/ 9:00	29. 03. 1982/9:00	Spray drift
<i>D2 – ditch</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/7:00	Drainage
<i>D2 – stream</i>	04. 04 – 04. 05	04. 04. 1986/9:00	19. 05. 1986/6:00	Drainage
<i>D3 – ditch</i>	16. 04 – 16. 05	20. 04. 1992/9:00	20. 04. 1992/9:00	Spray drift
<i>D4 – pond</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D4 – stream</i>	18. 03 – 17. 04	19. 03. 1985/9:00	19. 03. 1985/9:00	Spray drift
<i>D5 – pond</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D5 – stream</i>	15. 03 – 14. 04	08. 04. 1978/9:00	08. 04. 1978/9:00	Spray drift
<i>D6 – ditch</i>	16. 02 – 18. 03	27. 02. 1986/ 9:00	27. 02. 1986/9:00	Spray drift
<i>R1 – pond</i>	01. 04 – 01. 05	26. 04. 1984/9:00	26. 04. 1984/9:00	Spray drift
<i>R1 – stream</i>	01. 04 – 01. 05	26. 04. 1984/9:00	26. 04. 1984/9:00	Spray drift
<i>R2 – stream</i>	Crop not defined in this scenario			
<i>R3 – stream</i>	15. 03 – 14. 04	28. 03. 1980/9:00	20. 04. 1980/1:59	Run-off
<i>R4 – stream</i>	15. 03 – 14. 04	21. 03. 1984/9:00	21. 03. 1984/9:00	Spray drift

**Table B.8.5.\_CP-172:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios D1-ditch, D1-stream, D2-ditch, D2-stream, D3-ditch and D4- pond.

Time [days]	FOCUS Scenario							
	D1 - ditch				D1 - stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.194 <sup>1)</sup> ----- 0.194 <sup>2)</sup>	----	0.420	----	0.163 <sup>1)</sup> ----- 0.163 <sup>2)</sup>	----	0.231	----
1	0.154	0.175	0.414	0.419	0.0506	0.107	0.231	0.231
2	0.105	0.168	0.406	0.417	0.0498	0.106	0.231	0.231
4	0.0826	0.166	0.399	0.412	0.0483	0.104	0.230	0.231
7	0.0780	0.160	0.394	0.406	0.0460	0.103	0.227	0.231
14	0.0793	0.144	0.395	0.399	0.0489	0.0915	0.186	0.230
21	0.0734	0.133	0.395	0.398	0.0442	0.0837	0.196	0.228
28	0.0676	0.124	0.392	0.397	0.0335	0.0775	0.163	0.227
42	0.0657	0.106	0.379	0.392	0.0330	0.0665	0.128	0.225
50	0.0526	0.101	0.365	0.390	3.16 E-4	0.0616	0.114	0.222
100	0.0118	0.0837	0.215	0.367	4.3 E-5	0.0442	0.0568	0.195
Time [days]	FOCUS Scenario							
	D2 - ditch				D2-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.702 <sup>1)</sup> ----- 1.701 <sup>2)</sup>	----	0.777	----	1.111 <sup>1)</sup> ----- 1.110 <sup>2)</sup>	----	0.379	----
1	0.369	0.809	0.777	0.777	0.184	0.386	0.379	0.379
2	0.254	0.560	0.776	0.777	0.112	0.255	0.379	0.379
4	0.190	0.479	0.775	0.777	0.0826	0.204	0.377	0.379
7	0.163	0.431	0.773	0.776	0.0558	0.185	0.374	0.379
14	0.139	0.306	0.763	0.775	0.0540	0.131	0.362	0.377
21	0.122	0.257	0.750	0.773	0.0500	0.125	0.368	0.375
28	0.108	0.250	0.732	0.770	0.0443	0.123	0.360	0.373
42	0.0877	0.229	0.675	0.762	0.0320	0.115	0.338	0.370
50	0.0792	0.218	0.636	0.755	0.0260	0.109	0.320	0.367
100	0.306	0.156	0.433	0.692	0.137	0.0811	0.225	0.341
Time [days]	FOCUS Scenario							
	D3-ditch				D4-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.109 <sup>1)</sup> ----- 0.109 <sup>2)</sup>	----	0.0389	----	0.0169 <sup>1)</sup> ----- 0.0169 <sup>2)</sup>	----	0.0520	----
1	0.0518	0.0846	0.0299	0.0373	0.0164	0.0166	0.0520	0.0520
2	0.00738	0.0548	0.0222	0.0338	0.0161	0.0164	0.0520	0.0520
4	4.04 E-4	0.0285	0.0159	0.0276	0.0157	0.0162	0.0520	0.0520
7	1.12 E-4	0.0164	0.0120	0.0222	0.0152	0.0159	0.0520	0.0520
14	3.4 E-5	0.00821	0.00824	0.0163	0.0139	0.0152	0.0519	0.0520
21	1.6 E-5	0.00548	0.00641	0.0134	0.0130	0.0146	0.0517	0.0520
28	1.0 E-5	0.00411	0.00526	0.0115	0.0122	0.0141	0.0514	0.0520
42	6 E-6	0.00274	0.00382	0.00921	0.0111	0.0133	0.0508 <sup>3)</sup>	0.0519
50	4 E-6	0.00231	0.00324	0.00831	0.0105	0.0129	0.0504	0.0518
100	1 E-6	0.00115	0.00130	0.00523	0.00788	0.0110	n. c. <sup>3)</sup>	0.0511

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

3) n. c. – not calculated – simulation period too short to calculate the PEC value at this time point;

**Table B.8.5.\_CP-173:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios D4-stream, D5-pond, D5-stream, D6-ditch, R1-pond and R1-stream.

Time [days]	FOCUS Scenario							
	D4-stream				D5-pond			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.111 <sup>1)</sup> 0.111 <sup>2)</sup>	----	0.0142	----	0.0190 <sup>1)</sup> 0.0190 <sup>2)</sup>	----	0.0583	----
1	1.99 E-4	0.00930	0.0142	0.0142	0.0186	0.0187	0.0583	0.0583
2	1.89 E-4	0.00882	0.0141	0.0142	0.0183	0.0186	0.0583	0.0583
4	1.92 E-4	0.00853	0.0138	0.0142	0.0179	0.0183	0.0582	0.0583
7	1.96 E-4	0.00797	0.0133	0.0141	0.0175	0.0181	0.0582	0.0583
14	3.31 E-4	0.00700	0.0117	0.0138	0.0166	0.0175	0.0579	0.0582
21	2.44 E-4	0.00607	0.0102	0.0134	0.0160	0.0171	0.0570	0.0582
28	1.70 E-4	0.00516	0.00913	0.0129	0.0154	0.0168	0.0559	0.0581
42	5.6 E-5	0.00379	0.00816	0.0119	0.0143	0.0161	0.0539	0.0579
50	7.6 E-5	0.00330	0.00737	0.0114	0.0138	0.0158	0.0528	0.0577
100	<1.0 E-6	0.00178	0.00449	0.00900	0.0109	0.0140	0.0462	0.0558
Time [days]	FOCUS Scenario							
	D5-stream				D6-ditch			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.120 <sup>1)</sup> 0.120 <sup>2)</sup>	----	0.00969	----	0.114 <sup>1)</sup> 0.114 <sup>2)</sup>	----	0.0410	----
1	0.00104	0.00619	0.00781	0.00861	0.00855	0.0492	0.0326	0.0382
2	0.00103	0.00362	0.00731	0.00808	0.00674	0.0282	0.0294	0.0351
4	9.83 E-4	0.00235	0.00696	0.00760	0.00686	0.0175	0.0277	0.0319
7	9.43 E-4	0.00181	0.00674	0.00727	0.00696	0.0130	0.0273	0.0313
14	8.29 E-4	0.00156	0.00642	0.00692	0.00633	0.00987	0.0273	0.0312
21	7.40 E-4	0.00154	0.00619	0.00672	0.00590	0.00862	0.0272	0.0310
28	4.95 E-4	0.00145	0.00572	0.00660	0.00394	0.00793	0.0256	0.0308
42	3.0 E-5	0.00138	0.00444	0.00645	0.00493	0.00688	0.0260	0.0302
50	2 E-6	0.00136	0.00374	0.00637	0.00115	0.00681	0.0212	0.0298
100	<1.0 E-6	0.00130	0.00170	0.00590	3.0 E-5	0.00573	0.00692	0.0273
Time [days]	FOCUS Scenario							
	R1-pond				R1-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.0164 <sup>1)</sup> 0.0164 <sup>2)</sup>	----	0.0411	----	0.0971 <sup>1)</sup> 0.0970 <sup>2)</sup>	----	0.0112	----
1	0.0159	0.0161	0.0411	0.0411	4.3 E-5	0.0183	0.00556	0.00851
2	0.0157	0.0160	0.0411	0.0411	1.4 E-5	0.00916	0.00390	0.00671
4	0.0152	0.0157	0.0411	0.0411	4. E-6	0.00458	0.00274	0.00503
7	0.0147	0.0154	0.0410	0.0411	1 E-6	0.00262	0.00206	0.00390
14	0.0137	0.0148	0.0401	0.0411	<1.0 E-6	0.00131	0.00141	0.00280
21	0.0128	0.0143	0.0392	0.0410	<1.0 E-6	8.74 E-4	0.00112	0.00229
28	0.0120	0.0138	0.0381	0.0409	<1.0 E-6	6.56 E-4	9.39 E-4	0.00197
42	0.0106	0.0130	0.0358	0.0406	<1.0 E-6	4.37 E-4	7.01 E-4	0.00159
50	0.00990	0.0125	0.0343	0.0404	<1.0 E-6	3.67 E-4	6.01 E-4	0.00144
100	0.00651	0.0103	0.0278	0.0381	<1.0 E-6	1.91 E-4	2.81 E-4	9.52 E-4

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-174:** Results of the calculations obtained for Flufenacet at Step 4, 10-metres buffer zone VFS, – results obtained for scenarios R3-stream and R4-stream.

Time [days]	FOCUS Scenario							
	R3-stream				R4-stream			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.337 <sup>1)</sup> 0.337 <sup>2)</sup>	----	0.143	----	0.0971 <sup>1)</sup> 0.0970 <sup>2)</sup>	----	0.0113	----
1	0.0793	0.289	0.0932	0.127	4.4 E-5	0.0184	0.00558	0.00854
2	0.00150	0.155	0.0697	0.108	1.4 E-5	0.00920	0.00392	0.00674
4	3.30 E-4	0.0779	0.0524	0.0864	4 E-6	0.00461	0.00276	0.00505
7	1.27 E-4	0.0446	0.0414	0.0702	2 E-6	0.00263	0.00208	0.00392
14	3.5 E-5	0.0223	0.0300	0.0531	1 E-6	0.00132	0.00143	0.00282
21	1.8 E-5	0.0149	0.0241	0.0445	<1.0 E-6	8.78 E-4	0.00113	0.00231
28	1.2 E-5	0.0125	0.0202	0.0390	<1.0 E-6	6.59 E-4	9.48 E-4	0.00199
42	6 E-6	0.00837	0.0150	0.0319	<1.0 E-6	4.39 E-4	7.16 E-4	0.00160
50	6 E-6	0.00704	0.0126	0.0290	<1.0 E-6	3.69 E-4	6.21 E-4	0.00145
100	1 E-6	0.00352	0.00466	0.0186	<1.0 E-6	3.23 E-4	7.30 E-4	0.00144

1) Global maximum concentration, including the substance adsorbed to particles suspended in the water phase;

2) Maximum concentration of the substance dissolved in water;

**Table B.8.5\_CP-175:** Results of the calculations obtained for FOE Oxalate at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	6.466	----	0.682	----
1	6.461	6.464	0.685	0.683
2	6.457	6.462	0.684	0.684
4	6.448	6.457	0.684	0.684
7	6.435	6.450	0.682	0.683
14	6.404	6.435	0.679	0.682
21	6.373	6.419	0.676	0.680
28	6.342	6.404	0.672	0.679
42	6.280	6.373	0.666	0.676
50	6.246	6.355	0.662	0.674
100	6.033	6.247	0.640	0.662

**Table B.8.5\_CP-176:** Results of the calculations obtained for FOE Oxalate Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.038	----	0.110	----	2.039	----	0.216	----
1	1.037	1.037	0.110	0.110	2.037	2.038	0.216	0.216
2	1.036	1.037	0.110	0.110	2.036	2.037	0.216	0.216
4	1.035	1.036	0.110	0.110	2.033	2.036	0.215	0.216
7	1.033	1.035	0.109	0.110	2.029	2.034	0.215	0.215
14	1.028	1.033	0.109	0.109	2.019	2.029	0.214	0.215
21	1.023	1.030	0.108	0.109	2.009	2.024	0.213	0.214
28	1.018	1.028	0.108	0.109	2.000	2.019	0.212	0.214
42	1.008	1.023	0.107	0.108	1.980	2.009	0.210	0.213
50	1.002	1.020	0.106	0.108	1.969	2.004	0.209	0.212
100	0.968	1.002	0.103	0.106	1.902	1.970	0.202	0.209

**Table B.8.5\_CP-177:** Results of the calculations obtained for FOE Sulfonic acid at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	7.941	----	0.879	----
1	7.935	7.938	0.881	0.880
2	7.930	7.935	0.880	0.880
4	7.919	7.930	0.879	0.880
7	7.902	7.922	0.877	0.879
14	7.864	7.902	0.873	0.877
21	7.826	7.883	0.869	0.875
28	7.788	7.864	0.865	0.873
42	7.713	7.826	0.856	0.869
50	7.670	7.805	0.851	0.866
100	7.409	7.672	0.822	0.852

**Table B.8.5\_CP-178:** Results of the calculations obtained for FOE Sulfonic acid Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	1.515	----	0.168	----	3.004	----	0.333	----
1	1.514	1.514	0.168	0.168	3.001	3.002	0.333	0.333
2	1.513	1.514	0.168	0.168	2.999	3.001	0.333	0.333
4	1.511	1.513	0.168	0.168	2.995	2.999	0.332	0.333
7	1.508	1.511	0.167	0.168	2.989	2.996	0.332	0.332
14	1.500	1.508	0.166	0.167	2.974	2.989	0.330	0.332
21	1.493	1.504	0.166	0.167	2.960	2.982	0.328	0.331
28	1.486	1.500	0.165	0.166	2.946	2.974	0.327	0.330
42	1.471	1.493	0.163	0.166	2.917	2.960	0.324	0.328
50	1.463	1.489	0.162	0.165	2.901	2.952	0.322	0.327
100	1.413	1.464	0.157	0.162	2.802	2.902	0.311	0.322

**Table B.8.5\_CP-179:** Results of the calculations obtained for FOE Methylsulfone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.896	----	1.121	----
1	1.890	1.893	1.154	1.137
2	1.889	1.891	1.153	1.145
4	1.886	1.890	1.151	1.149
7	1.883	1.887	1.149	1.149
14	1.873	1.883	1.143	1.148
21	1.864	1.878	1.138	1.145
28	1.855	1.874	1.132	1.143
42	1.837	1.864	1.121	1.137
50	1.827	1.859	1.115	1.134
100	1.765	1.828	1.077	1.115

**Table B.8.5.\_CP-180:** Results of the calculations obtained for FOE Methylsulfone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.412	----	0.250	----	0.767	----	0.467	----
1	0.410	0.411	0.250	0.250	0.765	0.766	0.466	0.467
2	0.410	0.410	0.250	0.250	0.764	0.765	0.466	0.466
4	0.409	0.410	0.249	0.250	0.763	0.764	0.465	0.466
7	0.408	0.409	0.249	0.250	0.761	0.763	0.464	0.466
14	0.406	0.408	0.248	0.249	0.758	0.762	0.462	0.464
21	0.404	0.407	0.247	0.248	0.754	0.760	0.460	0.463
28	0.402	0.406	0.245	0.248	0.750	0.768	0.458	0.462
42	0.398	0.404	0.243	0.247	0.743	0.754	0.453	0.460
50	0.396	0.403	0.242	0.246	0.739	0.752	0.451	0.459
100	0.383	0.396	0.233	0.242	0.714	0.739	0.435	0.451

**Table B.8.5.\_CP-181:** Results of the calculations obtained for FOE Methylsulfide at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	0.084	----	0.001	----
1	0.047	0.065	0.278	0.139
2	0.046	0.056	0.278	0.208
4	0.046	0.051	0.277	0.243
7	0.046	0.049	0.277	0.258
14	0.046	0.048	0.275	0.267
21	0.046	0.047	0.274	0.270
28	0.046	0.047	0.273	0.271
42	0.045	0.046	0.270	0.271
50	0.045	0.046	0.269	0.271
100	0.043	0.045	0.260	0.267

**Table B.8.5.\_CP-182:** Results of the calculations obtained for FOE Methylsulfide at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.084	----	0.277	----	0.084	----	0.277	----
1	0.059	0.071	0.277	0.277	0.059	0.071	0.277	0.277
2	0.055	0.064	0.277	0.277	0.055	0.064	0.277	0.277
4	0.054	0.059	0.276	0.277	0.054	0.059	0.276	0.277
7	0.046	0.054	0.276	0.276	0.046	0.054	0.276	0.276
14	0.046	0.050	0.274	0.276	0.046	0.050	0.274	0.276
21	0.046	0.049	0.273	0.275	0.046	0.049	0.273	0.275
28	0.046	0.048	0.272	0.274	0.046	0.048	0.272	0.274
42	0.045	0.047	0.269	0.273	0.045	0.047	0.269	0.273
50	0.045	0.047	0.268	0.272	0.045	0.047	0.268	0.272
100	0.043	0.046	0.259	0.268	0.043	0.046	0.259	0.268

**Table B.8.5.\_CP-183:** Results of the calculations obtained for FOE Thiadone at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.464	----	0.433	----
1	1.440	1.452	0.606	0.520
2	1.439	1.446	0.606	0.563
4	1.437	1.442	0.605	0.584
7	1.434	1.439	0.604	0.593
14	1.427	1.435	0.601	0.597
21	1.420	1.431	0.598	0.598
28	1.413	1.427	0.595	0.598
42	1.399	1.420	0.589	0.596
50	1.392	1.416	0.586	0.594
100	1.344	1.392	0.566	0.585

**Table B.8.5.\_CP-184:** Results of the calculations obtained for FOE Thiadone at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]		PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.468	----	0.194	----	0.518	----	0.215	----
1	0.461	0.464	0.194	0.194	0.510	0.514	0.215	0.215
2	0.460	0.462	0.194	0.194	0.510	0.512	0.215	0.215
4	0.460	0.461	0.193	0.194	0.509	0.511	0.214	0.215
7	0.459	0.460	0.193	0.193	0.508	0.510	0.214	0.214
14	0.456	0.459	0.192	0.193	0.506	0.508	0.213	0.214
21	0.454	0.458	0.191	0.193	0.503	0.507	0.212	0.213
28	0.452	0.457	0.190	0.192	0.501	0.506	0.211	0.213
42	0.448	0.454	0.188	0.191	0.496	0.503	0.209	0.212
50	0.445	0.453	0.187	0.191	0.493	0.502	0.208	0.211
100	0.430	0.445	0.181	0.187	0.476	0.493	0.200	0.208

**Table B.8.5.\_CP-185:** Results of the calculations obtained for FOE TFESA at Step 1.

Time [days]	PEC <sub>sw</sub> [µg/L]		PEC <sub>sed</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	1.084	----	0.000	----
1	1.083	1.084	0.000	0.000
2	1.082	1.083	0.000	0.000
4	1.081	1.082	0.000	0.000
7	1.079	1.081	0.000	0.000
14	1.074	1.079	0.000	0.000
21	1.068	1.076	0.000	0.000
28	1.063	1.074	0.000	0.000
42	1.053	1.068	0.000	0.000
50	1.047	1.065	0.000	0.000
100	1.011	1.047	0.000	0.000

**Table B.8.5.\_CP-186:** Results of the calculations obtained for FOE TFESA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	0.141	----	0.000	----	0.281	----	0.000	----
1	0.141	0.141	0.000	0.000	0.281	0.281	0.000	0.000
2	0.141	0.141	0.000	0.000	0.281	0.281	0.000	0.000
4	0.140	0.141	0.000	0.000	0.281	0.281	0.000	0.000
7	0.140	0.140	0.000	0.000	0.280	0.281	0.000	0.000
14	0.139	0.140	0.000	0.000	0.279	0.280	0.000	0.000
21	0.139	0.140	0.000	0.000	0.277	0.279	0.000	0.000
28	0.138	0.139	0.000	0.000	0.276	0.279	0.000	0.000
42	0.137	0.139	0.000	0.000	0.273	0.277	0.000	0.000
50	0.136	0.138	0.000	0.000	0.272	0.277	0.000	0.000
100	0.131	0.136	0.000	0.000	0.263	0.272	0.000	0.000

**Table B.8.5.\_CP-187:** Results of the calculations obtained for FOE TFA at Step 1.

Time [days]	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA
0	10.228	----	0.000	----
1	10.221	10.225	0.000	0.000
2	10.214	10.221	0.000	0.000
4	10.200	10.214	0.000	0.000
7	10.179	10.204	0.000	0.000
14	10.130	10.179	0.000	0.000
21	10.081	10.154	0.000	0.000
28	10.032	10.130	0.000	0.000
42	9.935	10.081	0.000	0.000
50	9.880	10.053	0.000	0.000
100	9.544	9.882	0.000	0.000

**Table B.8.5.\_CP-188:** Results of the calculations obtained for FOE TFA at Step 2.

Time [days]	STEP2 Scenario:							
	North Europe				South Europe			
	PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]		PEC <sub>SW</sub> [µg/L]		PEC <sub>SED</sub> [µg/kg sediment]	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	2.040	----	0.000	----	4.080	----	0.000	----
1	2.039	2.039	0.000	0.000	4.077	4.079	0.000	0.000
2	2.037	2.039	0.000	0.000	4.074	4.077	0.000	0.000
4	2.034	2.037	0.000	0.000	4.069	4.074	0.000	0.000
7	2.030	2.035	0.000	0.000	4.060	4.070	0.000	0.000
14	2.020	2.030	0.000	0.000	4.041	4.060	0.000	0.000
21	2.011	2.025	0.000	0.000	4.021	4.051	0.000	0.000
28	2.001	2.020	0.000	0.000	4.002	4.041	0.000	0.000
42	1.982	2.011	0.000	0.000	3.963	4.021	0.000	0.000
50	1.971	2.005	0.000	0.000	3.941	4.010	0.000	0.000
100	1.903	1.971	0.000	0.000	3.807	3.942	0.000	0.000

### Calculations of the PEC<sub>SW</sub> values for representative formulation:

Additionally the RMS carried out the calculations of the PEC values for the representative formulation. The calculations were performed using the drift calculator – tool inbuilt into the FOCUS SWASH modelling tool. They were performed for the SW water bodies and adequate FOCUS distances defined at Step 3.

The assumptions used in calculations are presented below in the table B.8.5.\_CP-189 and the obtained results in the next table – B.8.5.\_CP-190 Only the ini. PEC<sub>SW</sub> values are presented, as only they are relevant for the formulation. At the same time it shall be indicated that due to the nature of the representative formulation – it contains two active substances, the values are of rather informative value and limited usefulness in the current assessment, and they were provided for completeness.

**Table B.8.5.\_CP-189:** The assumptions used in calculations of PEC<sub>SW</sub> for the formulation.

Crop scenario <sup>1)</sup>	Type of formulation <sup>2)</sup>	Density of formulation	Application rate of formulation		Calculated on the basis of:
			[L/ha]	[g/ha]	
<i>Cereals, BBCH 10 – 13; 240 g/ha; CI = 0%</i>	400 g/L FFA + 200 g/L DFF SC	1.251 g/cm <sup>3</sup> (T = 20°C)	0.6	750.6	formulation's density
<i>Cereals, BBCH 11 – 13; 160 g/ha; CI = 0%</i>	400 g/L FFA + 200 g/L DFF SC	1.251 g/cm <sup>3</sup> (T = 20°C)	0.4	500.4	formulation's density
<i>Cereals, BBCH 00 – 22; 120 g/ha; CI = 0%</i>	400 g/L FFA + 200 g/L DFF SC	1.251 g/cm <sup>3</sup> (T = 20°C)	0.3	375.3	formulation's density

**Footnotes to the table:**

- 1) The given application rate is for Flufenacet;
- 2) FFA stands for Flufenacet and DFF for Diflufenican.

**Table B.8.5.\_CP-190:** The results of the calculations of PEC<sub>SW</sub> for the formulation.

Crop	Formulation	Application rate of the formulation [g/ha]	Results		
			Type of water body	Distance from the water body to the edge of the field [metres]	PEC <sub>SW</sub> [µg/L]
<i>Cereals, BBCH 10 – 13; 240 g/ha; CI = 0%</i>	400 g/L FFA + 200 g/L DFF SC	750.6	<i>FOCUS ditch</i>	1.00	<b>4.8223</b>
			<i>FOCUS pond</i>	3.50	<b>0.1644</b>
			<i>FOCUS stream</i>	1.50	<b>3.5788</b>
<i>Cereals, BBCH 11 – 13; 160 g/ha; CI = 0%</i>	400 g/L FFA + 200 g/L DFF SC	500.4	<i>FOCUS ditch</i>	1.00	<b>3.2149</b>
			<i>FOCUS pond</i>	3.50	<b>0.1096</b>
			<i>FOCUS stream</i>	1.50	<b>2.3858</b>
<i>Cereals, BBCH 00 – 22; 120 g/ha; CI = 0%</i>	400 g/L FFA + 200 g/L DFF SC	375.3	<i>FOCUS ditch</i>	1.00	<b>2.4112</b>
			<i>FOCUS pond</i>	3.50	<b>0.0822</b>
			<i>FOCUS stream</i>	1.50	<b>1.7894</b>

### B.8.6 – Fate and Behaviour in Air

Below is presented the summary of the evaluation of the fate and behaviour of Flufenacet and its identified major degradation products in air, resulting from the evaluation in that area performed and presented in the document Vol 3. B.8-CA.

#### B.8.6.1. – Route and rate of degradation in air and transport via air

As the first step in the assessment of the fate and behaviour of Flufenacet in the air compartment RMS analysed the basic data on the volatility potential of that active compound and its major degradation products in order to identify the substances of concern for the atmosphere. The basic data on the volatility potential of Flufenacet and its major degradation products are presented below in the table B.8.6.1.\_CP-1. The data were taken from the section B.2 (AS) for Flufenacet, unless it was clearly stated that they were derived from other sources.

**Table B.8.6.1.\_CP-1:** The key physico-chemical properties of Flufenacet and its major degradation products relevant for the determination of the fate and behaviour in the atmosphere.

Parameter	Compound <sup>1)</sup>							
	FOE 5043	FOE Oxalate	FOE S. A.	FOE Methylsulfone	FOE Methylsulfide	FOE Thiadone	FOE TFESA	TFA <sup>2)</sup>
<b>Molecular weight [g/mol]</b>	363.4	225.2	275.3	257.3	241.0	170.1	164.1	114.02
<b>Vapour pressure <math>V_p</math> [Pa] at <math>T = 20^\circ\text{C}</math></b>	9 E-5 <sup>3)</sup>	4.5 E-7	1.35 E-7 <sup>6)</sup>	8.6 E-4	8.06 E-3 <sup>10)</sup>	2.05	<1.0 E-8	<1.0 E-6
<b>Solubility in water, <math>S_{aq}</math>, [mg/L] at <math>T = 20^\circ\text{C}</math></b>	pH 5	56 <sup>4)</sup>	> 1.2 E5	5.5 E4 <sup>7)</sup>	4.1 E3 <sup>9)</sup>	2.0 E3 <sup>11)</sup>	95.5 E3 <sup>13)</sup>	>1.6 E5
	pH 7	56	> 1.2 E5	5.5 E4 <sup>7)</sup>	4.1 E3 <sup>9)</sup>	2.0 E3 <sup>11)</sup>	> 1.0 E5	>1.6 E5
	pH 9	53	>1.2 E5	5.5 E4 <sup>7)</sup>	4.1 E3 <sup>9)</sup>	2.0 E3 <sup>11)</sup>	> 1.0 E5	>1.6 E5
<b>Henry's law constant, <math>H</math>, [Pa*m<sup>3</sup>/mol] at <math>T = 20^\circ\text{C}</math></b>	pH 5	1.2 E-3 <sup>5)</sup>	<8.4 E-10	n. a. <sup>8)</sup>	n. a. <sup>8)</sup>	1.72 E-2 <sup>12)</sup>	0.012 <sup>14)</sup>	<1.2 E-11
	pH 7	1.3 E-3 <sup>5)</sup>	<6.8 E-10	n. a. <sup>8)</sup>	5.7 E-5	1.72 E-2 <sup>12)</sup>	n. a. <sup>8)</sup>	<1.2 E-11
	pH 9	1.1 E-3 <sup>5)</sup>	<6.8 E-10	n. a. <sup>8)</sup>	n. a. <sup>8)</sup>	1.72 E-2 <sup>12)</sup>	n. a. <sup>8)</sup>	<1.2 E-11

**Footnotes to the table:**

- 1) The following code-names were used to denominate the substances: FOE 5043 for Flufenacet, FOE S. A. for FOE Sulfonic acid, FOE TFESA for FOE Trifluoroethanesulfonic acid and TFA for Trifluoroacetic acid;
- 2) **In aqueous solution TFA, being a very strong acid with  $pK_a = 1.6$ , is fully dissociated, therefore the values are provided for trifluoroacetate and the test substance used to determine them was TFA-Na salt;**
- 3) In section B.2 it was stated that Flufenacet isomerised by evaporation forming a mixture containing 10% of Flufenacet and 90% of its *N*-isomer; as a result, the value is that characteristic for *N*-isomer of Flufenacet;
- 4) The value determined at pH = 4;
- 5) The values determined for *N*-isomer of Flufenacet, using the solubility values determined for that compound;
- 6) The measured value not provided; instead the Applicant presented the value determined theoretically, using QSAR method, and for  $T = 25^\circ\text{C}$ ; RMS subsequently converted that value to presented here value for  $T = 20^\circ\text{C}$  using appropriate Van't Hoff equation (presented in the "Manual for FOCUS TOXSWA version 2.2.1", Alterra Report No. 586, Wageningen, 2006);
- 7) The value determined in unbuffered solution and representative for the whole environmentally relevant pH range, since it was experimentally demonstrated that water solubility of FOE S. A. is not pH-dependent;
- 8) Value not available;
- 9) The value determined in pH = 7 buffer solution, but considered representative for the whole environmentally relevant pH range, since it was experimentally demonstrated that water solubility of FOE Methylsulfone is not pH-dependent;
- 10) The theoretical value determined by the RMS using QSAR methods – it was calculated using Modified Grain method for  $T = 25^\circ\text{C}$ ; for more details please refer to the data presented in the table B.8.8-a.3\_CA-4 under the point B.8.8.-A.3 – Appendix 3, of this Renewal Assessment Report;
- 11) The value determined in pH = 6.1 buffer solution, but considered representative for the whole environmentally relevant pH range, since it was experimentally demonstrated that water solubility of FOE Methylsulfide is not pH-dependent;
- 12) The theoretical value determined by the RMS using QSAR methods – it was calculated using Modified Grain method for  $T = 25^\circ\text{C}$ ; for more details please refer to the data presented in the table B.8.8-a.3\_CA-4 under the point B.8.8.-A.3 – Appendix 3, of this Renewal Assessment Report;
- 13) The value determined at pH = 5.77;
- 14) The value determined at pH < 5.

The further analysis was carried out using the vapour pressure classification presented in the Guidance document "Pesticides in Air: Considerations for Exposure Assessment" – Report of the FOCUS Working Group on Pesticides in Air (FOCUS; 2008)).

According to that Guidance document the trigger values indicating the need to establish whether the substance has the potential to reach the air are:

- $V_p \geq 10^{-4}$  Pa at  $T = 20^\circ\text{C}$  for volatilisation from soil, and
- $V_p \geq 10^{-5}$  Pa at  $T = 20^\circ\text{C}$  for volatilisation from plants.

Using these criteria RMS identified the following compounds as those of potential concern:

- Flufenacet, being medium volatile according to the classification presented above and having a potential to reach air via volatilisation from plants;
- FOE Methylsulfone, being medium volatile according to the classification presented above and having a potential to reach air via volatilisation from soil and plants;
- FOE Methylsulfide, being medium volatile according to the classification presented above and having a potential to reach air via volatilisation from soil and plants; it shall be indicated however that for that compound the assessment is based on theoretically determined values;
- FOE Thiadone, being volatile according to the classification presented above and having a potential to reach air via volatilisation from soil and plants.

RMS also decided to take into consideration TFA. Although the experimental values presented in the table B.8.6.1\_CP-1 does not indicate that it is a compound of concern, they were derived for trifluoroacetate. The examination of the available open-sources data showed that the non-dissociated acid displayed high volatility potential resulting from its high vapour pressure – 11 kPa at  $T = 20^\circ\text{C}$  (source: Pubchem – open chemistry database, url: <https://pubchem.ncbi.nlm.nih.gov>). For that reason RMS decided to evaluate its fate and behaviour in the atmosphere as well. **At the same time it shall be indicated that the  $pK_a = 1.6$  value determined for TFA in aqueous solutions clearly indicate that when formed from Flufenacet either in soil or surface water compartments the compound, being entirely dissociated would display very limited volatility and hence risk to atmosphere, unless the environment becomes very acidic.**

The examination of the fate and behaviour of Flufenacet in air showed that that compound displayed some tendency for migration to the atmosphere, with the determined average level of volatilisation from soil surface equal to 16.5% of the applied dose (with range of 7.9 – 29.2%), but was not expected to be persistent in that compartment – the determined for the process of the photooxidative degradation initiated by the  $\bullet\text{OH}$  radicals  **$DT_{50} = 6.8$  hours**. That value, being significantly shorter than the  $DT_{50} = 2$  days, indicates that Flufenacet, even in case of reaching the atmosphere in significant amounts, would not pose a serious threat to that compartment. It would also not be prone to medium- or long-range transport in that compartment and therefore it would not pose a threat of secondary pollution resulting from the wet and dry deposition from the atmosphere.

That statement may be confirmed by the results of the monitoring study carried out in the USA by the employees of USGS and aimed on the examination of the content of Flufenacet in the rainfall. The monitoring was performed in years 2003 – 2004 on four representative locations in the areas of intensive agricultural activity, in California, Indiana, Nebraska and Maryland. Flufenacet was found only in two of 52 samples examined, and only at one location – in Nebraska, where the main crops were maize and soybean, on which Flufenacet was routinely used. The maximum concentration detected in rain samples was  $0.05 \mu\text{g/L}$  and it occurred on the 4<sup>th</sup> May 2004, presumably shortly after Flufenacet was applied. The median concentration reported in the study was  $<0.02 \mu\text{g/L}$  and the wet deposition, estimated on the basis of the obtained results, was  $3.09 \mu\text{g/m}^2$  with maximum occurring on the 4<sup>th</sup> May 2004.

In none of the other examined locations Flufenacet was reported to be found in rainwater samples. It has to be indicated, that other herbicides being the target compounds in that study were detected more frequently and in much higher amounts, although their estimated use pattern was comparable to that of Flufenacet.

These results may indicate that Flufenacet, even in case of reaching the air compartment will not be subjected to the medium- and long distance transport, but rather deposited locally, at the site of use. The aeric mean deposition determined in that study (for not précised application rates) was not significant, by comparison to e. g. that determined in the SW modelling exposure assessment at Step 3 for the use of that compound in Autumn on Winter cereals at application rate  $240 \text{ g/ha} - 0.05 - 0.46 \text{ mg/m}^2$ .

Of seven major soil, aquatic, or soil and aquatic, degradation products of Flufenacet, four were identified as posing potential threat to the atmosphere, being volatile or semivolatile – FOE Methylsulfone, FOE Methylsulfide, FOE Thiadone and Trifluoroacetic acid (TFA). For them was performed the additional estimation of their persistence in air, by determining the  $DT_{50}$  values for the process of the photooxidative degradation initiated by the  $\bullet\text{OH}$  radicals. The calculated for FOE Methylsulfide and FOE Methylsulfone  $DT_{50}$  values for that process were **0.517 days** and **0.563 days** respectively, what clearly indicates that even in case of reaching the atmosphere in significant amounts, these compounds would not pose a serious threat to that compartment. They would also not be prone to medium- or long-range transport in that compartment and therefore it would not pose a threat of secondary pollution resulting from the wet and dry deposition from the atmosphere.

The model assessment of the persistence of FOE Thiadone in air showed that the compound would be very persistent in air. For the structural formula exactly matching that of FOE Thiadone the results indicated that no reaction with  $\bullet\text{OH}$  radicals occurred. For the structure that was slightly altered by comparison to that of FOE Thiadone – the double bond was repositioned from  $\text{C}=\text{N}$  to  $\text{N}=\text{N}$ , that reaction was demonstrated to be very slow with the half-life, calculated assuming 12-hours lasting day and the concentration of the  $\bullet\text{OH}$  radicals of  $1.5 \text{ E6} [\text{radicals}/\text{cm}^3]$ ,  **$\text{DT}_{50} = 29,594$  days**. That value is significantly longer than the  $\text{DT}_{50} = 2$  days. The results therefore indicate that FOE Thiadone in case of reaching the atmosphere in significant amounts, would pose a serious threat to that compartment. It would be prone to medium- or long-range transport in that compartment and therefore it may pose a threat of secondary pollution resulting from the wet and dry deposition from the atmosphere.

For that compound RMS was not able to identify any literature data dealing with its fate and behaviour in air. It shall however be indicated that FOE Thiadone was observed in soil in amounts not surpassing 10%. It was also demonstrated to be quickly degraded in that compartment. Additionally the results of the studies aimed on the examination of soil photolysis of FOE Thiadone showed that the compound would be mineralised to much greater extent that it could evaporate from soil surface (in irradiated samples within 14 days of the experiment only ~5% of the radioactivity applied was recovered as VOC fraction, in the dark control samples that amount was only ~2.5%). Also in the experiments with radiolabelled FOE Thiadone aimed on the determination of its persistence in aerobic soil under laboratory conditions the levels of radioactivity recovered as VOC fraction was low: 2 – 4%AR at the study's end (10 – 14 days after the experiment was initiated) with no more than 5% of the initial amount of FOE Thiadone remaining in soil. That may indicate, assuming that the VOC fraction is entirely FOE Thiadone, that despite its high vapour pressure the compound would not migrate to atmosphere from soil in amounts that may pose any threat to that compartment. Also not relevant may be considered the volatilisation from plants as the route of exposure, because that compound would probably not be formed as a transformation product of Flufenacet on plant surfaces.

The only potential route of exposure of air is volatilisation from SW bodies, where FOE Thiadone was demonstrated to be formed as a major degradation product, but at present there is no clear methodology to assess that issue.

The model assessment of the persistence of TFA in air showed that the compound would be persistent in air, with the half-life, calculated assuming 12-hours lasting day and the concentration of the  $\bullet\text{OH}$  radicals of  $1.5 \text{ E6} [\text{radicals}/\text{cm}^3]$ ,  **$\text{DT}_{50} = 20,569$  days**. That value is significantly longer than the  $\text{DT}_{50} = 2$  days, what indicates that TFA in case of reaching the atmosphere in significant amounts, would pose a serious threat to that compartment. It may also be prone to medium- or long-range transport in that compartment and therefore it may pose a threat of secondary pollution resulting from the wet and dry deposition from the atmosphere.

The Applicant did not submit any relevant data enabling the elucidation of the fate and behaviour of TFA in air compartment. However in the documentation submitted for the evaluation it was stated several times that the TFA formed as a degradation product of Flufenacet will be present as Trifluoroacetate – the dissociated form displaying very low volatility potential and as such not posing any substantial threat to the atmosphere.

The literature search performed by the RMS resulted in identification of several scientific papers addressing the issue of behaviour of TFA in the atmosphere, four of which dealt specifically with persistence, transformation mechanisms and mechanisms of elimination of TFA from air. On their basis it was possible to state that TFA clearly demonstrated high persistence in the atmosphere with the  $\text{DT}_{50}$  values for the process of photooxidative degradation initiated by the  $\bullet\text{OH}$  radicals as high as 230 days. The only relevant mechanism of elimination of TFA from that compartment would therefore be, predominantly, wet deposition – with rain or fog, with estimated  $\text{DT}_{50} = \sim 9$  days, and, to some extent also by dry deposition, with estimated  $\text{DT}_{50} = 10\text{-}30$  days. The identified products of photooxidative degradation of TFA in air initiated by the  $\bullet\text{OH}$  radicals are  $\text{COF}_2$  and FNO. It was also indicated that the dimerisation of TFA may be the factor limiting the rate of degradation of that compound in air in the process of photooxidative degradation initiated by the  $\bullet\text{OH}$  radicals.

The determination of the Henry's law constant for TFA demonstrated that the compound displayed high affinity towards water, therefore atmospheric water, either in form of clouds or as for, may be an effective sink for that compound. At the same time however it was postulated that the evaporation of TFA from water phase to air cannot be totally excluded.

The examination of the available literature data showed that the presence of the TFA in the atmosphere was not expected to be related to the degradation in that environmental compartment of the active substances of the plant protection products containing in their molecules the  $\text{CF}_3$ - functional groups, nor to the possible volatilisation from soil of TFA formed there as a result of degradation of such agrochemicals.

On the basis of the results obtained in the area of the examination of the fate and behaviour of Flufenacet and its major degradation products in air, as well as their transport via air it was stated that the further examination of the local and global effects related to their would be presence in air was not necessary.

**B.8.6.2. – Predicted environmental concentrations from airborne transport**

The results of the assessment presented in summarised form above showed that neither Flufenacet nor any of its identified major degradation products posed any significant threat to the air compartment. For that reason it was not necessary to calculate the  $PEC_{air}$  values.

**B. 8.7 – Predicted Environmental Concentrations from Other Routes of Exposure**

Flufenacet in the EU is intended to be used as a herbicide for spray application in Cereals. Therefore no routes of exposure other than those already evaluated above under the points B.8.2, B.8.3., B.8.5 and B.8.6 are expected to occur. As a result RMS is of the opinion that there is no need for further evaluation in this area.

**B. 8.8 – References relied on****Literature search:**

The Applicant carried out literature search, summarising its results in the document MCA section 9 as a following study report:

Derpmann J., Teubner. L.; **2014**: “*Summary of the literature data for Flufenacet*”; Bayer CropScience; Document MCA: Section 9 Literature Data Flufenacet (unpublished document No. M-482180-01-1); issuing date: 2014. 03. 18.

According to the Applicant it was performed in line with the recommendations given in the EFSA guidance document “Submission of scientific peer-reviewed open literature for the approval of pesticide active substances under Regulation (EC) No 1107/2009”, published in *EFSA Journal*, 2011, **9** (2), 2092.

RMS having verified the report stated that it complied with the Guidelines referred to, therefore from formal point of view it may be considered acceptable. The report is summarised in the document Vol. 3 B.8\_CA under the point B.8.6 – Open literature review.

The thorough examination of the Applicant’s report performed by the RMS showed, that at the initial stage 369 publications were found for flufenacet and 3120 for its metabolites, of which 3089 for trifluoroacetic acid (TFA). Of them for the detailed assessment were qualified 91 publications for flufenacet and 62 for its degradation products, 53 of which for TFA.

The detailed assessment resulted in identification of only nine publications relevant for the assessment - two for flufenacet and seven for TFA. No relevant open source publication relevant for the assessment was found for any of the remaining degradation products of flufenacet.

Examining the results presented in the report cited above RMS stated that:

- 1) Initial stage of the literature search – selection of the data bases, key words and phrases, time window and the rapid assessment of the results, was performed fully in line with the recommendations given in the EFSA Guidelines referred to above.
- 2) For the detailed assessment alongside the applied selection criteria, the full list of evaluated publications was provided in form of two tables – one presenting the publications identified as relevant, the second listing those found not relevant with rationale for their rejection. However, only for the publications considered relevant the Applicant provided information enabling their appropriate placing in the Assessment Report, as well as summaries and full texts. In case of rejected publications they were neither attributed to the relevant sections of the Report nor, at least, their summaries were provided, what would enable the verification of the correctness of Applicant’s selection.

In light of the doubts related to the results of detailed assessment performed by the Applicant – Bayer CropSciences, RMS repeated the literature search using the search criteria similar to those applied by the Applicant. The only difference was that the search was not limited to the last ten years predating the application (i. e. covering the period 2003 – 2013), but was broader, what enabled to find earlier or later publications, not found by the BCS.

The results of the literature search performed by the RMS are presented in the document Vol. 3 B.8\_CA under the point B.8.6 – Open literature review, under the summary of the report on the literature search submitted by the Applicant – Bayer CropSciences.

Additionally in this data point under the letter “b” are listed, in form of the table, the peer-reviewed publications found relevant for the current evaluation and encompassing falling under any of the data points listed in this section of the Assessment Report.

a) studies submitted by the Notifier:

Data point (OECD-format)	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study yes/no	Data protection claimed yes/no	Justification if data protection is claimed	Owner <sup>*)</sup>	Previous evaluation
KCA 7.1.2.1.1./21; KCP 9.1.3.	Reinken G. Porschewski R.,	2014g	“Flufenacet Core PECsoil and Accumulation: Modelling Core Info Document for Soil Exposure Assessment in Europe.”; Bayer CropScienceAG, Environmental Safety, Alfred-Nobel-Straße 50, 40789 Monheim, Germany, unpublished Report No. EnSa-13-1007; 2014. 02. 25.; Study reference number: M-478418-01-1; GLP: no, not applicable (modelling study); Unpublished study;	No	Yes	Justification not provided by the Applicant, however should apply the provisions of the of Article 59, § 1, subparagraph 7 of the Regulation (EC) 1107/2009, stating that “ <i>A study shall also be protected if it was necessary for renewal or review of authorisation.</i> As this is a new study, should apply the rules set for the new/newly submitted studies.	BCS	Study is submitted specifically for this evaluation.
KCA 7.1.2.1.1./22; KCP 9.2.4.1.	Reinken G. Porschewski R.,	2014h	“Flufenacet Core PECgw FOCUS EU: Modelling Core Info Document for Groundwater Risk Assessment in Europe.”; Bayer CropScienceAG, Environmental Safety, Alfred-Nobel-Straße 50, 40789 Monheim, Germany, unpublished Report No. EnSa-13-1006; 2014. 02. 25.; Study reference number: M-478214-01-1; GLP: no, not applicable (modelling study); Unpublished study;	No	Yes	Justification not provided by the Applicant, however should apply the provisions of the of Article 59, § 1, subparagraph 7 of the Regulation (EC) 1107/2009, stating that “ <i>A study shall also be protected if it was necessary for renewal or review of authorisation.</i> As this is a new study, should apply the rules set for the new/newly submitted studies.	BCS	Study is submitted specifically for this evaluation.

Data point (OECD-format)	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study yes/no	Data protection claimed yes/no	Justification if data protection is claimed	Owner <sup>*)</sup>	Previous evaluation
KCP 9.2.5.	Reinken G. Porschewski R.,	2014h	“Flufenacet Core PECsw FOCUS EU: Modelling Core Info Document for Standard FOCUS STEP 1-2 and STEP 3-4 Surface Water Exposure Assessment in Europe.”; Bayer CropScience AG, Environmental Safety, Alfred-Nobel-Strasse 50, 40789 Monheim, Germany; Study Report No. EnSa-13-1008; 25. 02. 2014; study reference number: M478438-01-1; GLP: no, not applicable (modelling study); Unpublished study;	No	Yes	Justification not provided by the Applicant, however should apply the provisions of the of Article 59, § 1, subparagraph 7 of the Regulation (EC) 1107/2009, stating that “ <i>A study shall also be protected if it was necessary for renewal or review of authorisation.</i> As this is a new study, should apply the rules set for the new/newly submitted studies.	BCS	Study is submitted specifically for this evaluation.
KCA 9; KCP 11	Derpmann J., Teubner L.,	2014	“Summary of the literature data for Flufenacet”; Bayer Crop Science; BCS report No. M-482180-01-1; GLP: no, not required; Unpublished Report;	No	Yes	Justification not provided by the Applicant,	BCS	Report submitted specifically for this evaluation, to meet the requirement set by the Article 8(5) of the EU Regulation 1107/2009

b) Open- source literature used in the evaluation:

None identified.

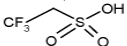

c) other documents relevant for the evaluation

- Draft Assessment Report for Flufenacet prepared by the RMS – France in support for the inclusion of this compound into Annex I of the Council Directive 91/414/EEC and Addenda to it;
- Review Report for the active substance flufenacet – Flufenacet 7469/VI/98-final, 3 July 2003;

## B.8.9 - Appendices

## B.8.9.-A.1 – Appendix 1: List of evaluated compounds

Common name/ codename	Chemical (CAS or IUPAC) name	Structural formula	Molecular weight [g/mole]	Function	Occurrence
<i>Flufenacet (formerly fluthiamide)/ FOE5043</i>	N-(4-Fluorophenyl)-N-isopropyl-2-[[5-(trifluoromethyl)-1,3,4-thiadiazol-2-yl]oxy]acetamide		363.4	Active substance	Soil, water, sediment, air
<i>Flufenacet – N-Isomer</i>	N-(4-Fluorophenyl)-N-(1-methylethyl)-2-[2-oxo-5-(trifluoromethyl)-1,3,4-thiadiazol-3-yl]acetamide		363.4	Impurity of Flufenacet	Soil, water, sediment,
<i>FOE Alcohol</i>	N-(4-Fluorophenyl)-2-hydroxy-N-(1-methylethyl)acetamide		211.2	Metabolite of Flufenacet	Soil (major),
<i>FOE Oxalate</i>	[(4-Fluorophenyl) (1-methylethyl) amino] oxoacetic acid		225.2	Metabolite of Flufenacet	Soil (major),
<i>FOE Sulfoxide acid</i>	2-[(4-Fluorophenyl) (1-methylethyl) amino]-2-oxoethylsulfonic acid		275.3	Metabolite of Flufenacet	Soil (major),
<i>FOE Methylsulfoxide</i>	N-(4-Fluorophenyl)-N-(1-methylethyl)-2-(methylsulfinyl)acetamide		257.3	Metabolite of Flufenacet	Soil (major),
<i>FOE Methylsulfone</i>	N-(4-Fluorophenyl)-N-(1-methylethyl)-2-(methylsulfonyl)acetamide		273.3	Metabolite of Flufenacet	Soil (minor),
<i>FOE Methylsulfide</i>	N-(4-Fluorophenyl)-N-(1-methylethyl)-2-(methylthio)acetamide		241.0	Metabolite of Flufenacet	Water and sediment (major)
<i>FOE Thioglycolate sulfoxide</i>	4-Fluoro-N-methylethylaniline sulfenyldiacetic acid amide		315.4	Metabolite of Flufenacet	Soil (minor),
<i>FOE Thioglycolate</i>	4-Fluoro-N-methylethylaniline thiodiacetic acid amide		285.3	Metabolite of Flufenacet	Soil (minor),
<i>FOE Chloroacetanilide</i>	N-(4-Fluorophenyl)-2-chloro-N-(1-methylethyl)acetamide		229.7	Metabolite of Flufenacet	Soil (minor),
<i>FOE Thiadone</i>	5-(trifluoromethyl)-1,3,4-thiadiazol-2(3H)-one		170.1	Metabolite of Flufenacet	Soil (major),

Common name/ codename	Chemical (CAS or IUPAC) name	Structural formula	Molecular weight [g/mole]	Function	Occurrence
<i>FOE 5043- Trifluoroethane- sulfonic acid</i>	2,2,2-Trifluoroethane- Sulfonic acid		164.1	Metabolite of Flufenacet	Soil (major),
<i>Trifluoroacetic acid (TFA)</i>	Trifluoroacetic acid		114.02	Metabolite of Flufenacet	Soil (major),

**B.8.9.-A.2 – Appendix 2: Abbreviations and symbols used in the text:**

<i>Symbol/term/ abbreviation</i>	<i>Meaning</i>
<b>AR</b>	Applied Radioactivity
<b>a. s.</b>	active substance
<b>approx.</b>	approximate/approximately
<b>aver.</b>	average
<b>BBCH</b>	BBCH scale or BBCH codes – a scale, and corresponding codes, used to describe phenologic growth phases for mono- and dicotyledonous plants (the abbreviation derived from the names of the organisations that developed the scale – <b>B</b> BA, <b>B</b> SA and <b>C</b> hemical Industry)
<b>c</b>	centi- ( $\times 10^{-2}$ ), e. g. centimetre (cm, $10^{-2}$ metre)
<b>°C</b>	degree Celsius
<b>C<sub>org</sub></b>	Organic carbon content
<b>CEC</b>	Cation Exchange Capacity
<b>Ci</b>	Curie, the non-SI unit of the activity of radiation
<b>CI</b>	Confidence Interval; also Crop Interception factor
<b>cfu</b>	colony forming units – unit for counting microbial activity in the given matrix
<b>d</b>	days
<b>DAT</b>	Days After Treatment
<b>DAF</b>	Days After Flooding - a term used in soil anaerobic degradation study
<b>DFOP</b>	Double First Order in Parallel – one of the bi-phasic kinetic models within the 1 <sup>st</sup> order kinetics
<b>dpm</b>	decays per minute
<b>DT<sub>50</sub></b>	Period required for 50 percent degradation or dissipation
<b>DT<sub>90</sub></b>	Period required for 90 percent degradation or dissipation
<b>E<sub>h</sub></b>	Redox potential [mV]
<b>EU</b>	European Union
<b>Eq (mEq)</b>	Equivalent/milieuivalent – one of the alternative quantity unit
<b>equiv.</b>	equivalent (abbreviation commonly used in the summary of the lysimeter study)
<b>FAO</b>	Food and Agriculture Organisation of the UN
<b><i>ff</i></b>	kinetic formation fraction,
<b>FOCUS</b>	Forum for the Co-ordination of Pesticide Fate Models and their Use
<b>FOMC</b>	First Order Multi-Compartment – one of the bi-phasic kinetic models within the 1 <sup>st</sup> order kinetics
<b>g</b>	gram – the non-SI basic unit of weight (equal to 0.001 kg)
<b>GAP</b>	Good Agricultural Practice, here used to denominate the table containing the data on application of the given plant protection product/active substance (standard technical term)
<b>Gy</b>	Gray – the SI unit of absorbed dose
<b>ha</b>	hectare
<b>HPLC</b>	High Performance Liquid Chromatography
<b>hr</b>	hours
<b>HS</b>	Hockey Stick – one of the bi-phasic kinetic models within the 1 <sup>st</sup> order kinetics
<b><i>k</i></b>	degradation rate constant [days <sup>-1</sup> ]
<b>k</b>	kilo ( $\times 10^4$ )
<b>kg</b>	kilogram – the basic SI unit of weight (1 kg = 1000 g)
<b>L</b>	Litre
<b>LC</b>	Liquid chromatography
<b>LC/MS</b>	Liquid chromatography with mass spectrometry detection
<b>LC/MS/MS</b>	Liquid chromatography with double mass spectrometry detection
<b>LOD</b>	Limit of Detection
<b>LOQ</b>	Limit of Quantitation
<b>LSC</b>	Liquid scintillation counting
<b>m</b>	metre
<b>m</b>	in front any unit milli- ( $\times 10^{-3}$ ), milligram ( $10^{-3}$ gram)
<b>mg</b>	milligram
<b>mL</b>	millilitre
<b>mm</b>	millimetre
<b>M</b>	Molar
<b>M<sub>0</sub></b>	Initial concentration, expressed on the weight basis
<b>min.</b>	minute; also minimum or minimal
<b>MS</b>	Member State
<b>MWHC</b>	Maximum Water Holding Capacity
<b>n</b>	in front any unit nano- ( $\times 10^{-9}$ ), e. g. nanogram ( $10^{-9}$ gram)
<b>ng</b>	nanogram
<b>nm</b>	nanometre
<b>N</b>	normal, an old way of expressing the concentration in liquids (used mainly for acids and bases), a

<i>Symbol/term/ abbreviation</i>	<i>Meaning</i>
	concentration of 1g equivalent/dm <sup>3</sup>
<b>NER</b>	Non-Extractable residues
<b>NP-</b>	Normal Phase (for TLC analysis)
<b>ode</b>	oven dry equivalent
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>Pa</b>	Pascal – SI unit of pressure
<b>PEC</b>	Predicted Environmental Concentrations
<b>pH</b>	the acidity logarithmic scale
<b>PNAP</b>	<i>p</i> -nitroacetophenone
<b>Pow/Kow</b>	Octanol/water partition coefficient
<b>PTFE</b>	polytetrafluorethylene
<b>pyr</b>	pyridine
<b>r</b>	correlation coefficient
<b>r<sup>2</sup>/R<sup>2</sup></b>	coefficient of determination
<b>RMS</b>	Rapporteur Member State
<b>RP-</b>	Reversed Phase (for TLC and HPLC analysis)
<b>RP-HPLC</b>	Reversed Phase High Performance Liquid Chromatography
<b>RSD</b>	relative standard deviation
<b>s/sec.</b>	second
<b>S</b>	(also) Siemens – the conductivity unit
<b>SD/s</b>	standard deviation
<b>S<sub>aq</sub></b>	Solubility in water
<b>SFO</b>	Single First Order kinetics – a kinetic model within the 1 <sup>st</sup> order kinetics
<b>SPE</b>	Solid phase extraction
<b>T</b>	temperature
<b>TIC</b>	Total Inorganic Carbon
<b>TLC</b>	Thin Layer Chromatography
<b>TOC</b>	Total Organic Carbon
<b>TRR</b>	Total Radioactive Residue
<b>TWA</b>	Time-Weighted Average (concentration)
<b>UK</b>	United Kingdom <i>of Great Britain and Northern Ireland</i> (specific technical term)
<b>US</b>	United States <i>of America</i> (specific technical term)
<b>USDA</b>	United States Department of Agronomy
<b>UV</b>	Ultraviolet radiation – the radiation within the wavelength range of 200-400 nm
<b>UV-Vis</b>	Ultraviolet – Visible radiation – the radiation within the wavelength range of 200-800 nm
<b>Vis</b>	Visible radiation – the radiation within the wavelength range of 400-800 nm
<b>ver.</b>	version
<b>v/w</b>	volume-to-weight ratio
<b>V</b>	Volt – the SI unit of electric potential
<b>V<sub>p</sub></b>	Vapour pressure [Pa]
<b>WHC</b>	Water Holding Capacity
<b>γ–</b>	Gamma, Greek letter, used here to denominate the gamma radiation
<b>μ</b>	in front of any unit - micro (x10 <sup>-6</sup> ), e.g. micrometer (μm), microgram (μg) or microlitre (μL)
<b>λ</b>	Lambda, Greek letter used here to denominate the wavelength

### B.8.9.-A.3 – Appendix 3: The graphical presentation of the calculation of PEC<sub>SOIL</sub> values:

- a. The graphical results of the calculations obtained for a single use in Winter cereals and application rate 240 g Flufenacet/ha:

The results are provided below on figures B.8.9.-A.3.\_CP-1 – B.8.9.-A.3.\_CP-5.

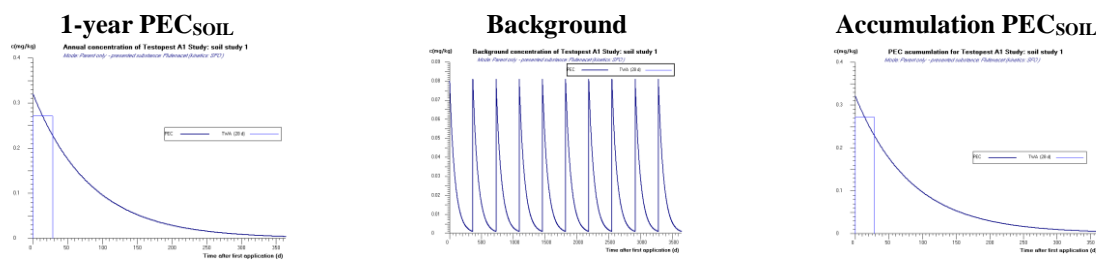


Figure B.8.9.-A.3.\_CP-1: The graphical results of the calculations for Flufenacet alone.

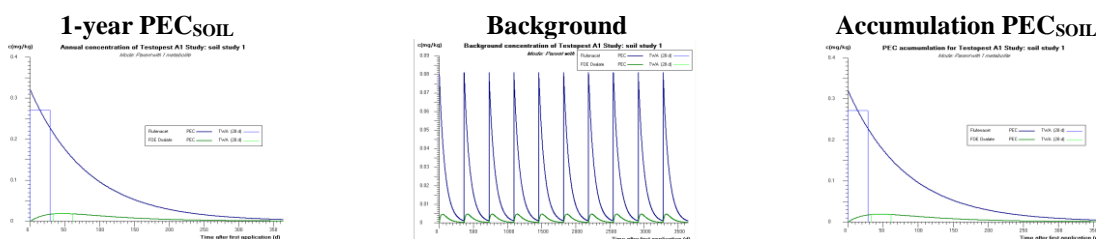


Figure B.8.9.-A.3.\_CP-2: The graphical results of the calculations for Flufenacet and FOE Oxalate.

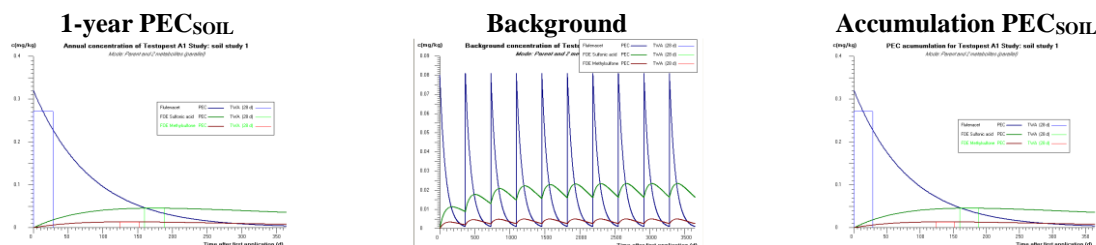


Figure B.8.9.-A.3.\_CP-3: The graphical results of the calculations for Flufenacet, FOE Sulfonic acid and FOE Methylsulfone

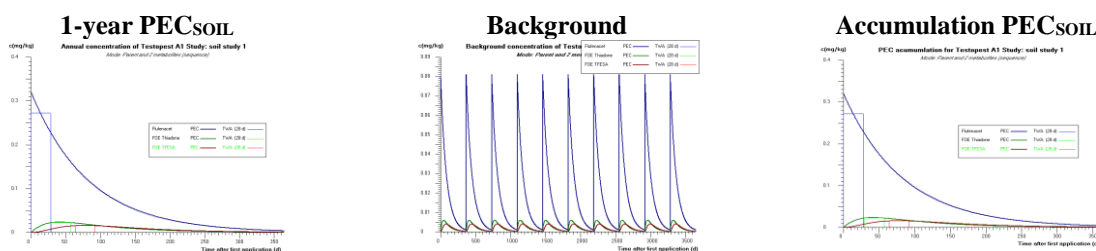
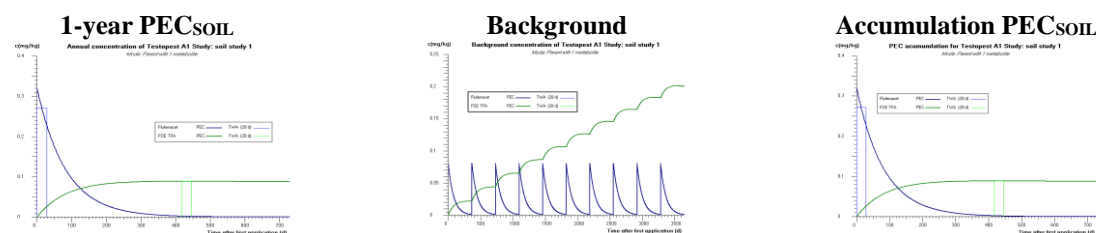


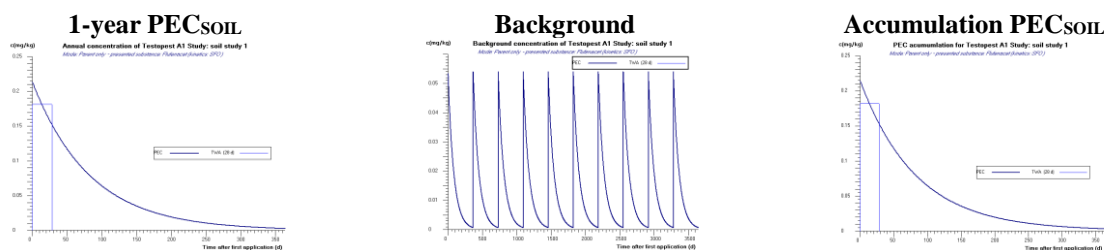
Figure B.8.9.-A.3.\_CP-4: The graphical results of the calculations for Flufenacet, FOE Thiadone and FOE 5043-Trifluoroethanesulfonic acid.



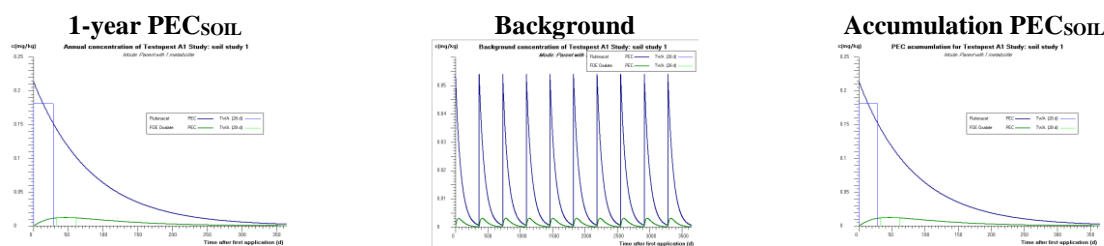
**Figure B.8.9.-A.3.\_CP-5:** The graphical results of the calculations for Flufenacet and Trifluoroacetic acid (TFA).

- b. The graphical results of calculations obtained for a single use in Winter cereals and application rate 160 g Flufenacet/ha:

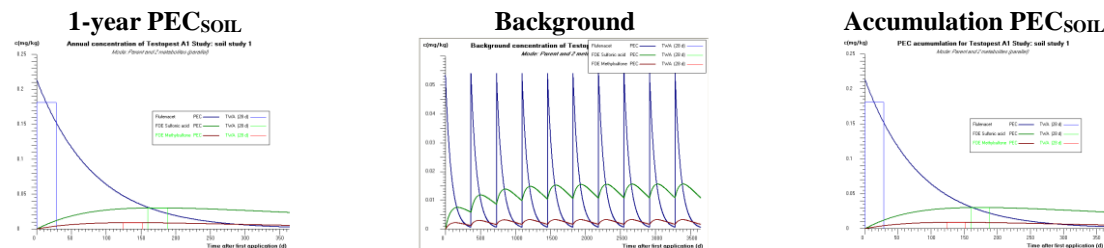
The results are provided below on figures B.8.9.-A.3.\_CP-6 – B.8.9.-A.3.\_CP-10.



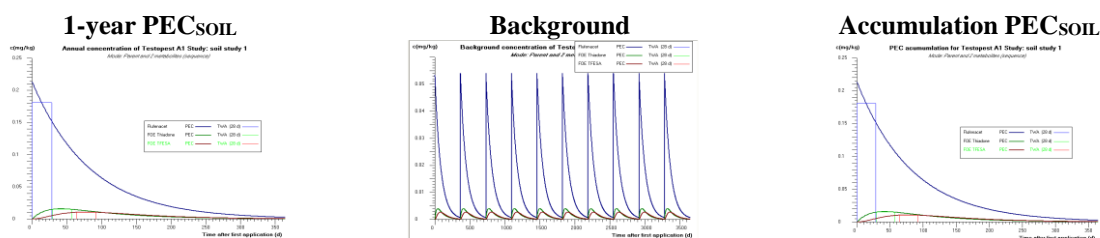
**Figure B.8.9.-A.3.\_CP-6:** The graphical results of the calculations for Flufenacet alone.



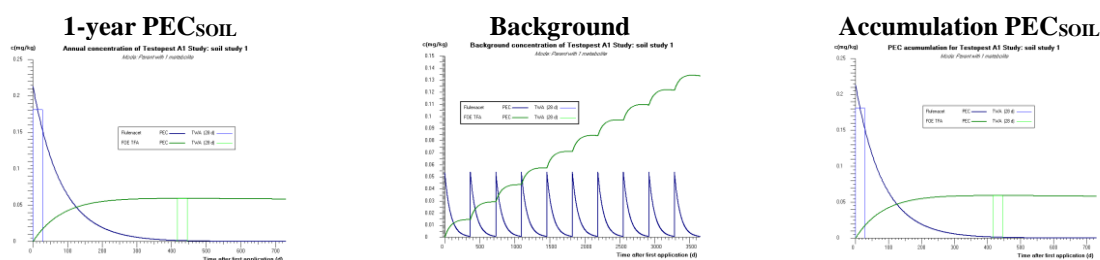
**Figure B.8.9.-A.3.\_CP-7:** The graphical results of the calculations for Flufenacet and FOE Oxalate.



**Figure B.8.9.-A.3.\_CP-8:** The graphical results of the calculations for Flufenacet, FOE Sulfonic acid and FOE Methylsulfone



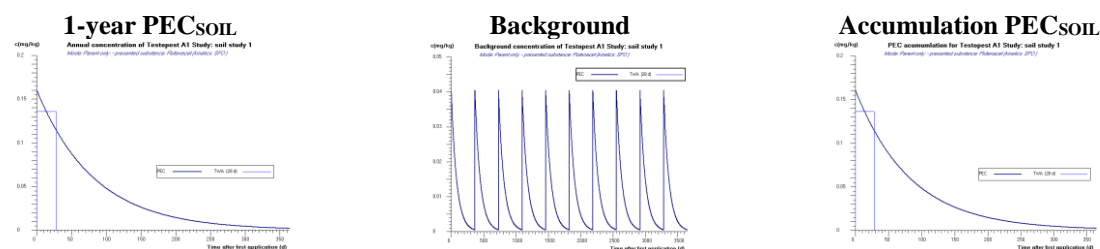
**Figure B.8.9.-A.3.\_CP-9:** The graphical results of the calculations for Flufenacet, FOE Thiadone and FOE 5043-Trifluoroethanesulfonic acid.



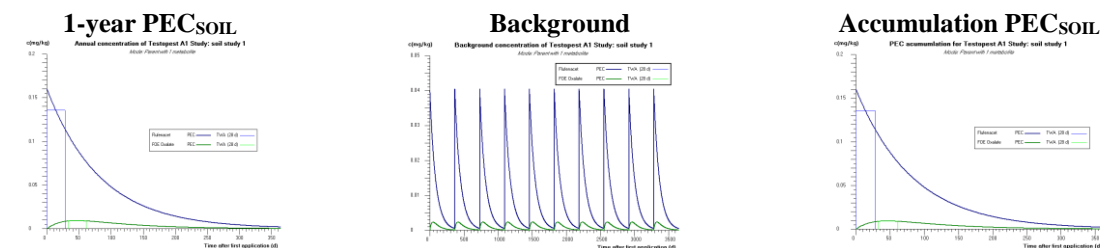
**Figure B.8.9.-A.3.\_CP-10:** The graphical results of the calculations for Flufenacet and Trifluoroacetic acid (TFA).

- c. The graphical results of calculations obtained for a single use in Winter cereals and application rate 120 g Flufenacet/ha:

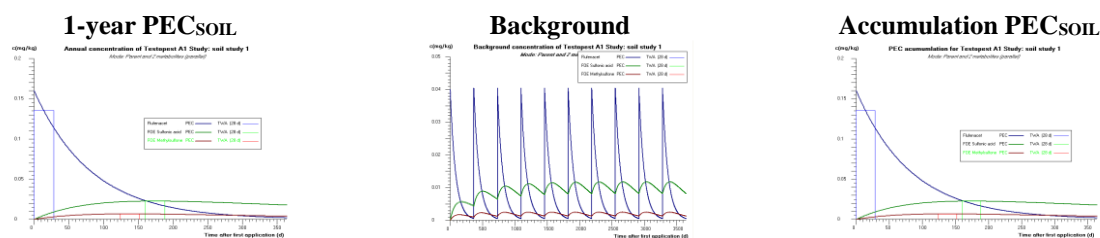
The results are provided below on figures B.8.9.-A.3.\_CP-11 – B.8.9.-A.3.\_CP-15.



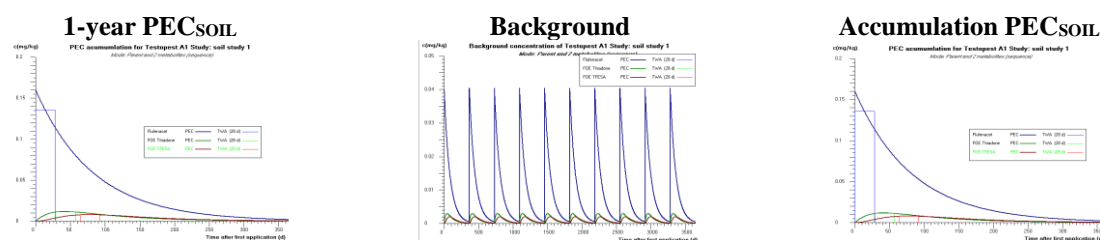
**Figure B.8.9.-A.3.\_CP-1:** The graphical results of the calculations for Flufenacet alone.



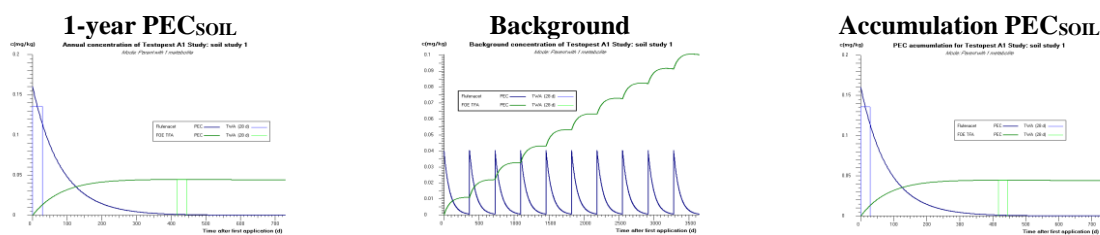
**Figure B.8.9.-A.3.\_CP-2:** The graphical results of the calculations for Flufenacet and FOE Oxalate.



**Figure B.8.9.-A.3.\_CP-3:** The graphical results of the calculations for Flufenacet, FOE Sulfonic acid and FOE Methylsulfone



**Figure B.8.9.-A.3.\_CP-4:** The graphical results of the calculations for Flufenacet, FOE Thidone and FOE 5043-Trifluoroethanesulfonic acid.

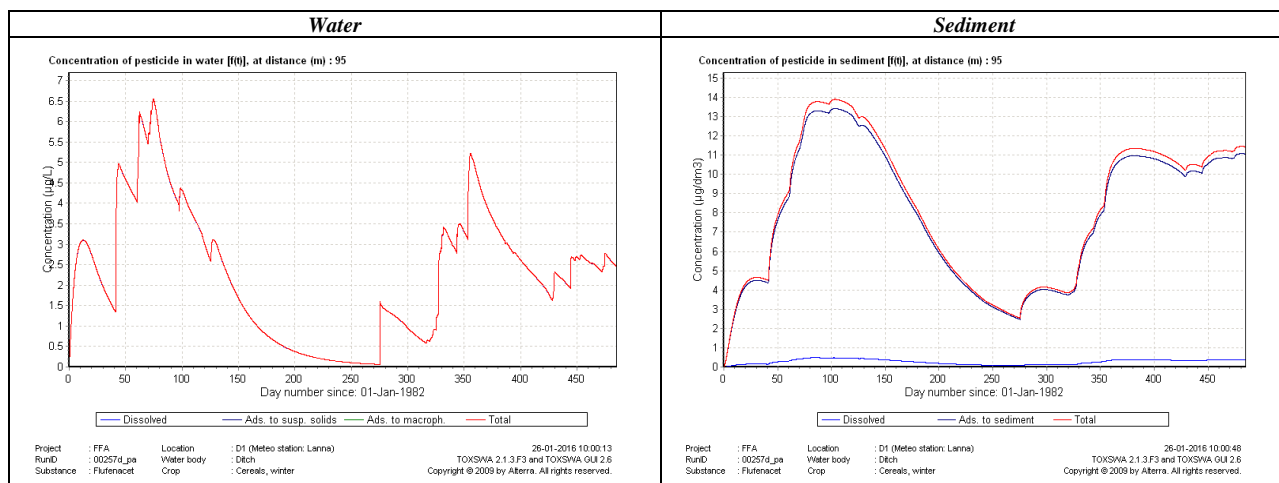


**Figure B.8.9.-A.3.\_CP-5:** The graphical results of the calculations for Flufenacet and Trifluoroacetic acid (TFA).

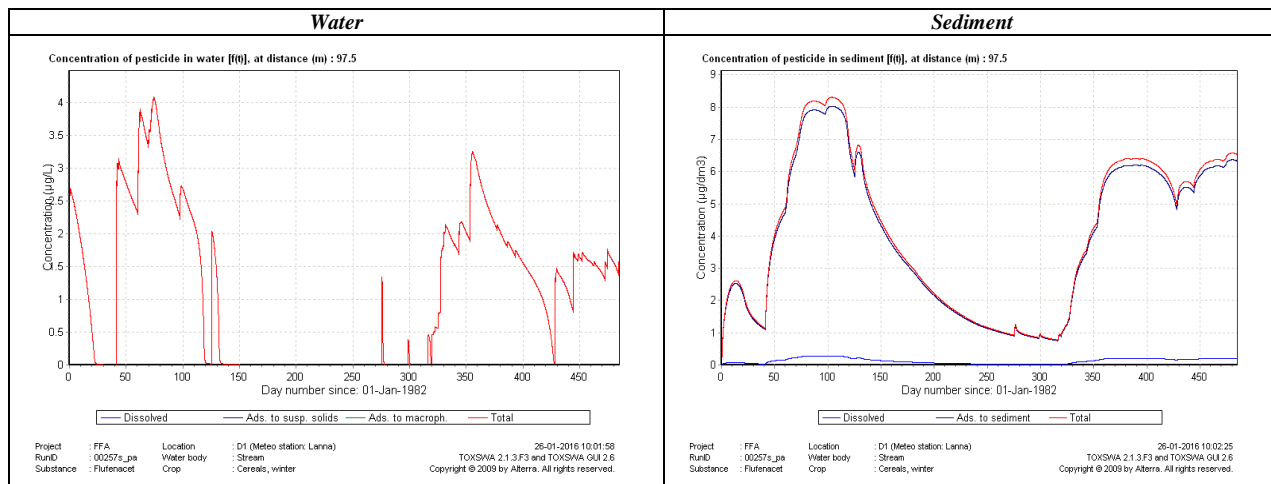
**B.8.9.-A.4 – Appendix 4: The graphical presentation of the Step-3 results of PEC<sub>SW</sub> calculations:**

- a. Results obtained for the post-emergence use in Winter Cereals in autumn, at application rate 240 g/ha:

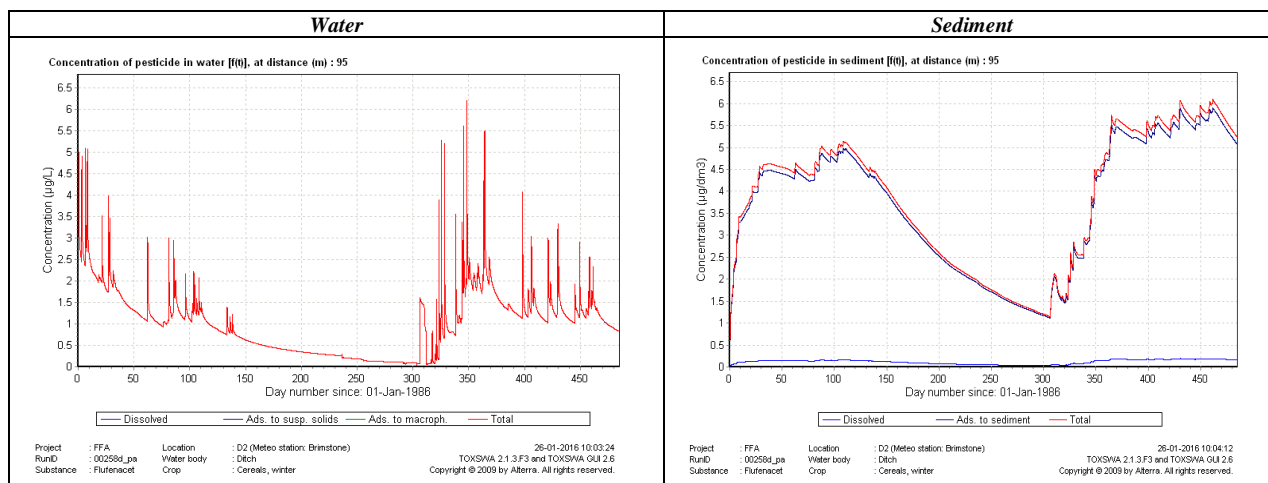
The results – concentration profiles in water and sediment phases, are presented below, separately for each scenario, on figures B.8.9.-A.4.\_CP-1 – B.8.9.-A.4.\_CP-14.



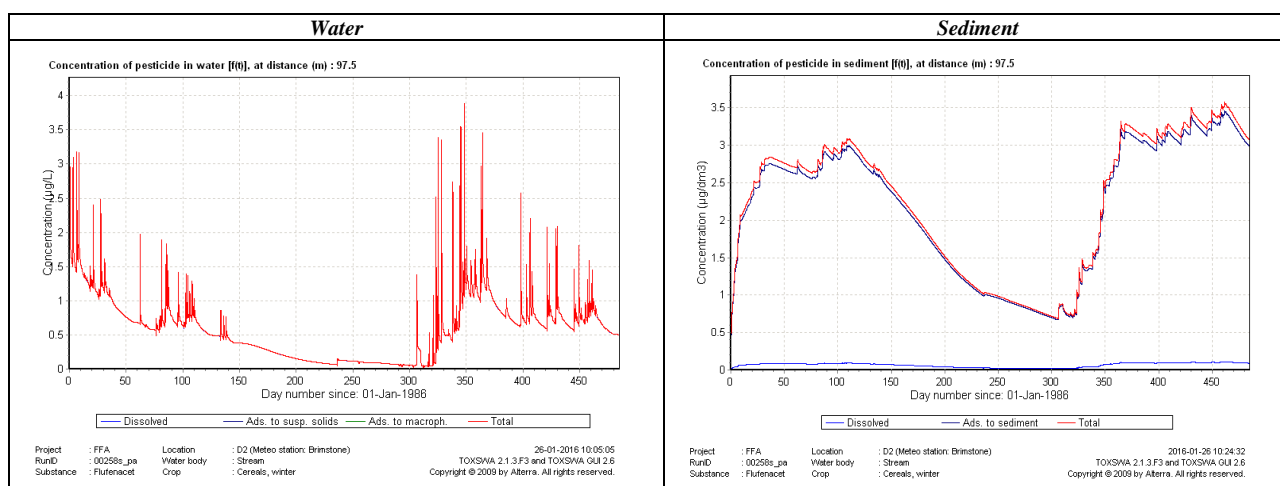
**Figure B.8.9.-A.4.\_CP-1:** The graphical results of estimation of PEC<sub>SW</sub> and PEC<sub>SED</sub> obtained for the FOCUS SW scenario **D1 ditch**.



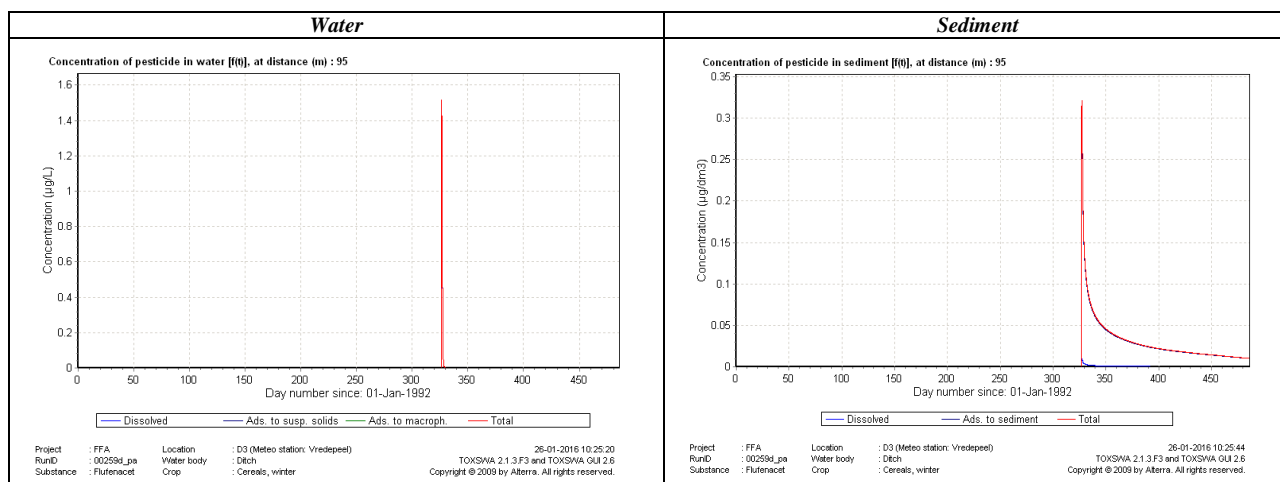
**Figure B.8.9.-A.4.\_CP-2:** The graphical results of estimation of PEC<sub>SW</sub> and PEC<sub>SED</sub> obtained for the FOCUS SW scenario **D1 stream**.



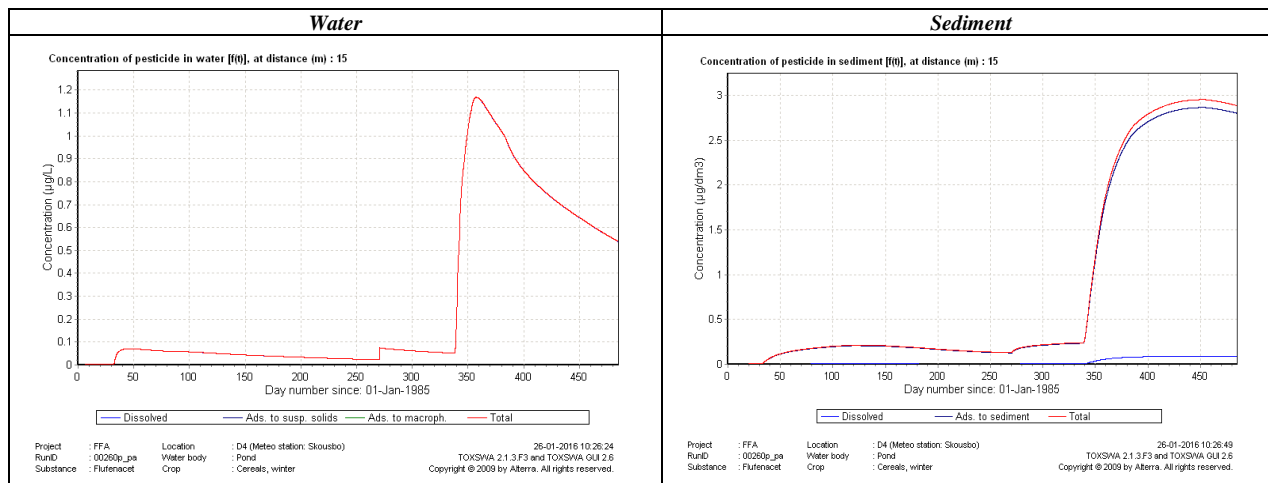
**Figure B.8.9.-A.4.\_CP-3:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D2 ditch.**



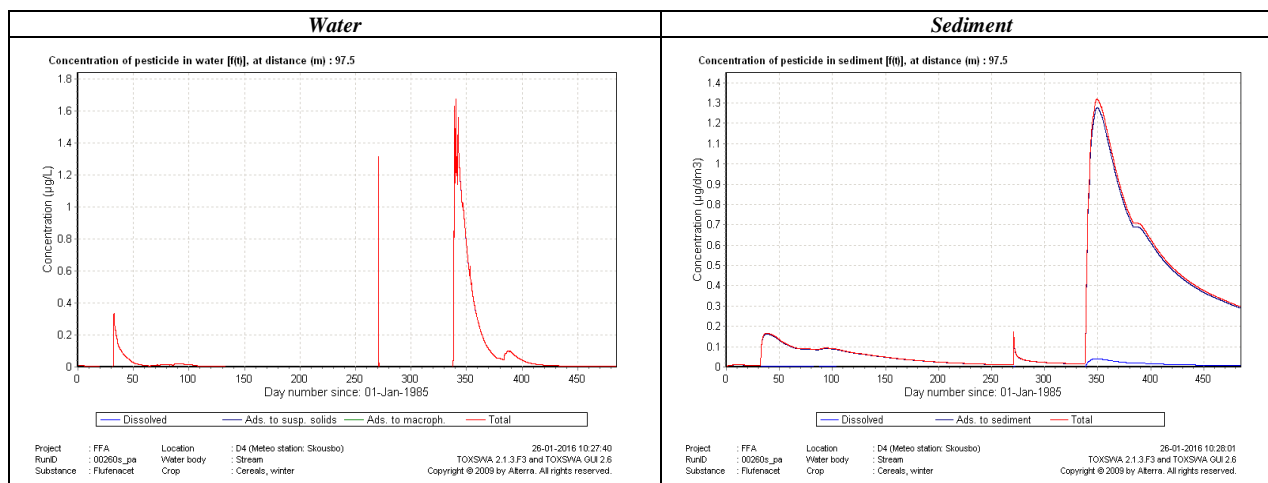
**Figure B.8.9.-A.4.\_CP-4:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D2 stream.**



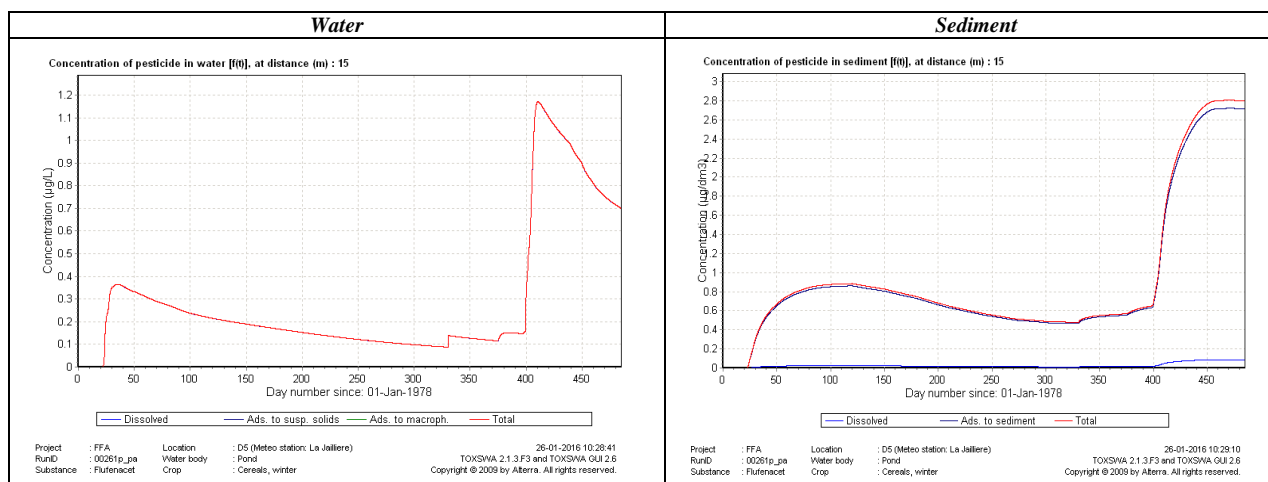
**Figure B.8.9.-A.4.\_CP-5:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D3 ditch.**



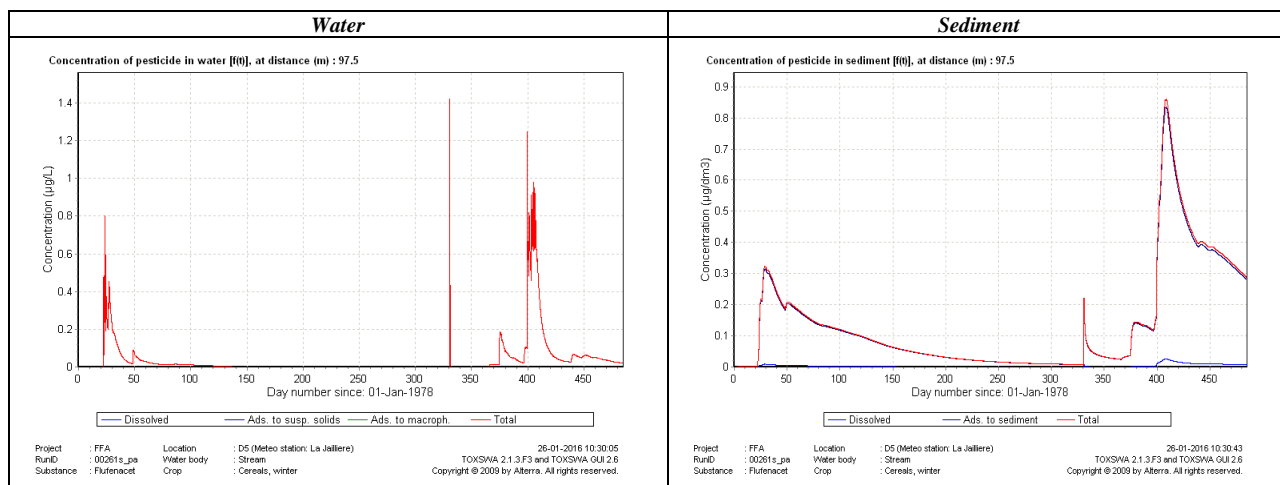
**Figure B.8.9.-A.4.\_CP-6:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 pond**.



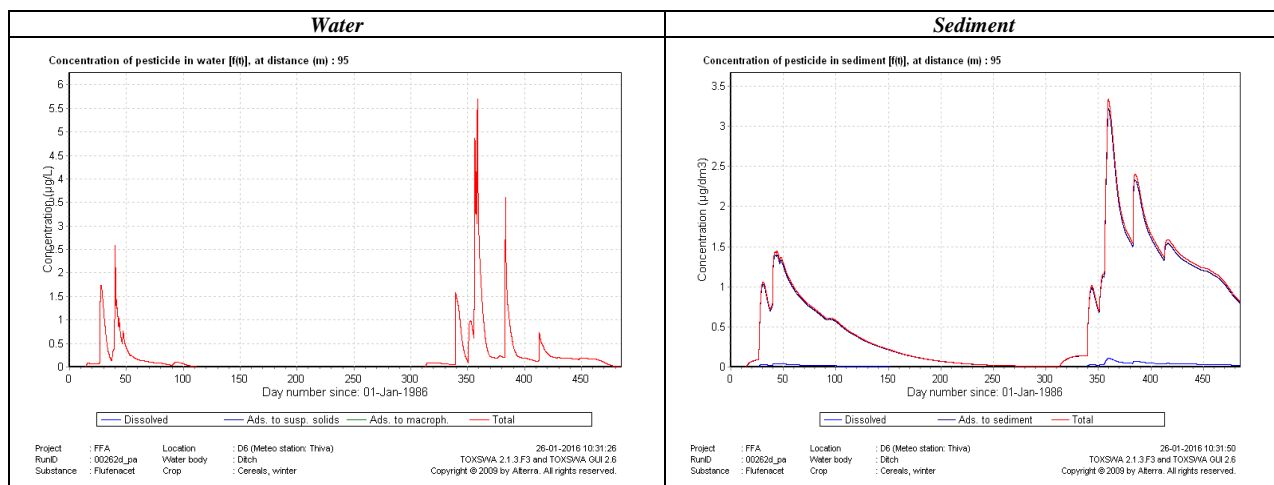
**Figure B.8.9.-A.4.\_CP-7:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 stream**.



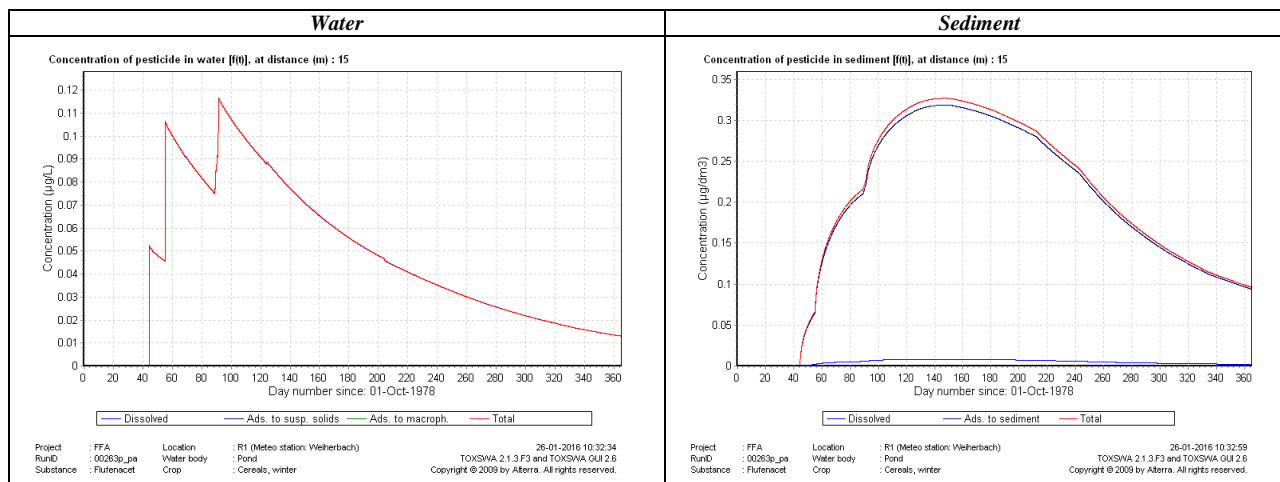
**Figure B.8.9.-A.4.\_CP-8:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D5 pond**.



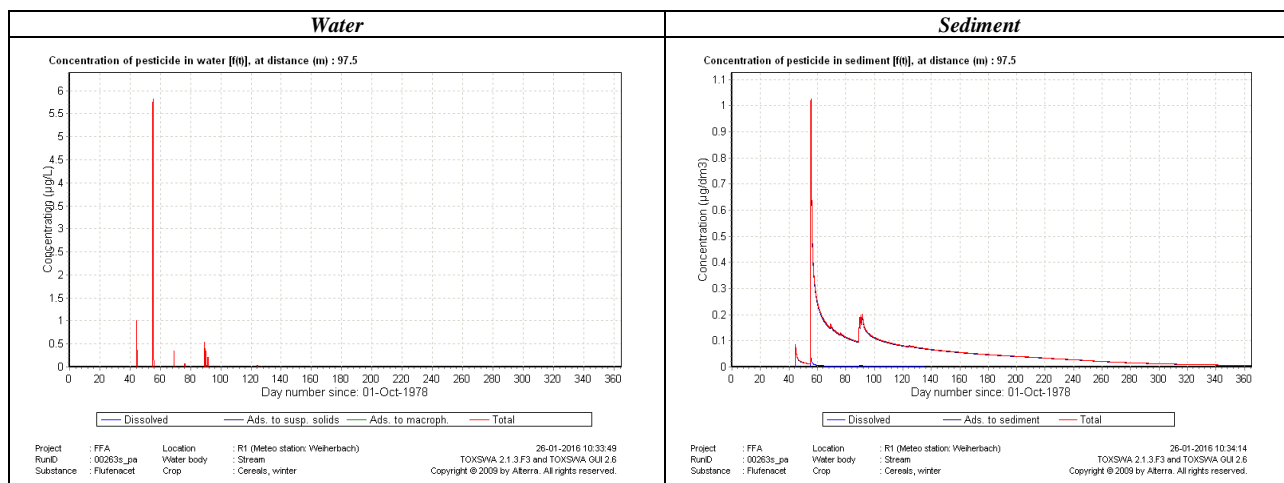
**Figure B.8.9.-A.4.\_CP-9:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D5 stream**.



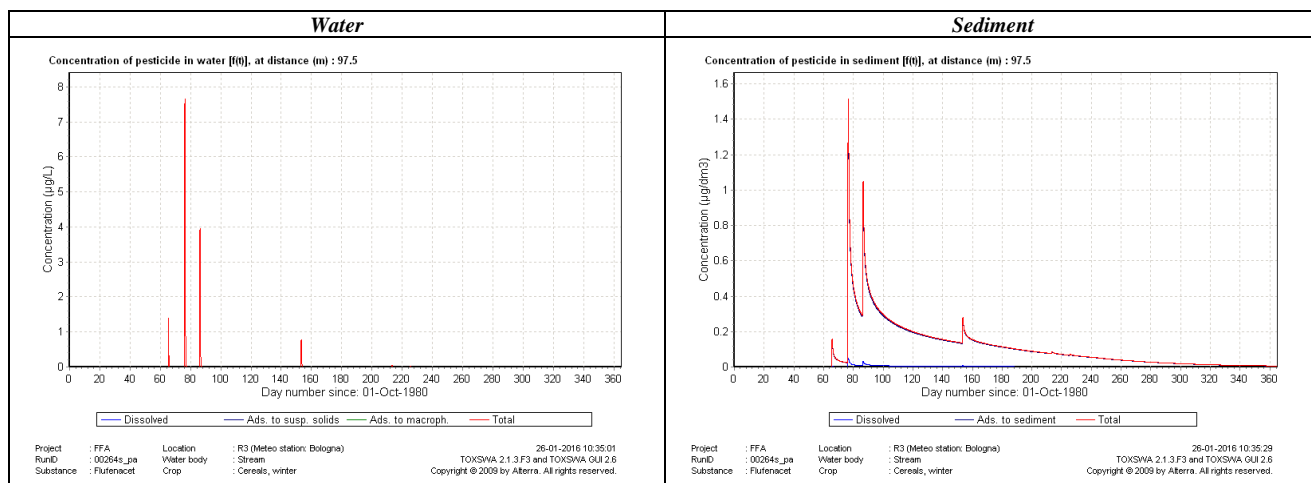
**Figure B.8.9.-A.4.\_CP-10:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D6 ditch**.



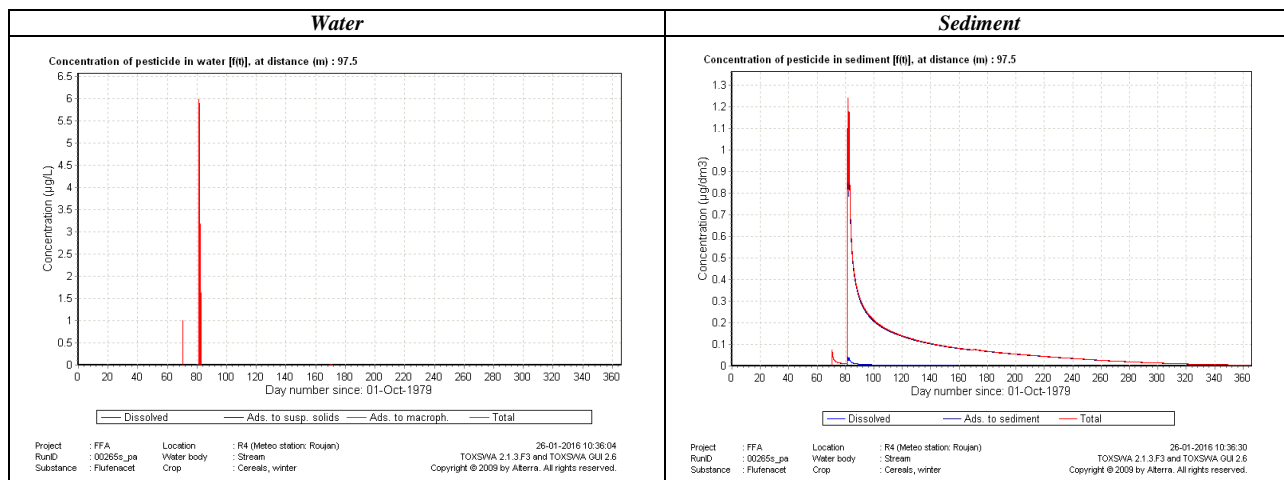
**Figure B.8.9.-A.4.\_CP-11:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R1 pond**.



**Figure B.8.9.-A.4.\_CP-12:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R1 stream**.



**Figure B.8.9.-A.4.\_CP-13:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R3 stream**.



**Figure B.8.9.-A.4.\_CP-14:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R4 stream**.

- b. Results obtained for the post-emergence use in Winter Cereals in autumn, at application rate 160 g/ha:

The results – concentration profiles in water and sediment phases, are presented below, separately for each scenario, on figures B.8.9.-A.15.\_CP-15 – B.8.9.-A.4.\_CP-28.

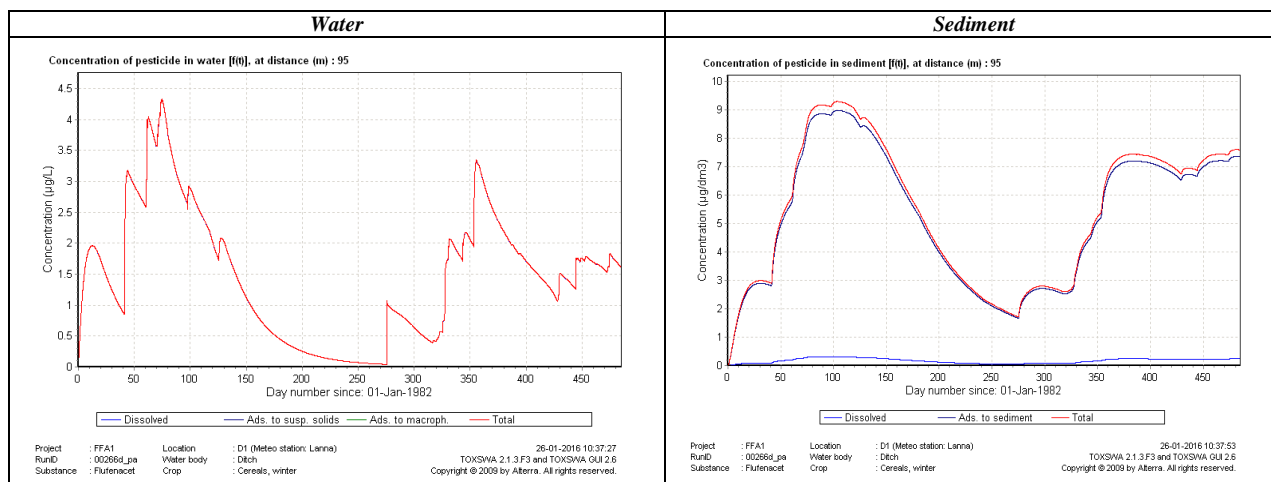


Figure B.8.9.-A.4.\_CP-15: The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D1 ditch.

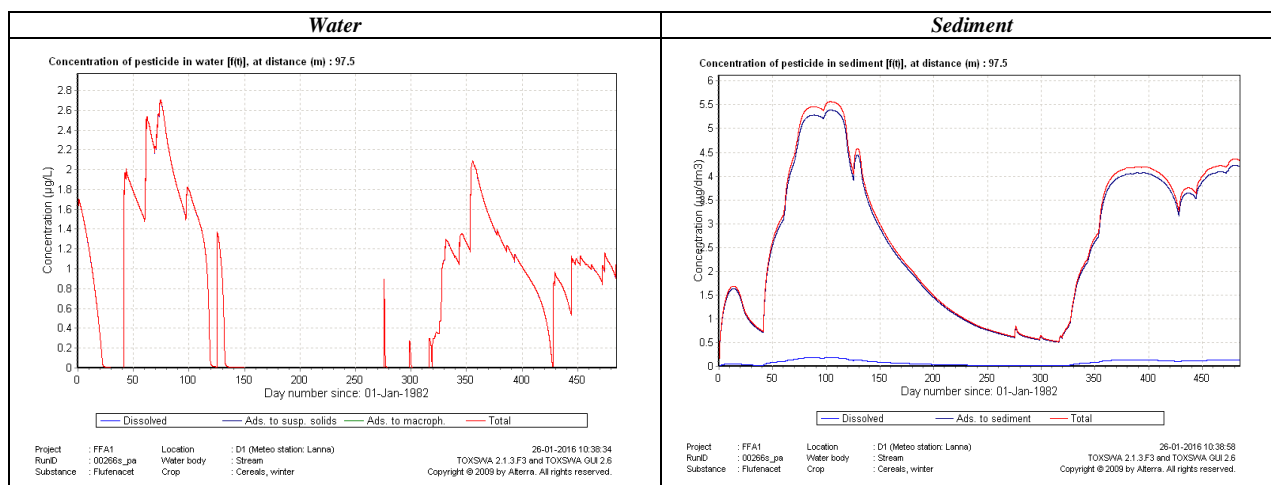
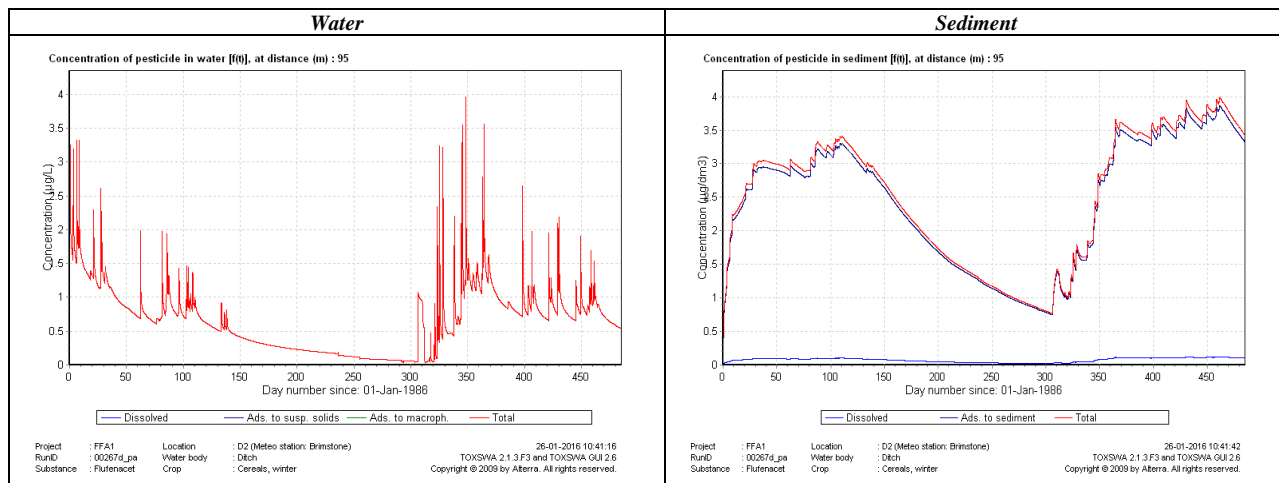
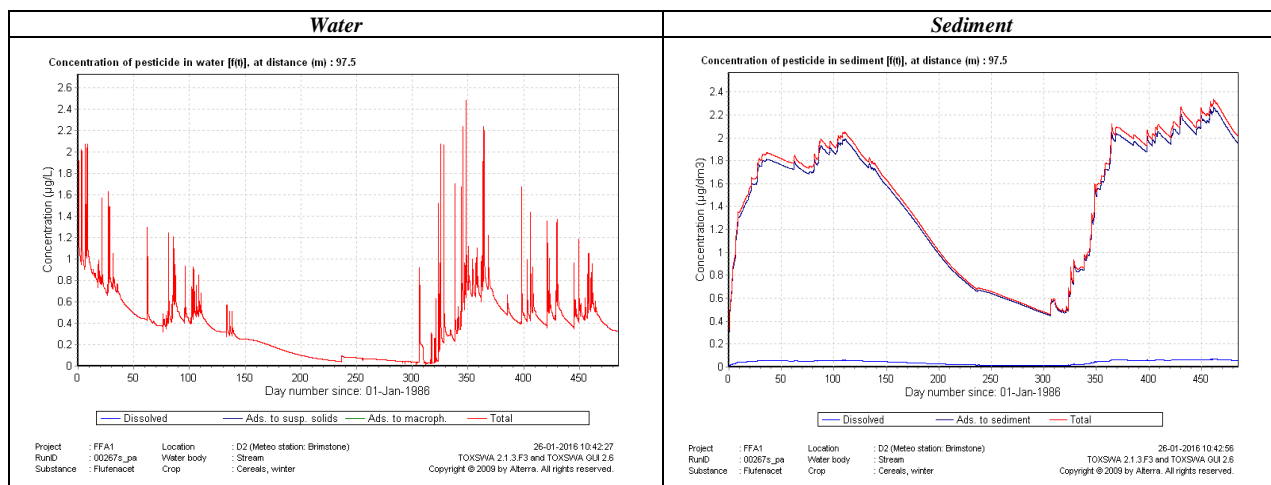


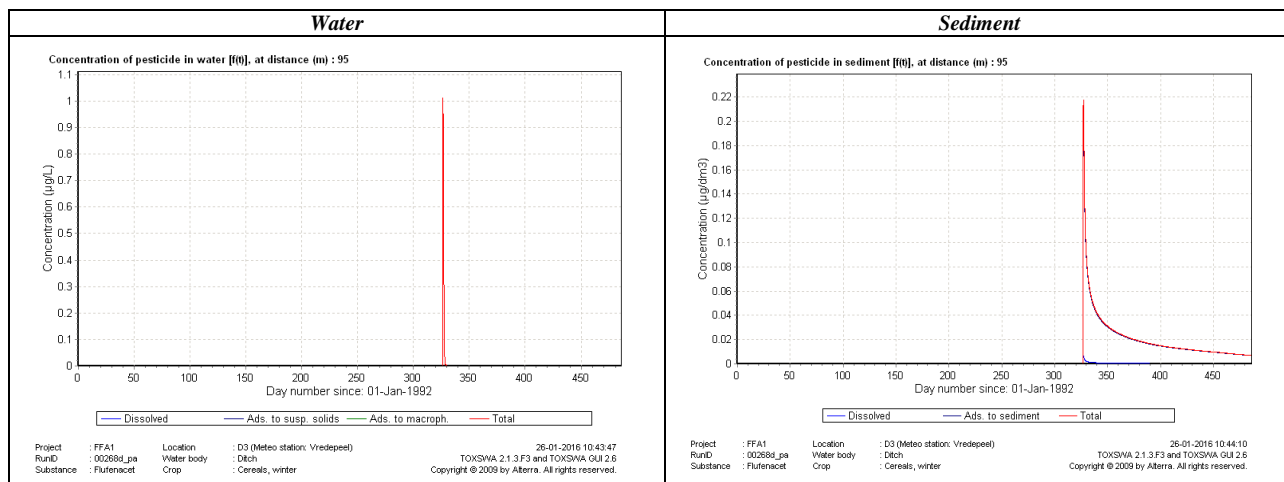
Figure B.8.9.-A.4.\_CP-16: The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D1 stream.



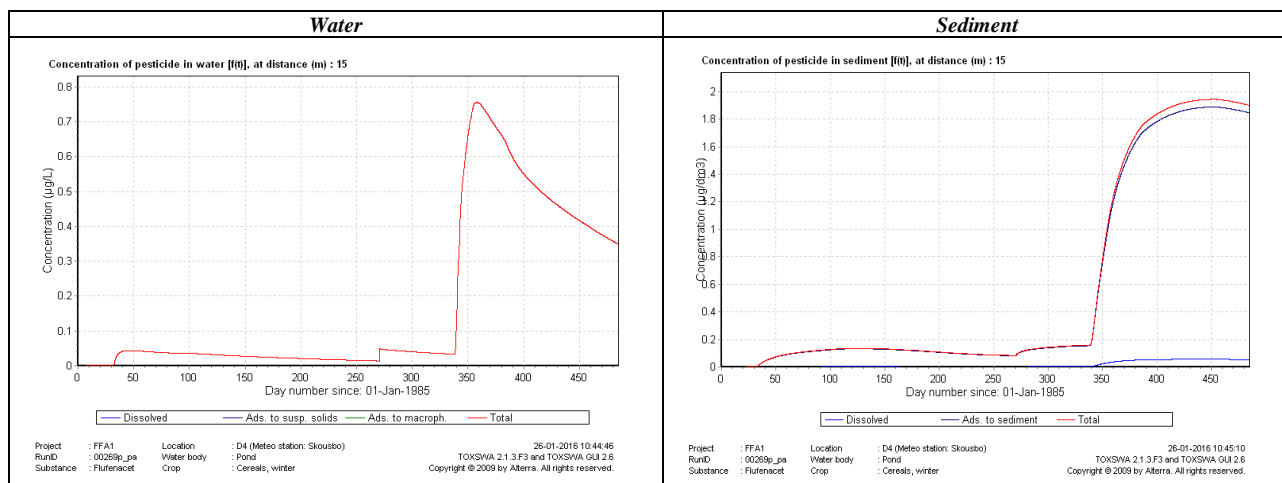
**Figure B.8.9.-A.4.\_CP-17:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D2 ditch.



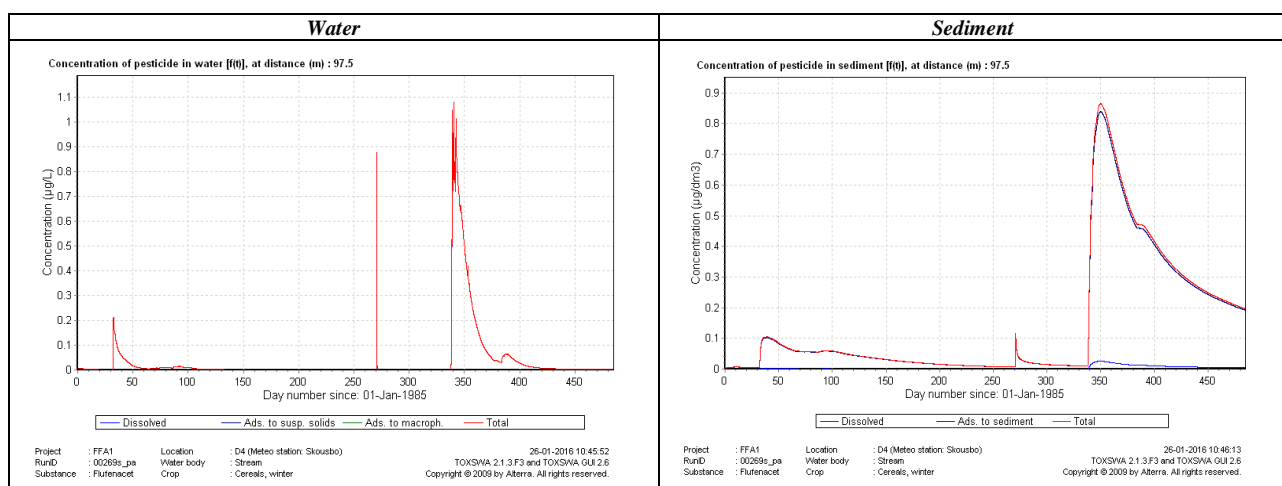
**Figure B.8.9.-A.4.\_CP-18:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D2 stream.



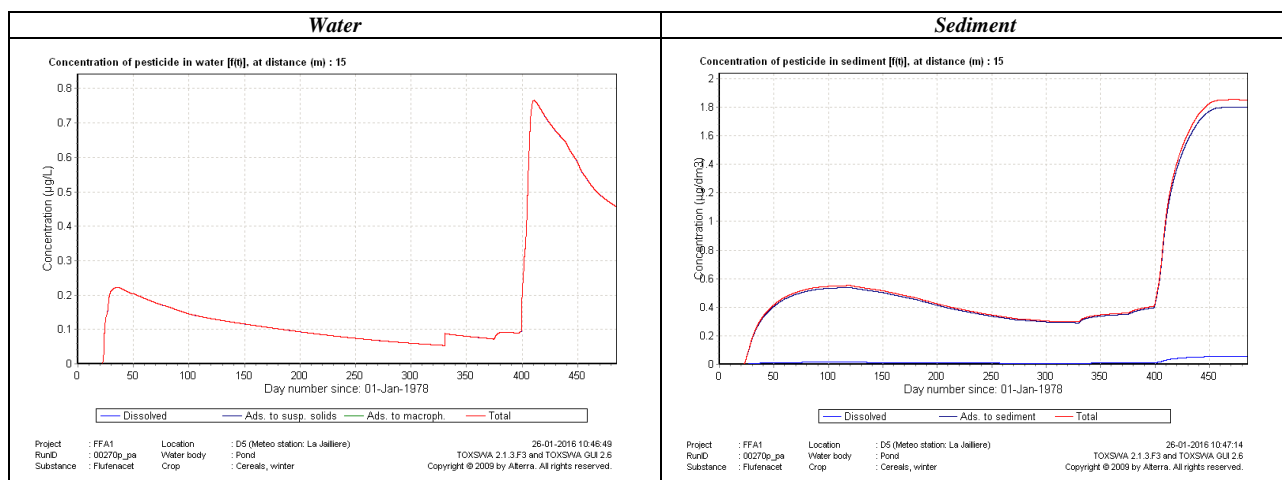
**Figure B.8.9.-A.4.\_CP-19:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D3 ditch.



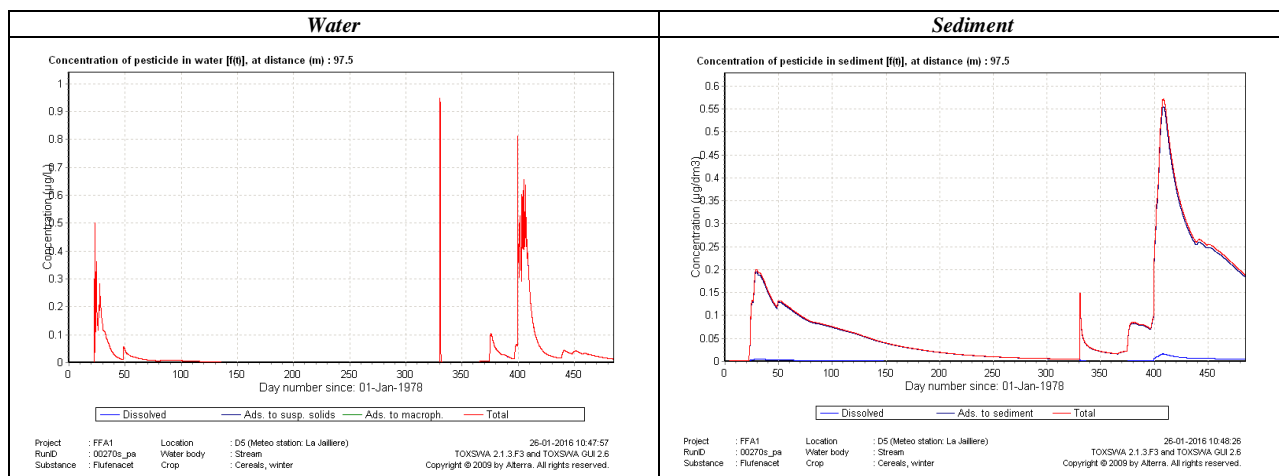
**Figure B.8.9.-A.4.\_CP-20:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 pond.**



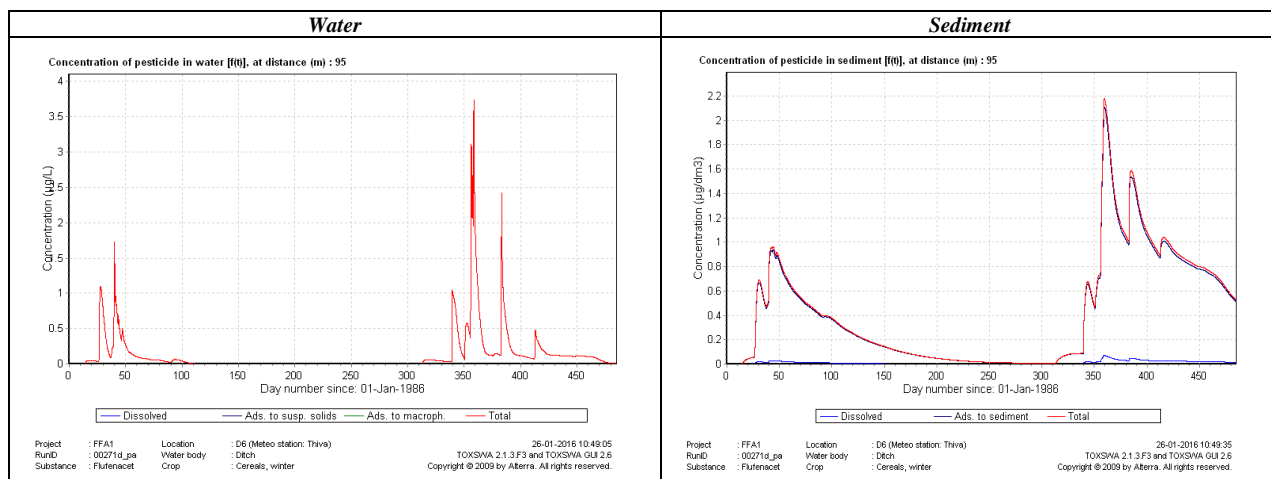
**Figure B.8.9.-A.4.\_CP-21:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 stream.**



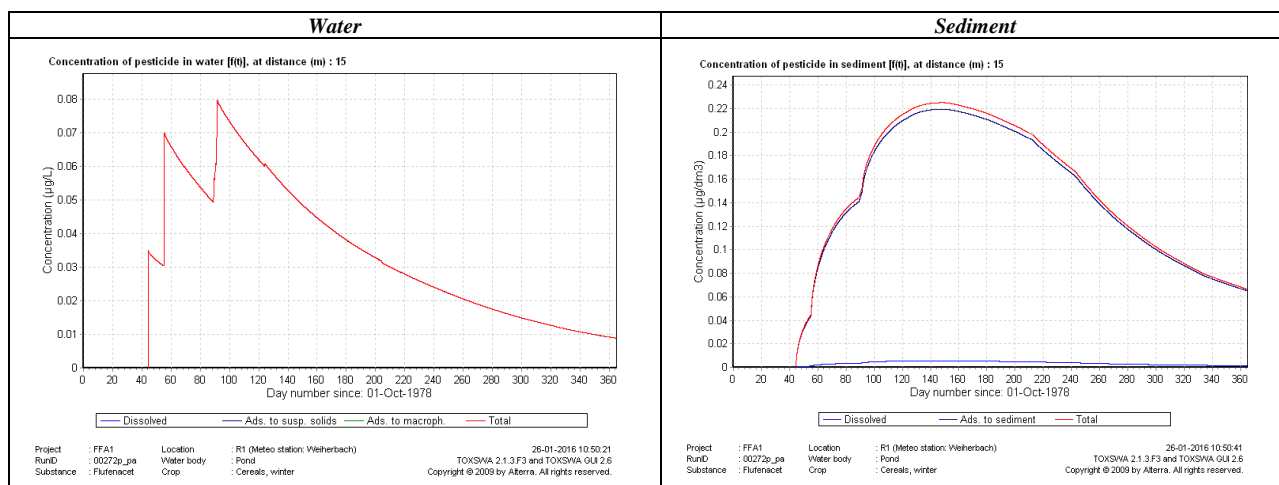
**Figure B.8.9.-A.4.\_CP-22:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D5 pond.**



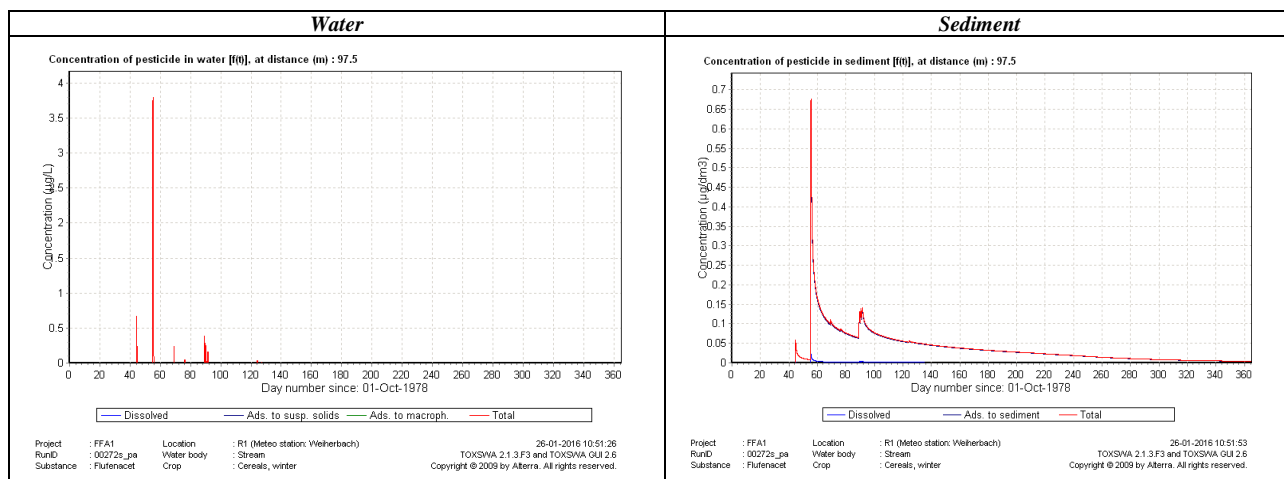
**Figure B.8.9.-A.4.\_CP-23:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D5 stream.



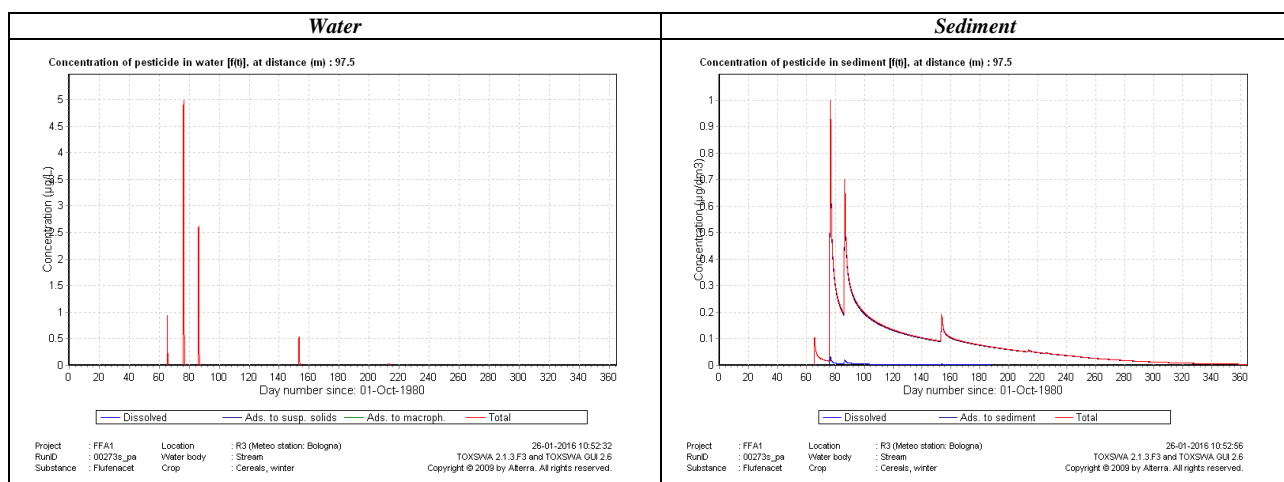
**Figure B.8.9.-A.4.\_CP-24:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D6 ditch.



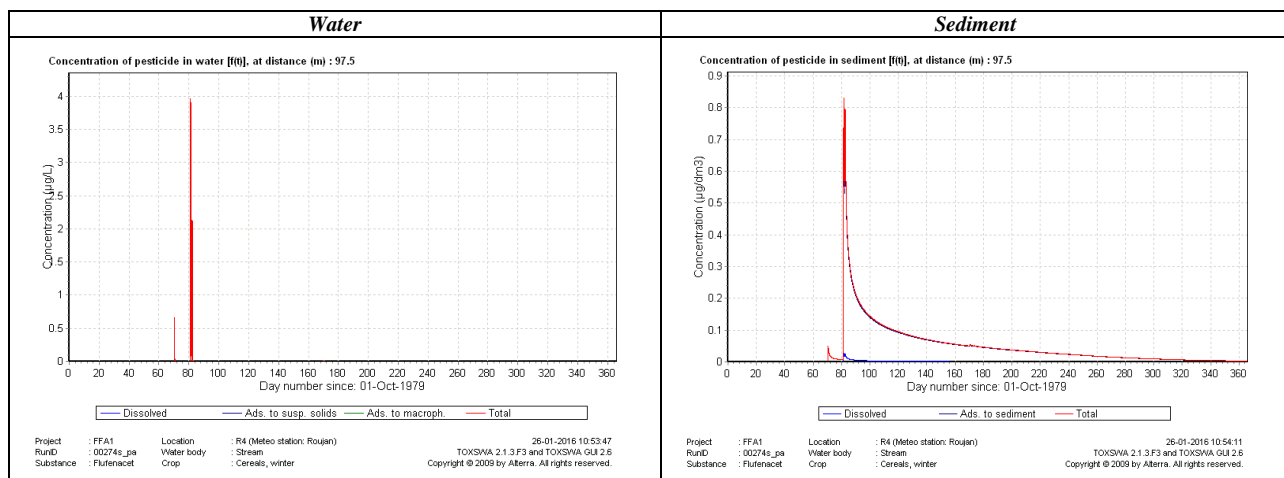
**Figure B.8.9.-A.4.\_CP-25:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario R1 pond.



**Figure B.8.9.-A.4.\_CP-26:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario R1 stream.



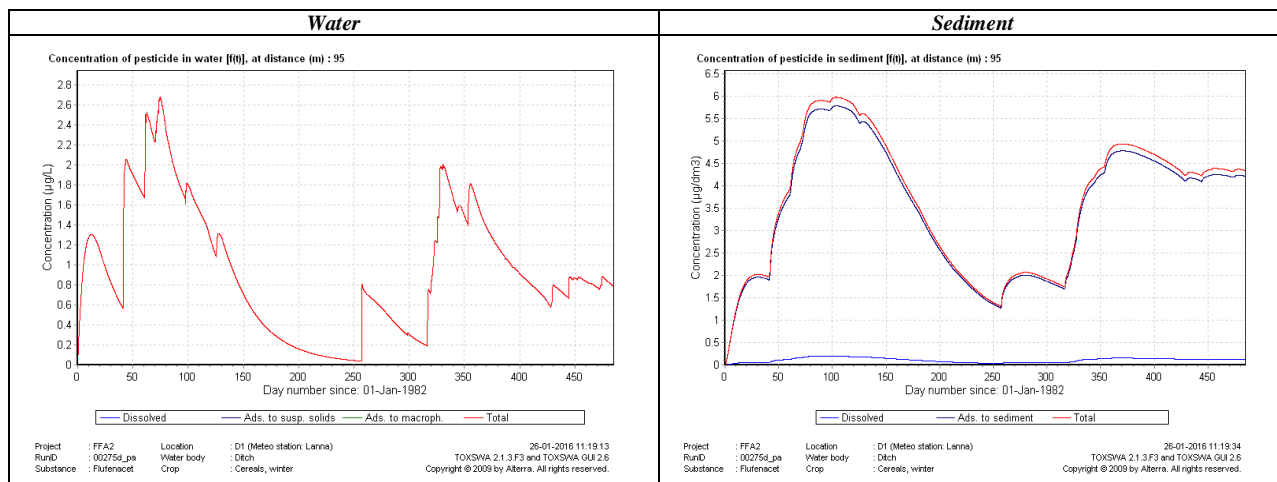
**Figure B.8.9.-A.4.\_CP-27:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario R3 stream.



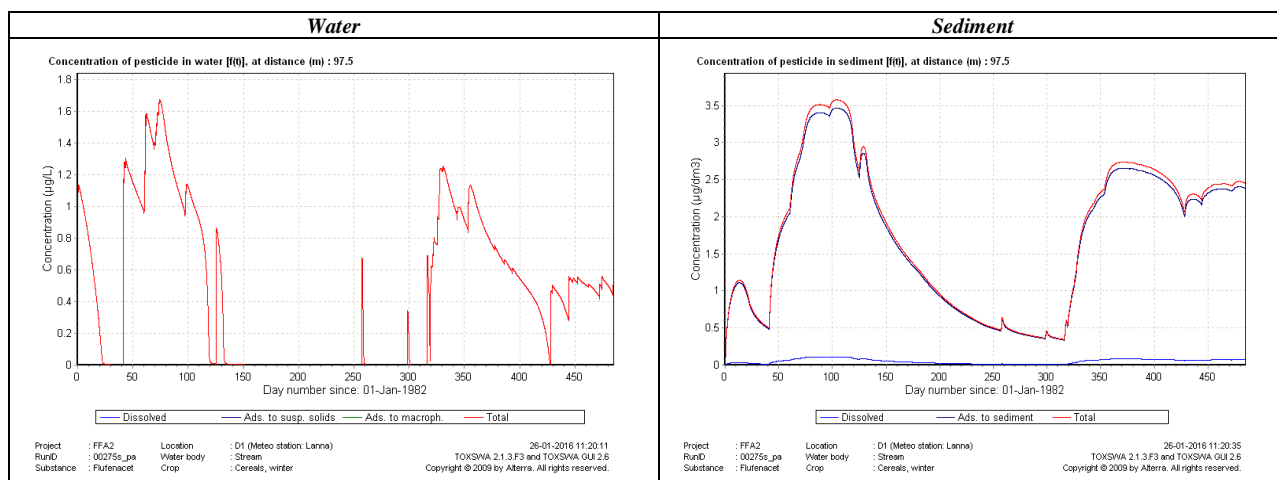
**Figure B.8.9.-A.4.\_CP-28:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario R4 stream.

- c. Results obtained for the pre-emergence use in Winter Cereals in autumn, at application rate 120 g/ha:

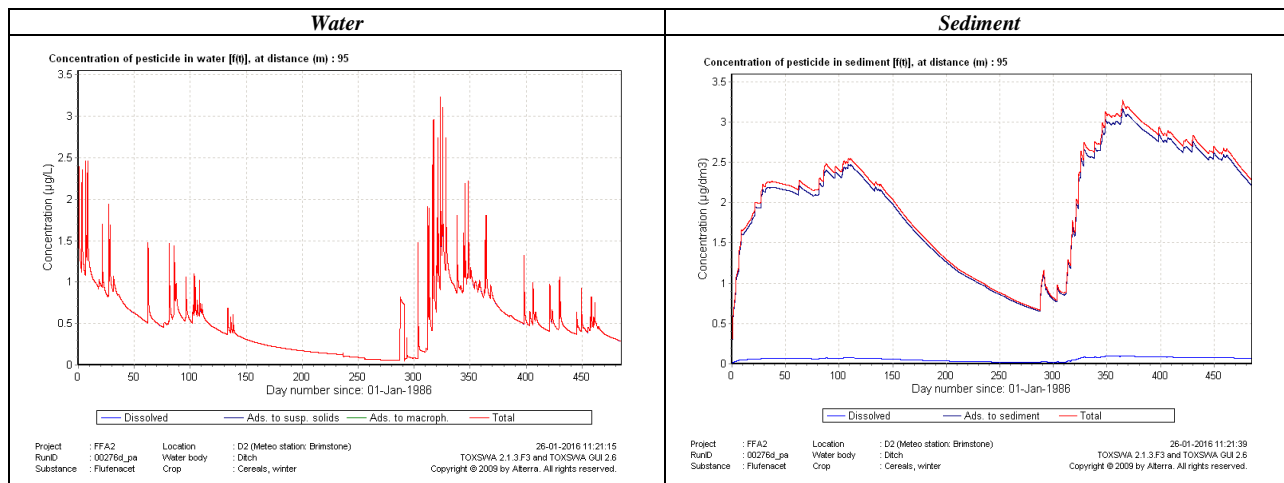
The results – concentration profiles in water and sediment phases, are presented below, separately for each scenario, on figures B.8.9.-A.4.\_CP-29 – B.8.9.-A.4.\_CP-42.



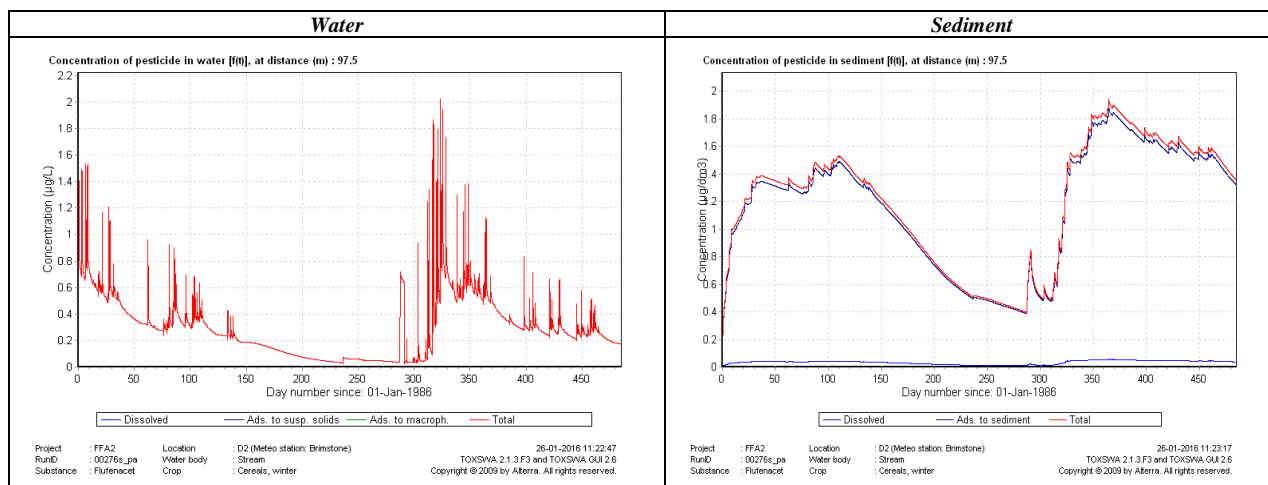
**Figure B.8.9.-A.4.\_CP-29:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D1 ditch.



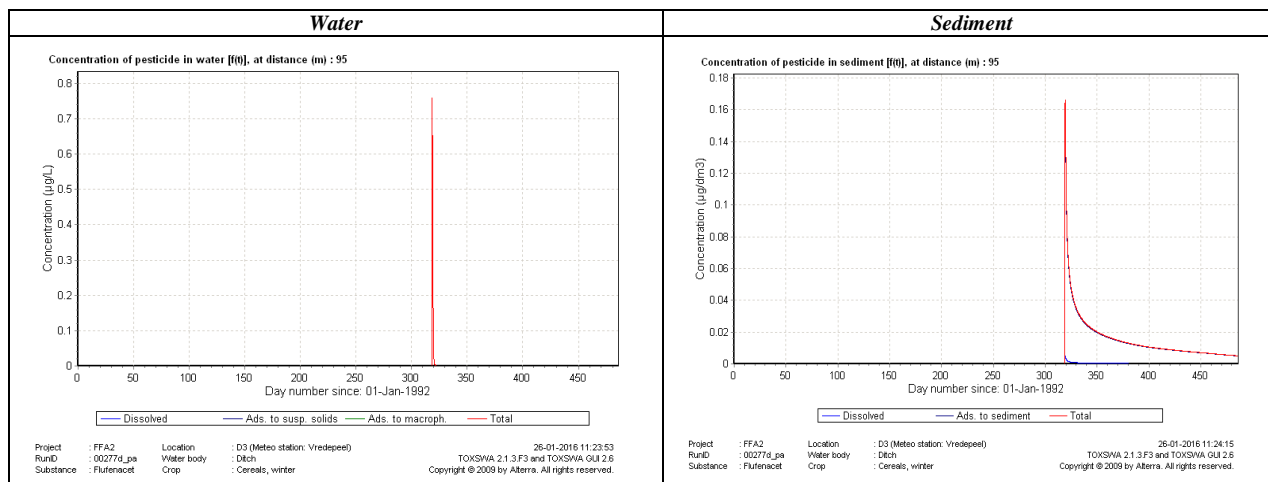
**Figure B.8.9.-A.4.\_CP-30:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D1 stream.



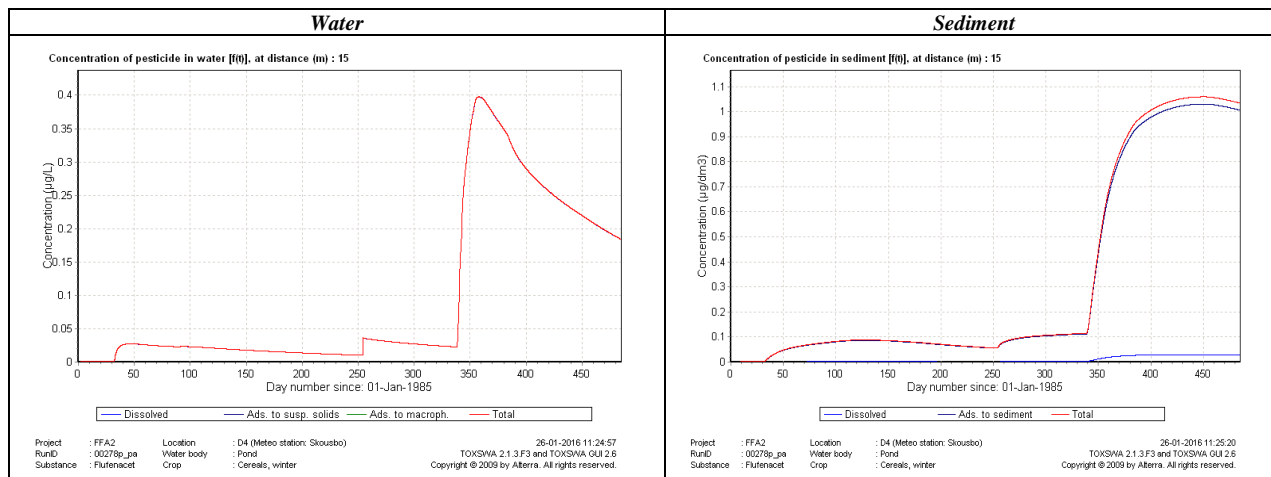
**Figure B.8.9.-A.4.\_CP-31:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D2 ditch.



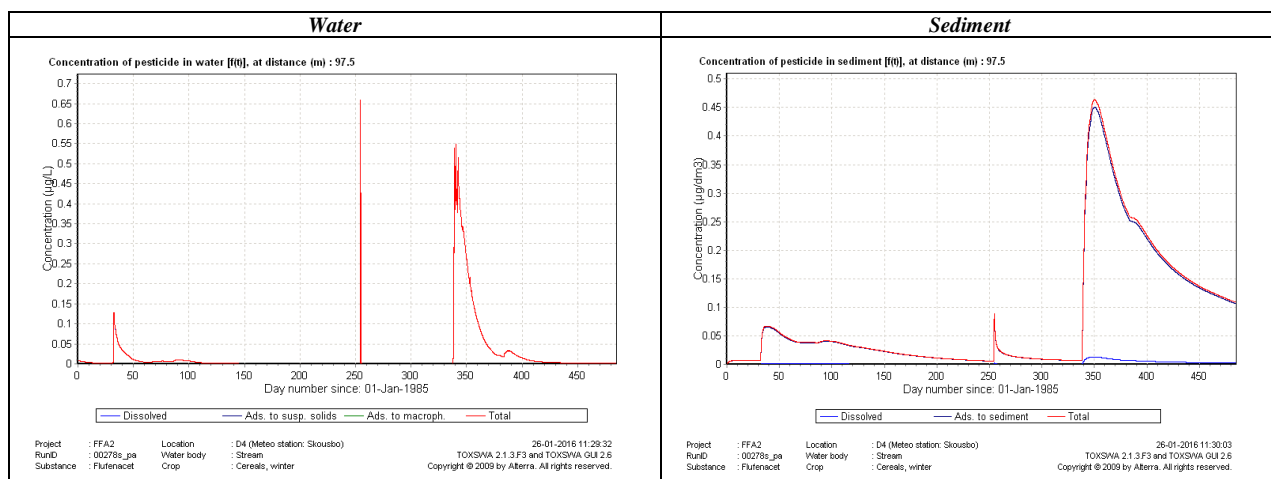
**Figure B.8.9.-A.4.\_CP-32:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D2 stream.



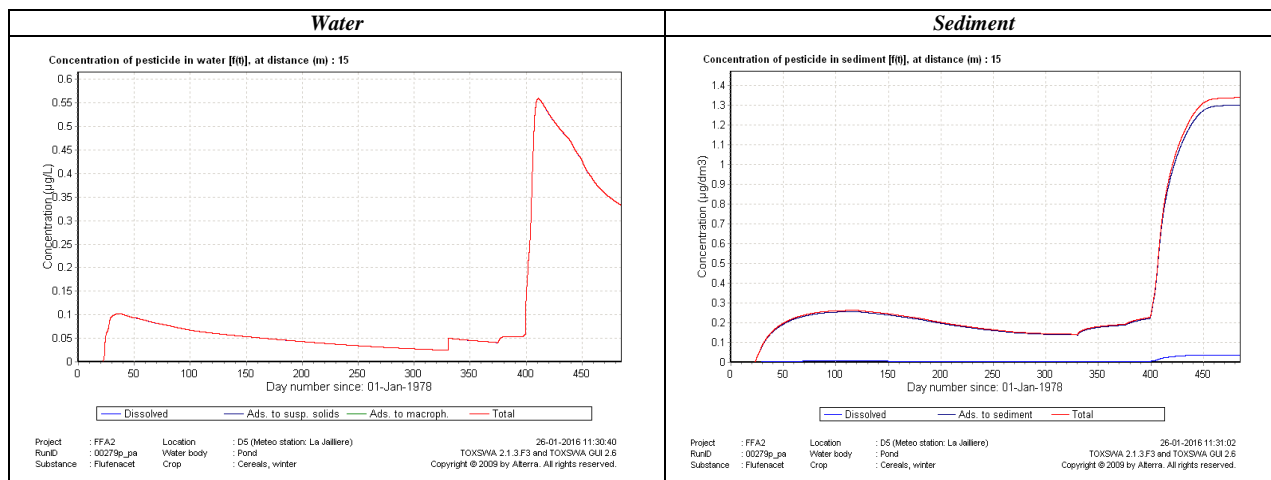
**Figure B.8.9.-A.4.\_CP-33:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D3 ditch.



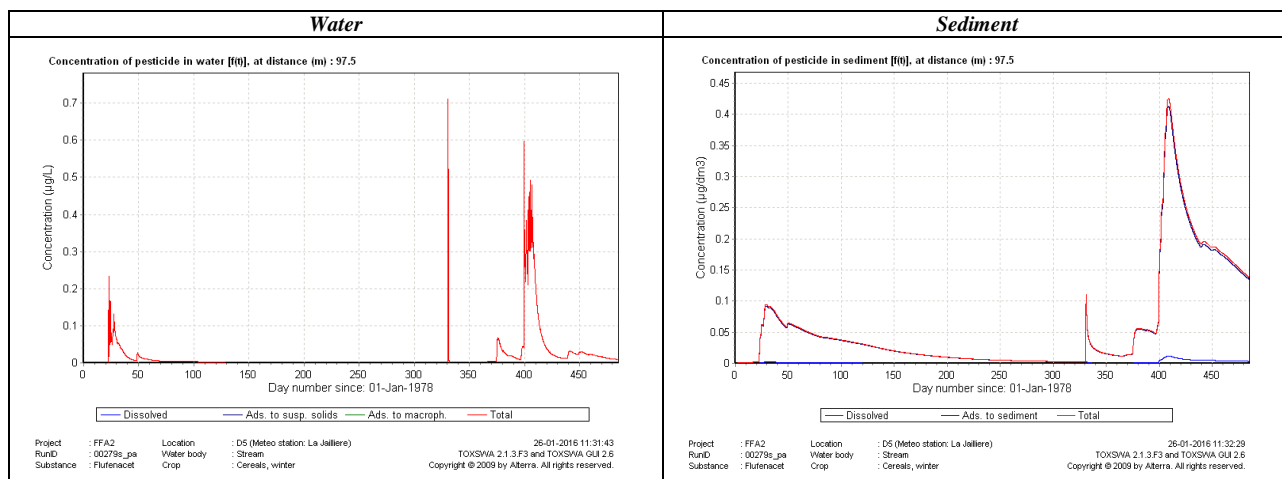
**Figure B.8.9.-A.4.\_CP-34:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 pond.**



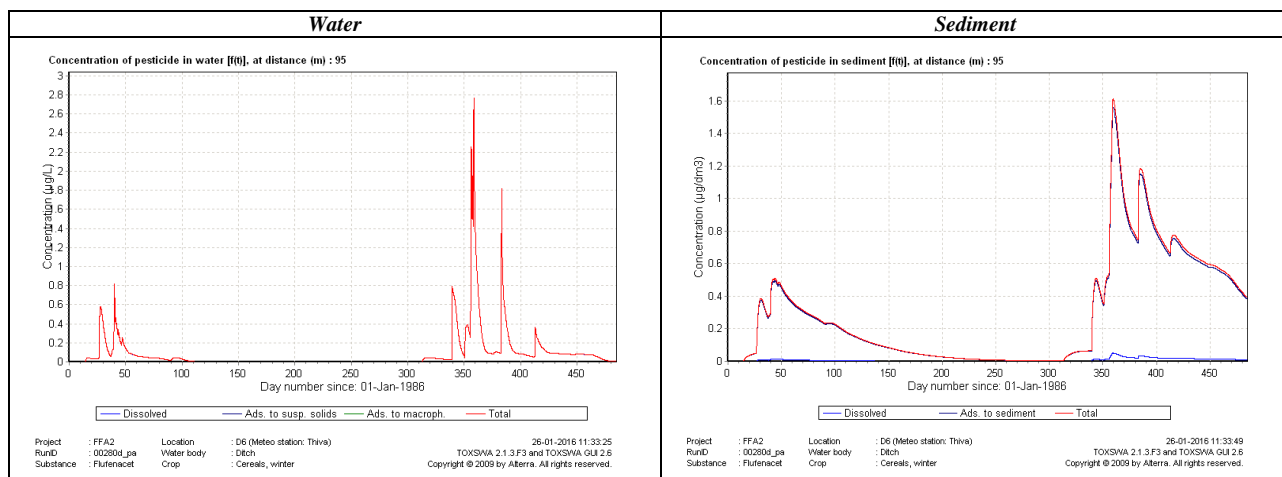
**Figure B.8.9.-A.4.\_CP-35:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 stream.**



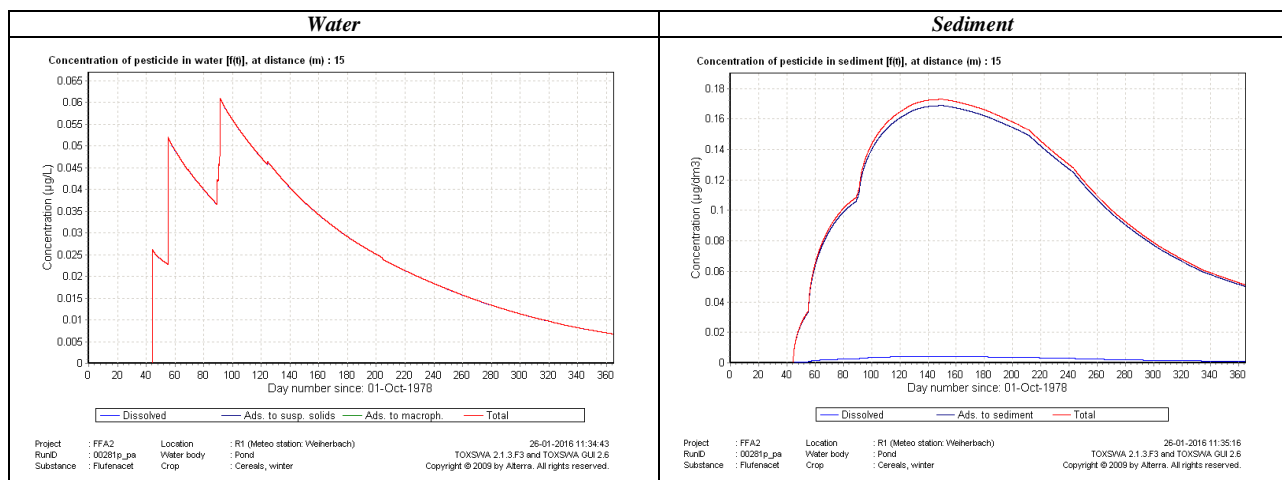
**Figure B.8.9.-A.4.\_CP-36:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D5 pond.**



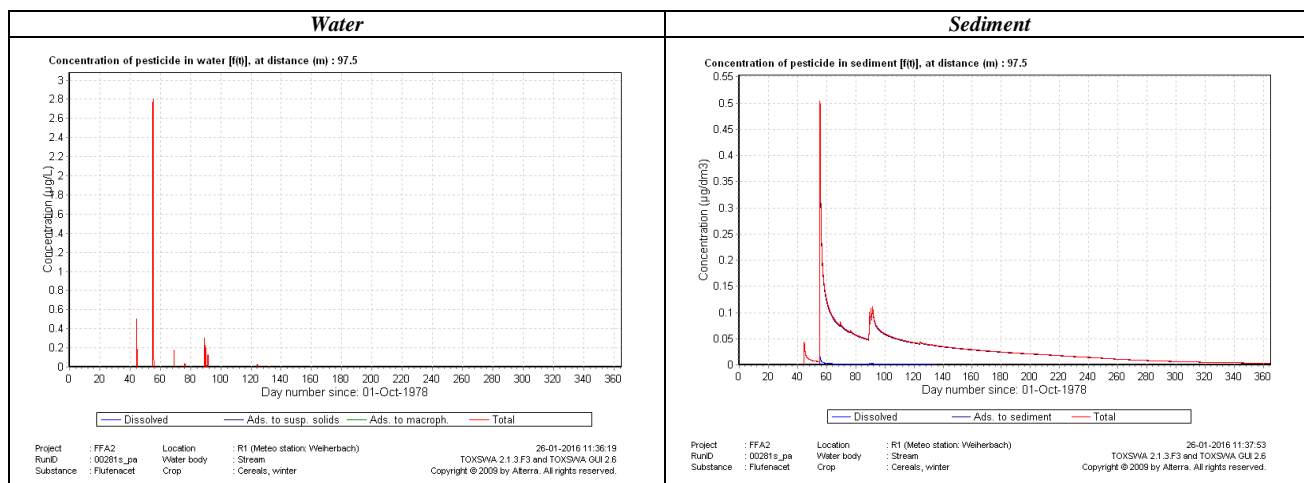
**Figure B.8.9.-A.4.\_CP-37:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D5 stream.



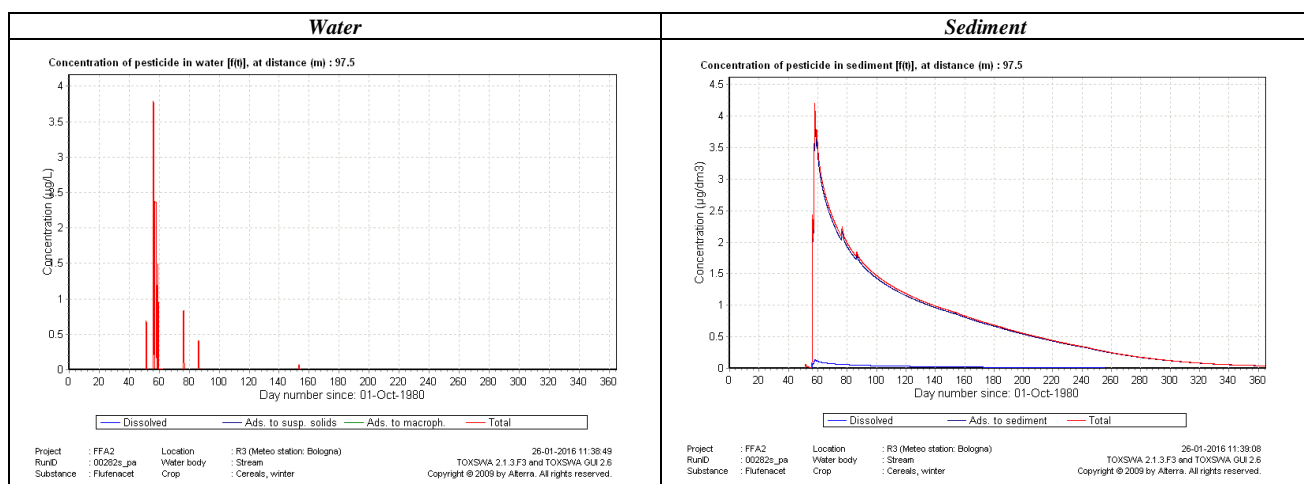
**Figure B.8.9.-A.4.\_CP-38:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D6 ditch.



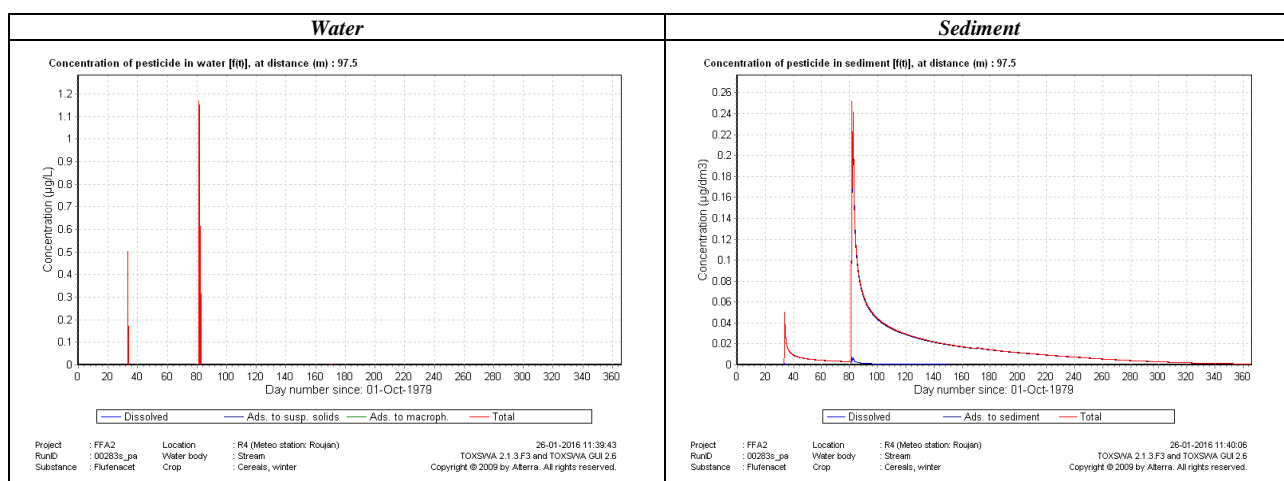
**Figure B.8.9.-A.4.\_CP-39:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario R1 pond.



**Figure B.8.9.-A.4.\_CP-40:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R1 stream**.



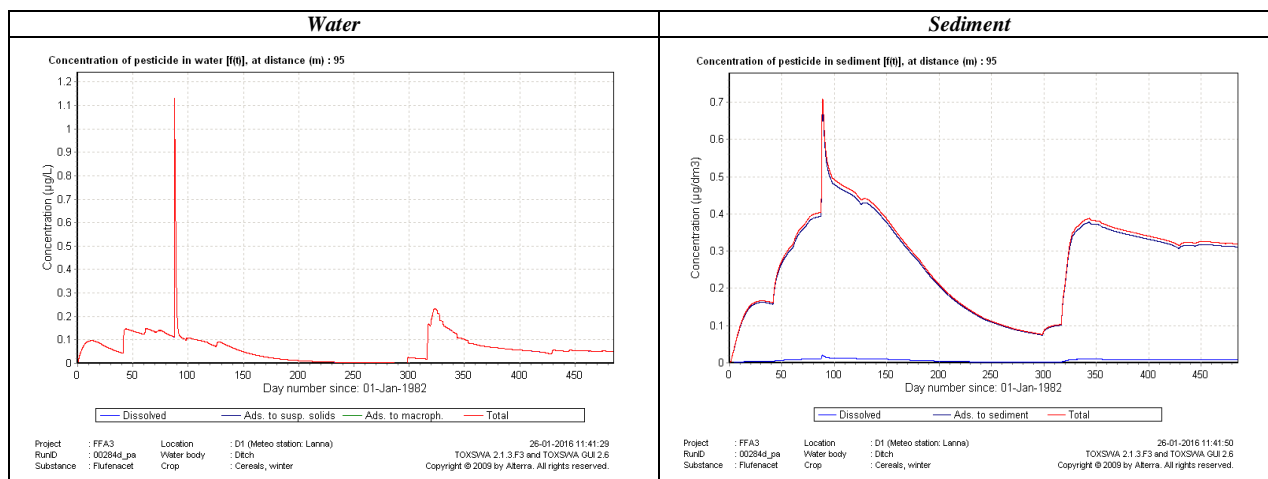
**Figure B.8.9.-A.4.\_CP-41:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R3 stream**.



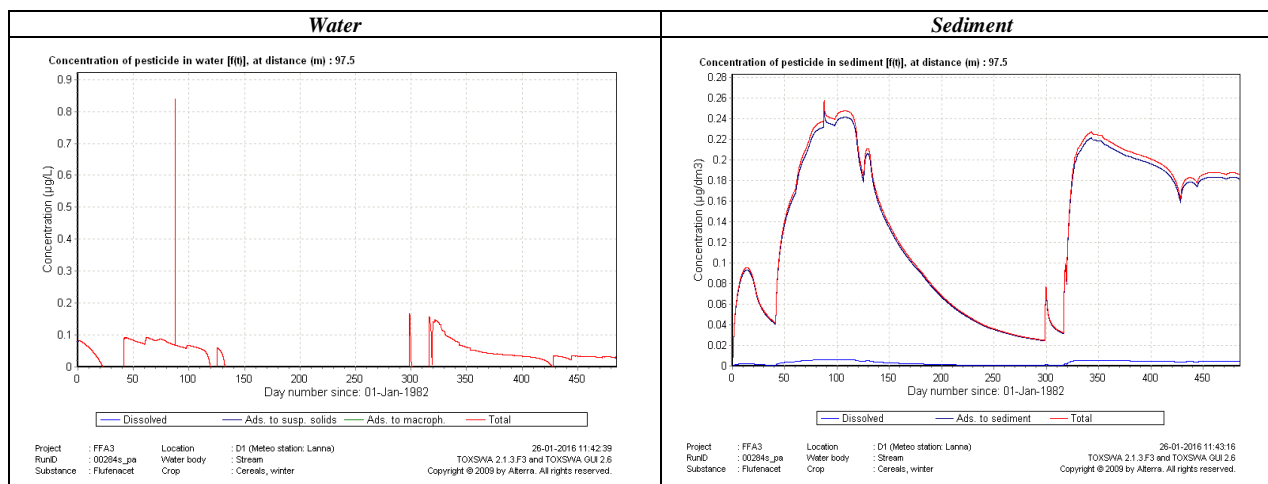
**Figure B.8.9.-A.4.\_CP-42:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R4 stream**.

- d. Results obtained for the post-emergence use in Winter Cereals at spring, at application rate 160 g/ha:

The results – concentration profiles in water and sediment phases, are presented below, separately for each scenario, on figures B.8.9.-A.4.\_CP-43 – B.8.9.-A.4.\_CP-56.

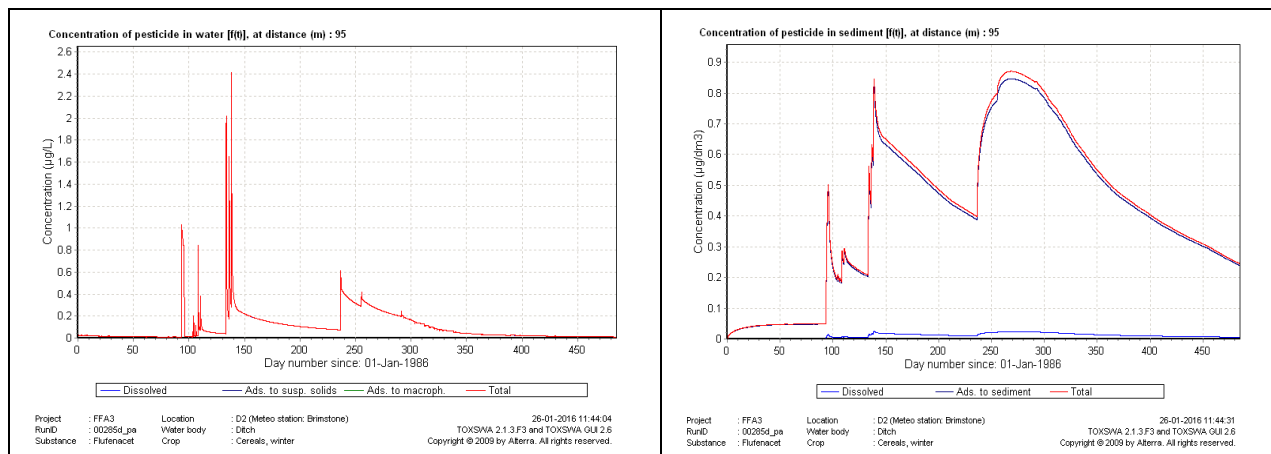


**Figure B.8.9.-A.4.\_CP-43:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D1 ditch.

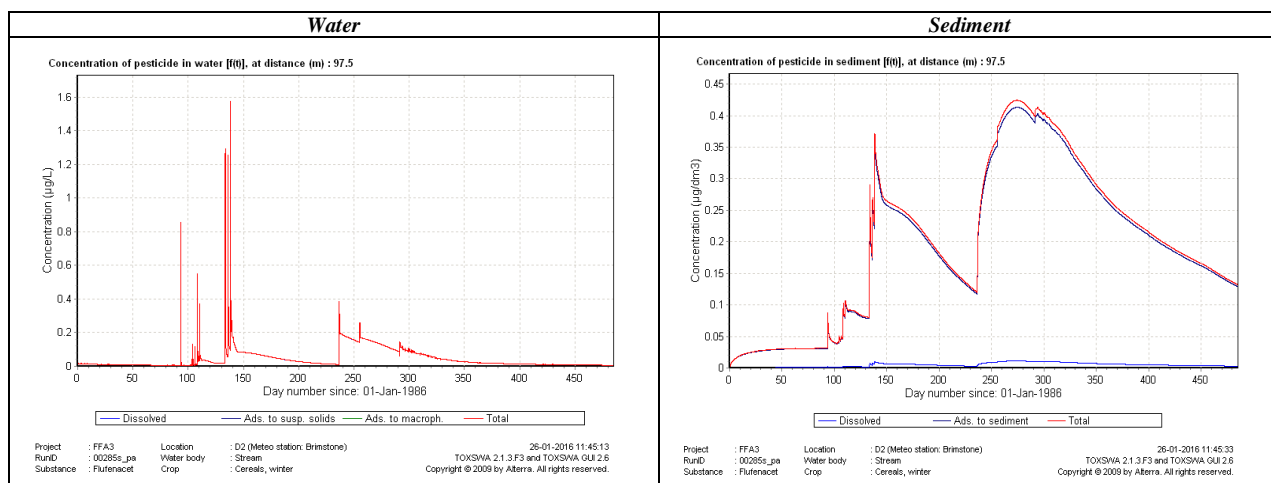


**Figure B.8.9.-A.4.\_CP-44:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D1 stream.

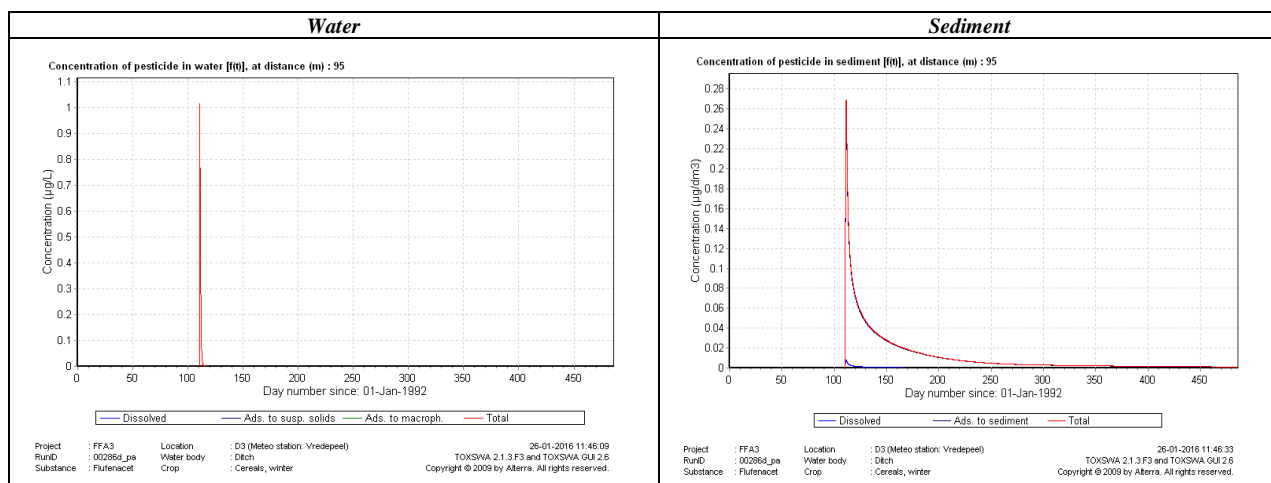
Water	Sediment
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**Figure B.8.9.-A.4.\_CP-45:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D2 ditch.

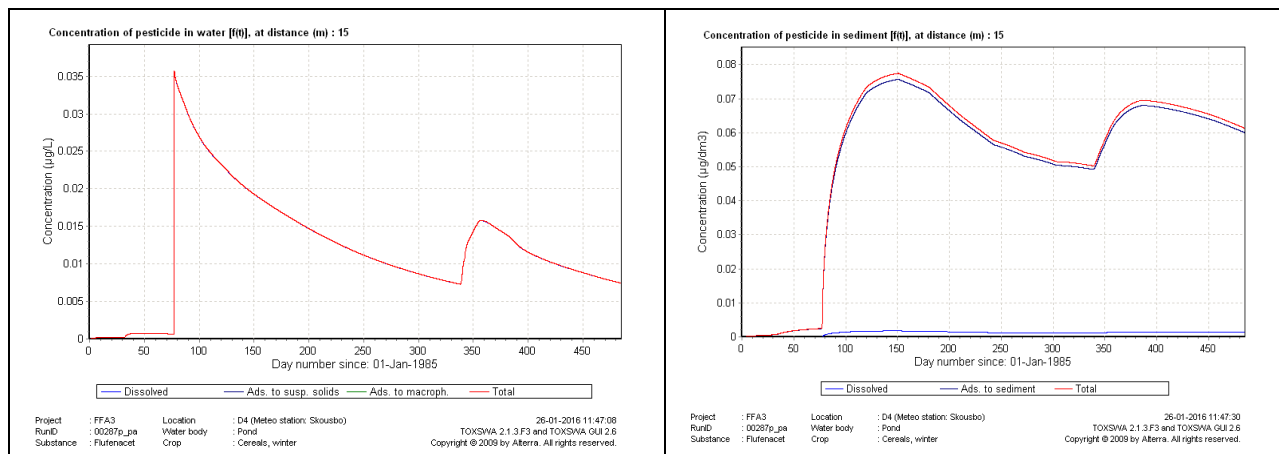


**Figure B.8.9.-A.4.\_CP-46:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D2 stream.

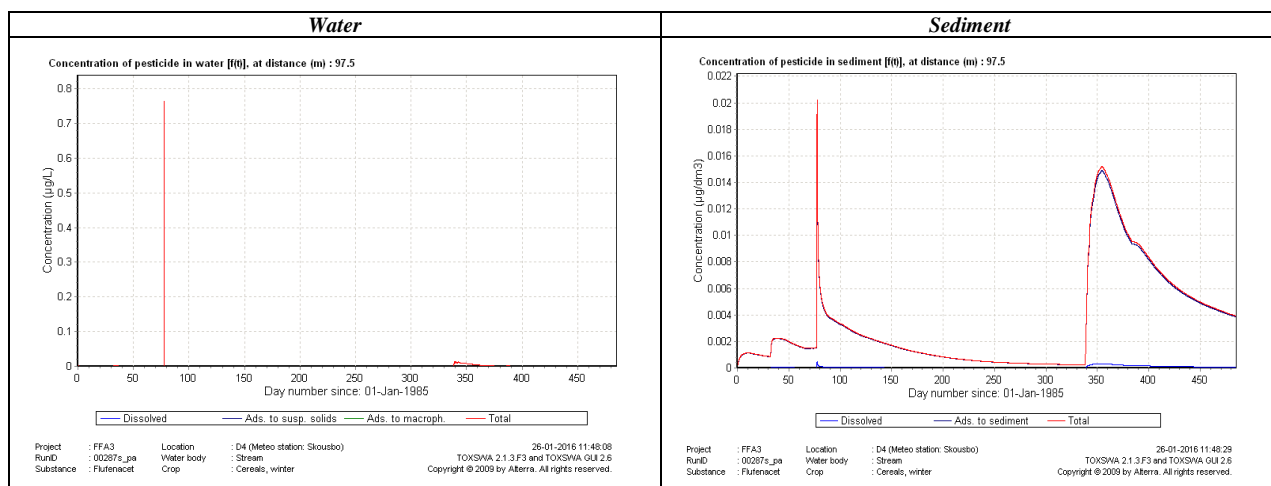


**Figure B.8.9.-A.4.\_CP-47:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D3 ditch.

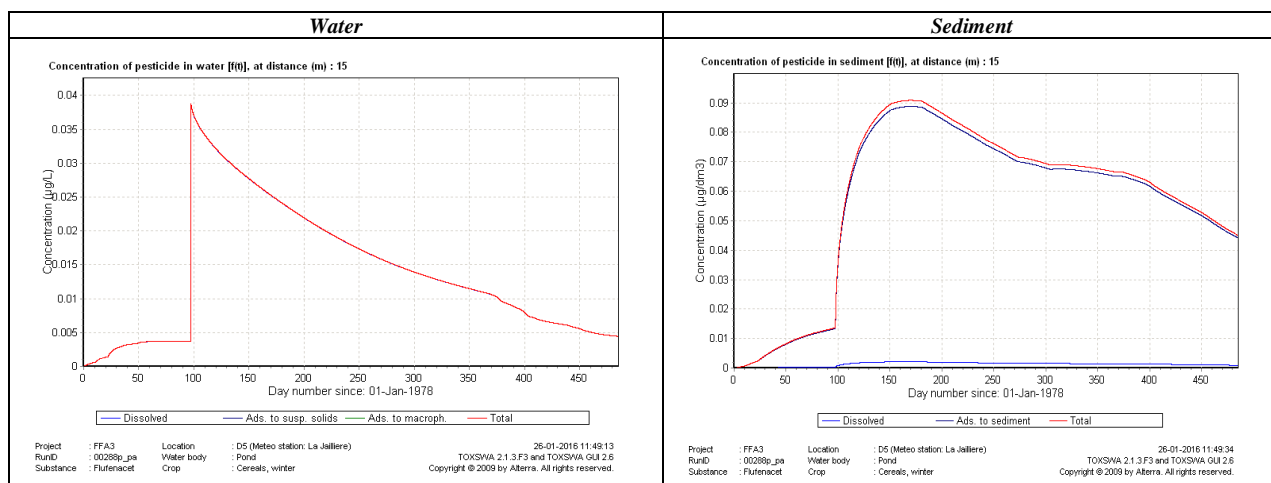
Water	Sediment
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**Figure B.8.9.-A.4.\_CP-48:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 pond**.

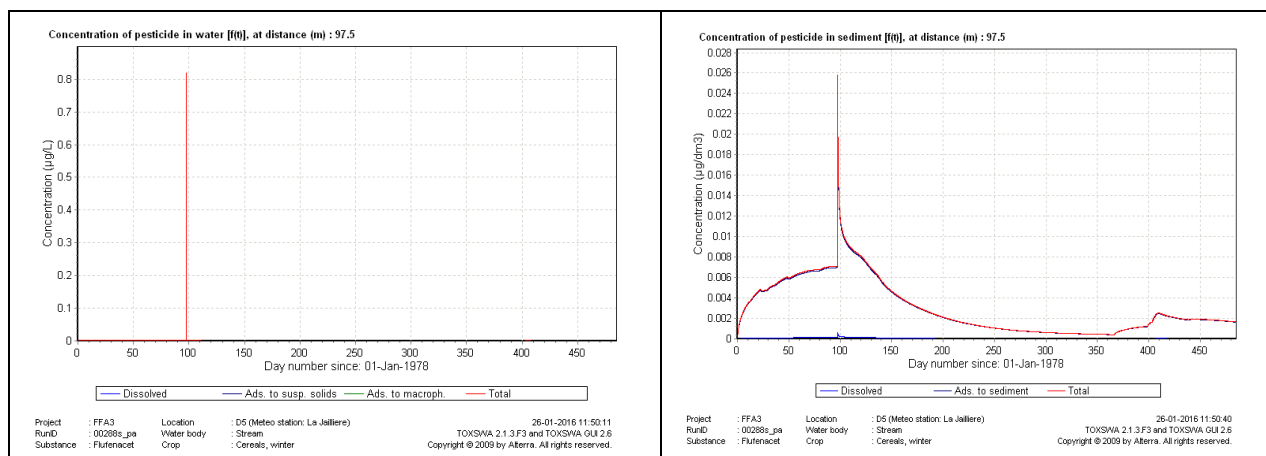


**Figure B.8.9.-A.4.\_CP-49:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 stream**.

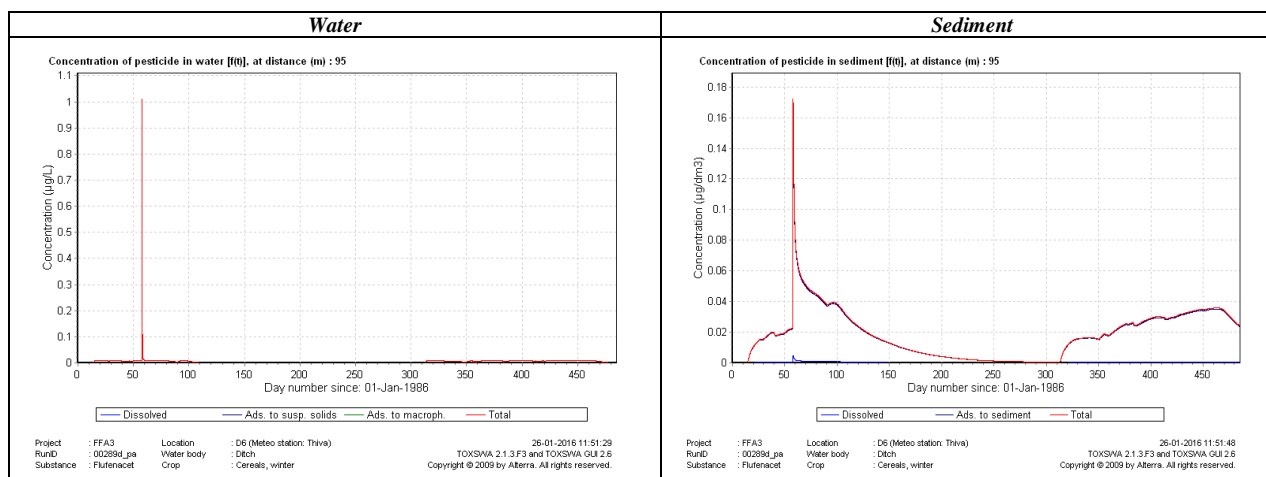


**Figure B.8.9.-A.4.\_CP-50:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D5 pond**.

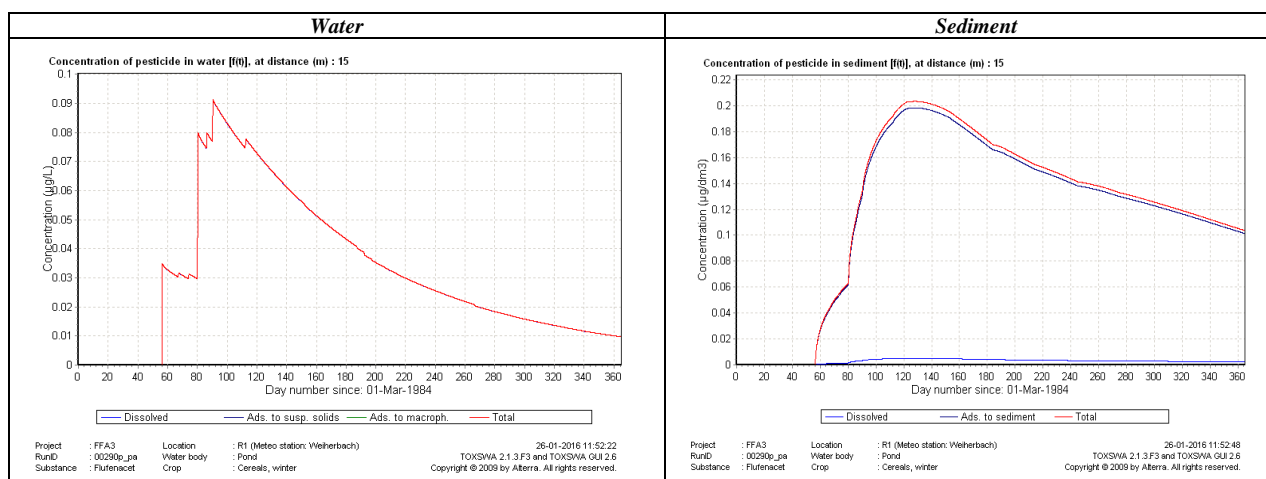
Water	Sediment
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**Figure B.8.9.-A.4.\_CP-51:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D5 stream**.

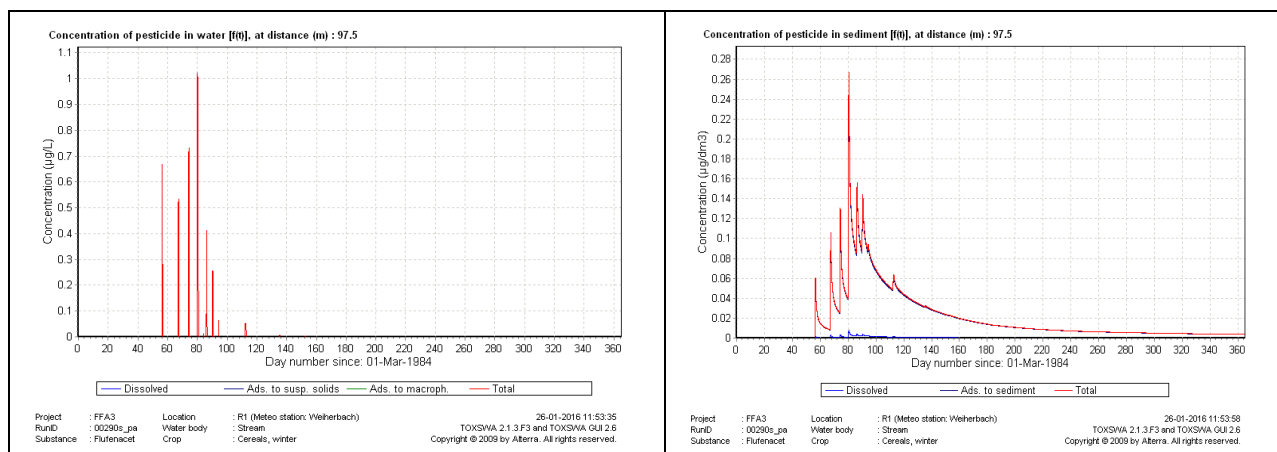


**Figure B.8.9.-A.4.\_CP-52:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D6 ditch**.

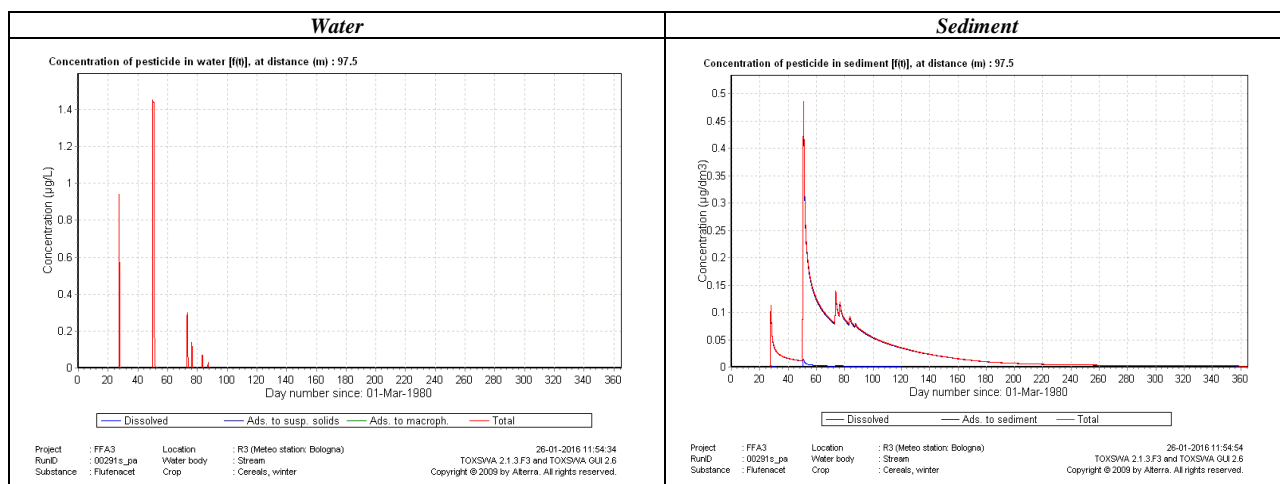


**Figure B.8.9.-A.4.\_CP-53:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R1 pond**.

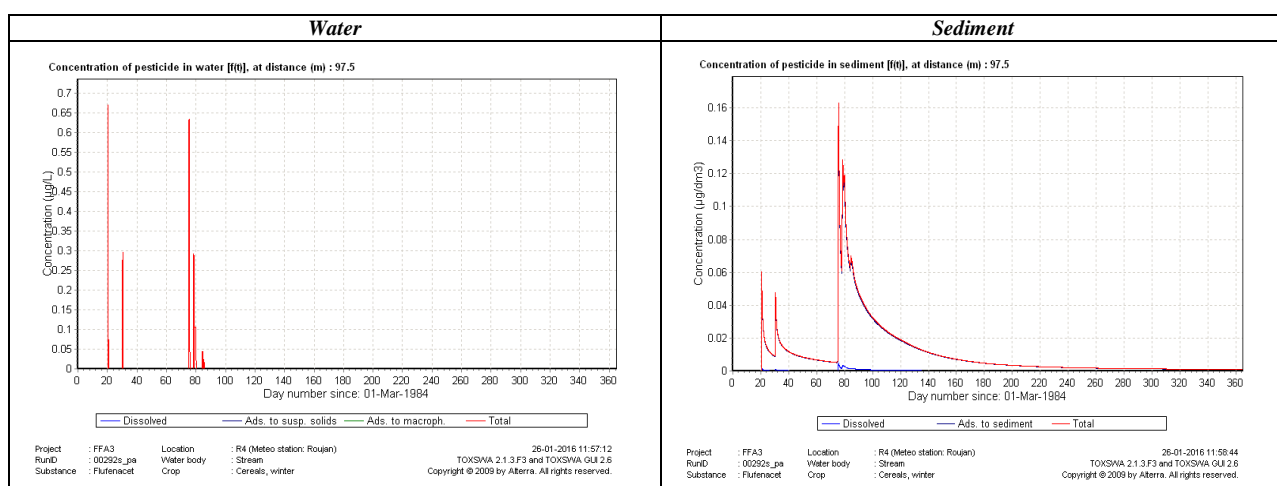
Water	Sediment
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**Figure B.8.9.-A.4.\_CP-54:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario R1 stream.



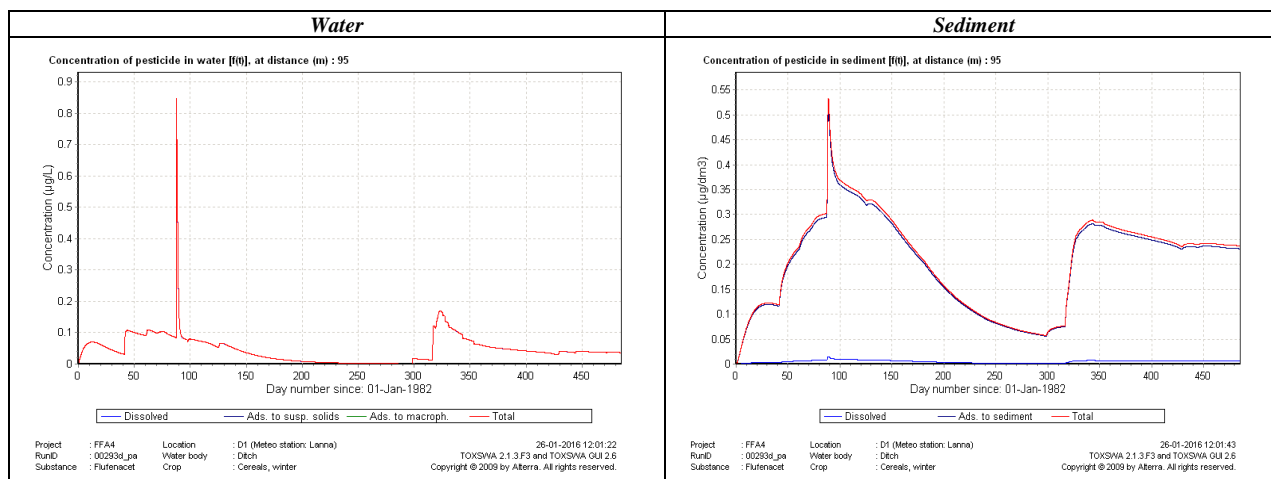
**Figure B.8.9.-A.4.\_CP-55:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario R3 stream.



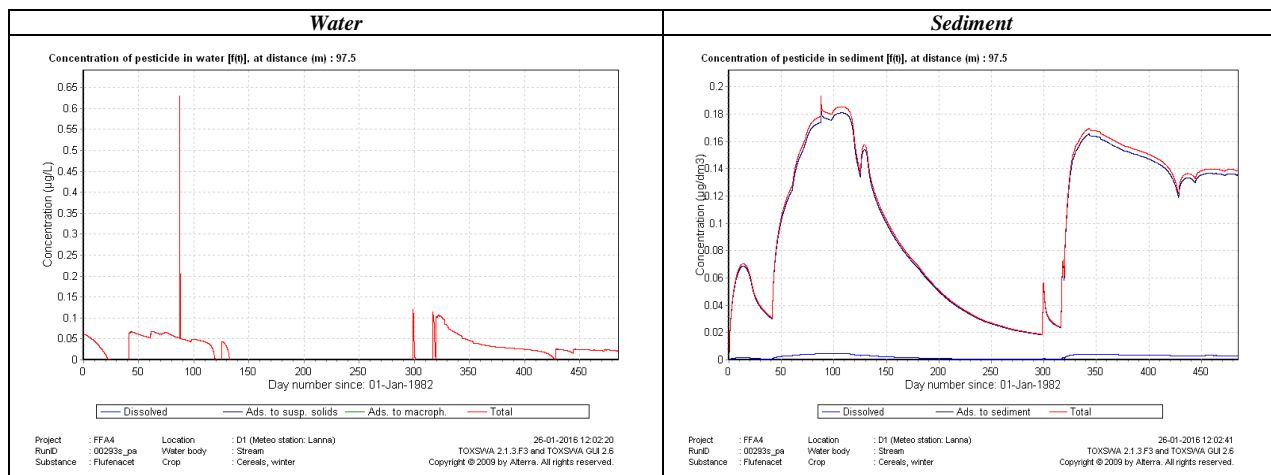
**Figure B.8.9.-A.4.\_CP-56:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario R4 stream.

- e. Results obtained for the post-emergence use in Winter Cereals at spring, at application rate 120 g/ha:

The results – concentration profiles in water and sediment phases, are presented below, separately for each scenario, on figures B.8.9.-A.4.\_CP-57 – B.8.9.-A.4.\_CP-70.

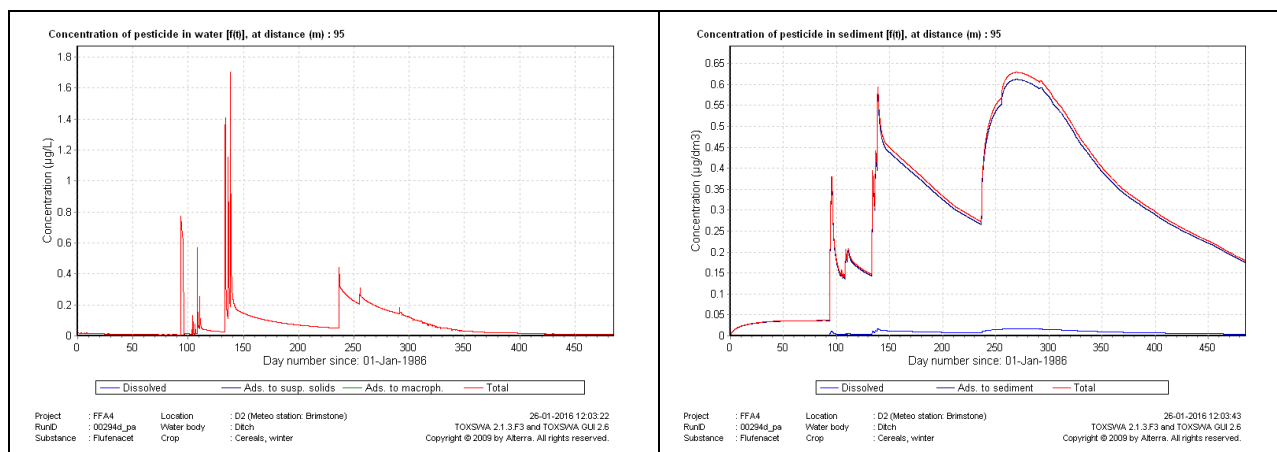


**Figure B.8.9.-A.4.\_CP-57:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D1 ditch.

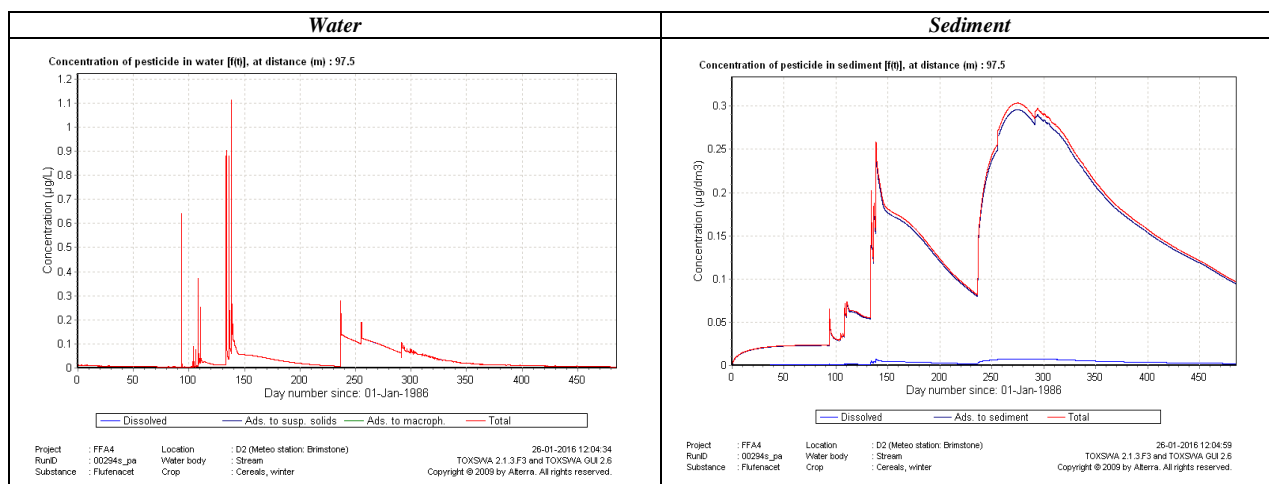


**Figure B.8.9.-A.4.\_CP-58:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D1 stream.

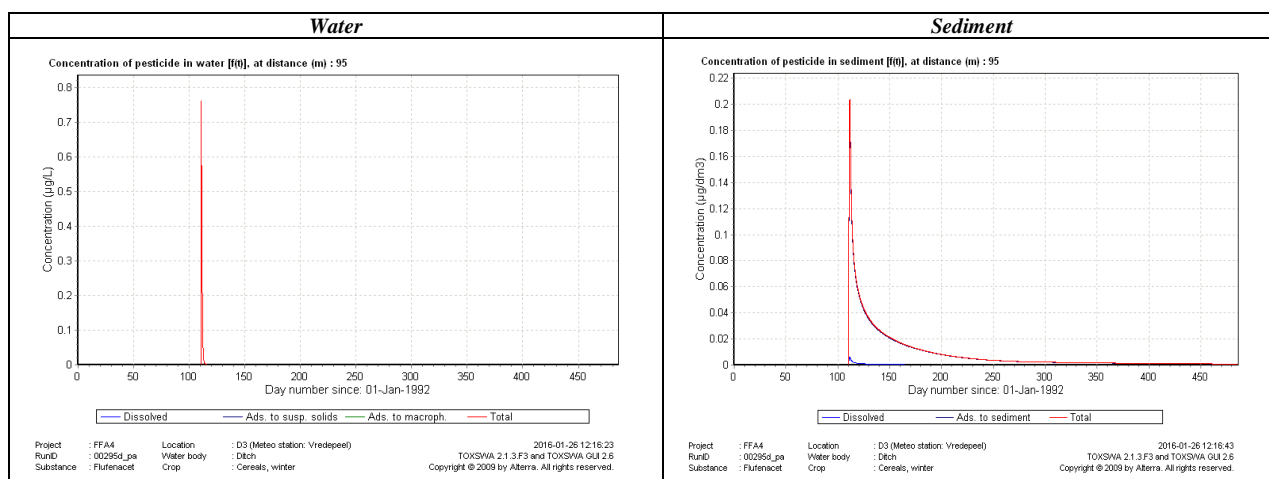
Water	Sediment
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**Figure B.8.9.-A.4.\_CP-59:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D2 ditch.

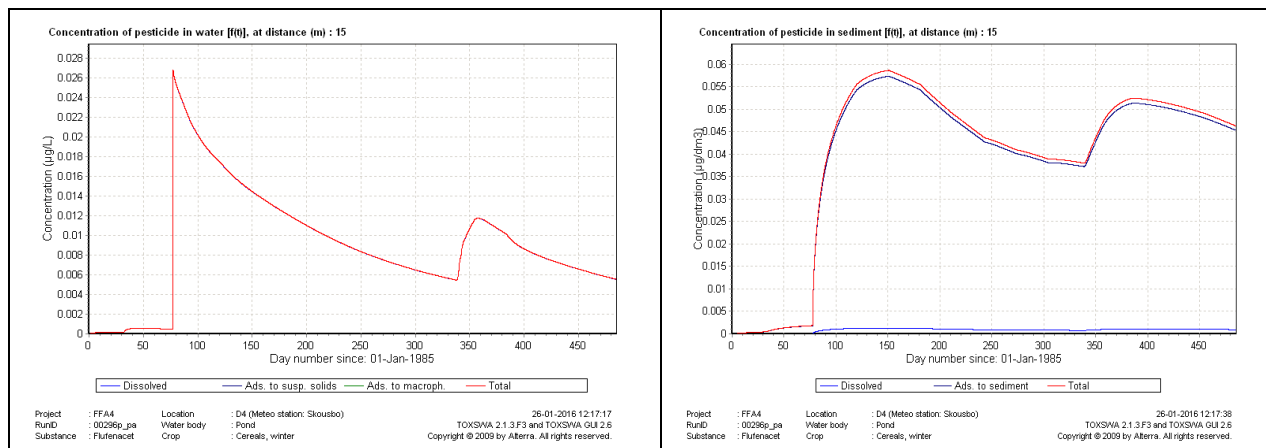


**Figure B.8.9.-A.4.\_CP-60:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D2 stream.

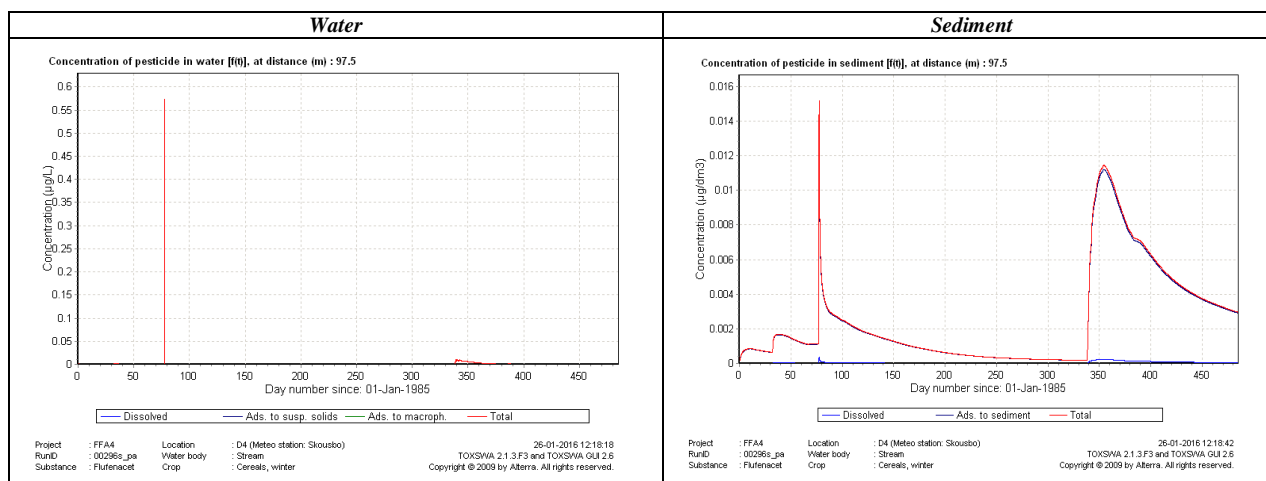


**Figure B.8.9.-A.4.\_CP-61:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D3 ditch.

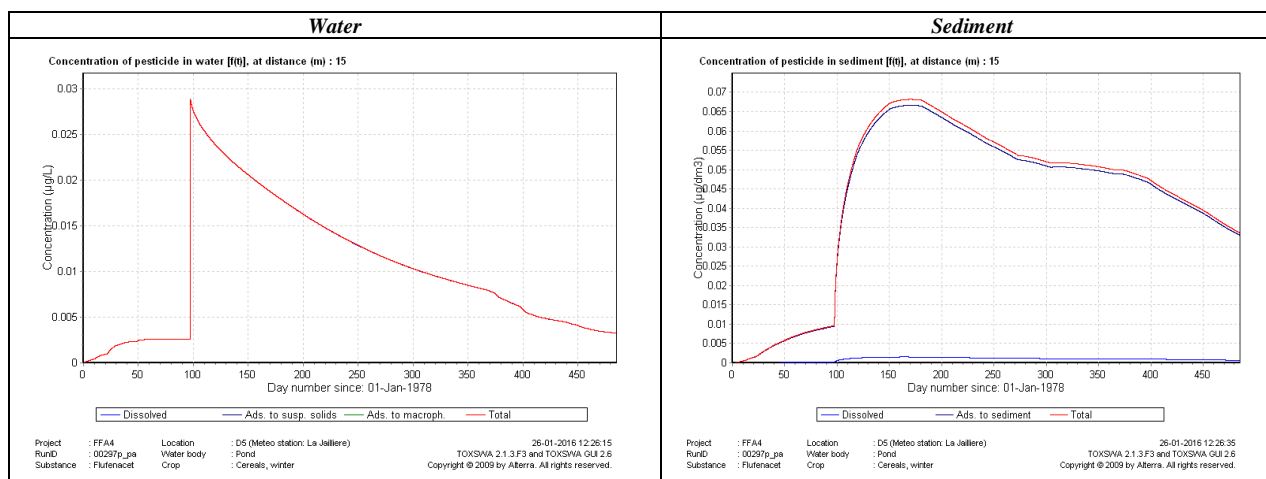
Water	Sediment
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**Figure B.8.9-A.4\_CP-62:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 pond**.

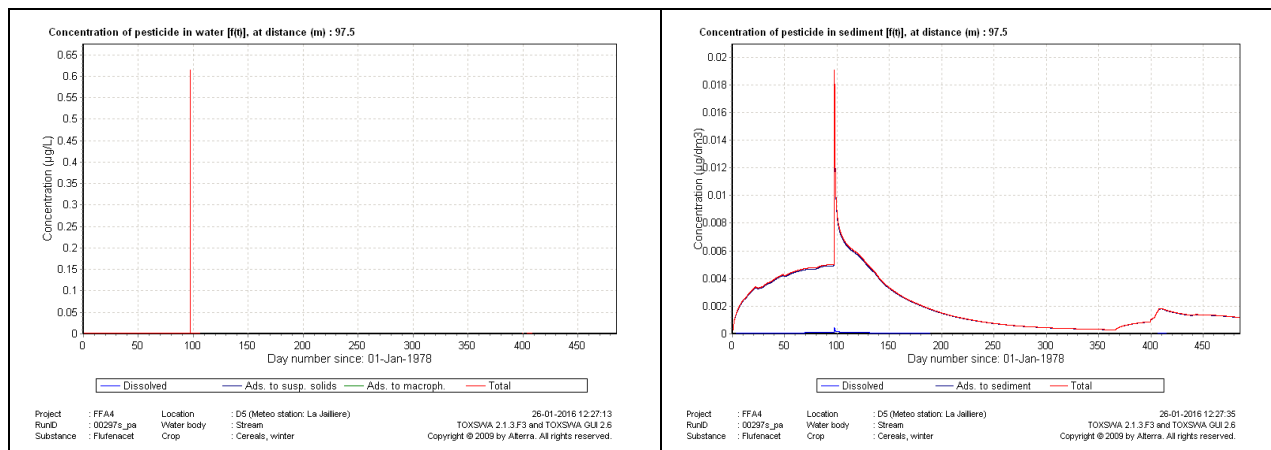


**Figure B.8.9-A.4\_CP-63:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D4 stream**.

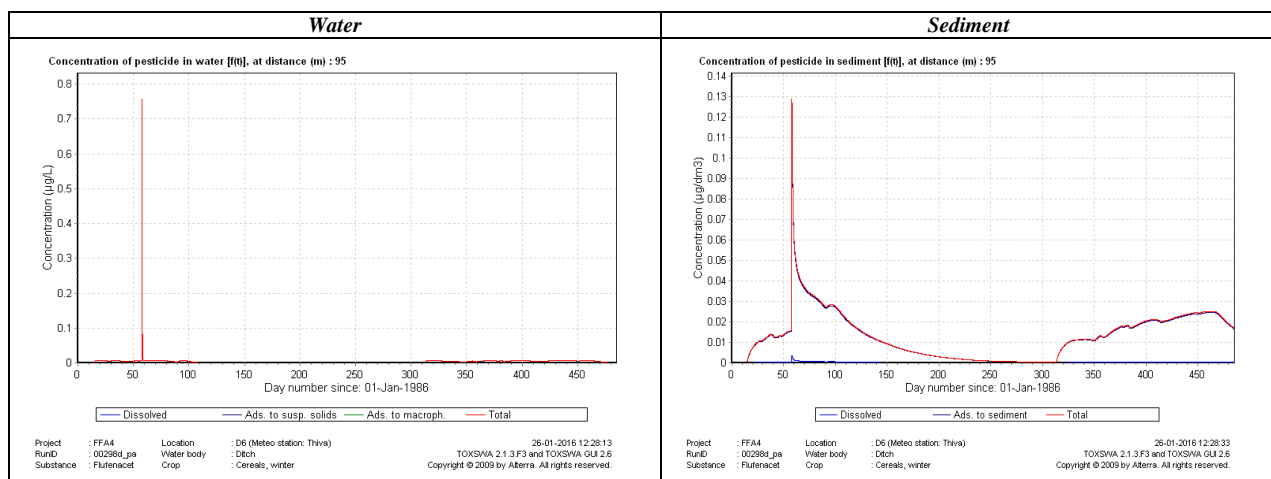


**Figure B.8.9-A.4\_CP-64:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **D5 pond**.

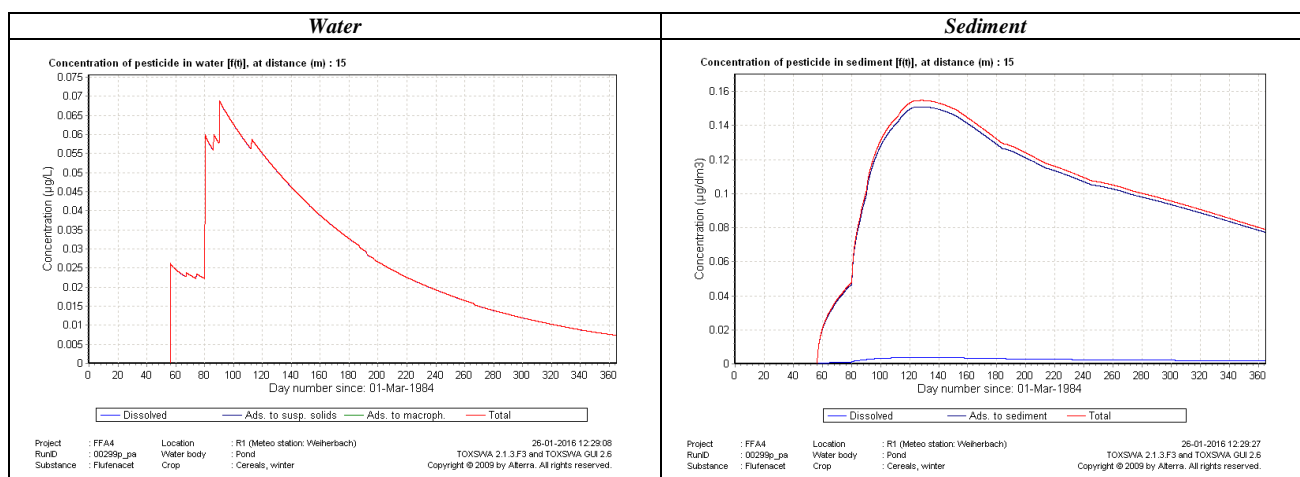
Water	Sediment
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**Figure B.8.9-A.4.\_CP-65:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D5 stream.

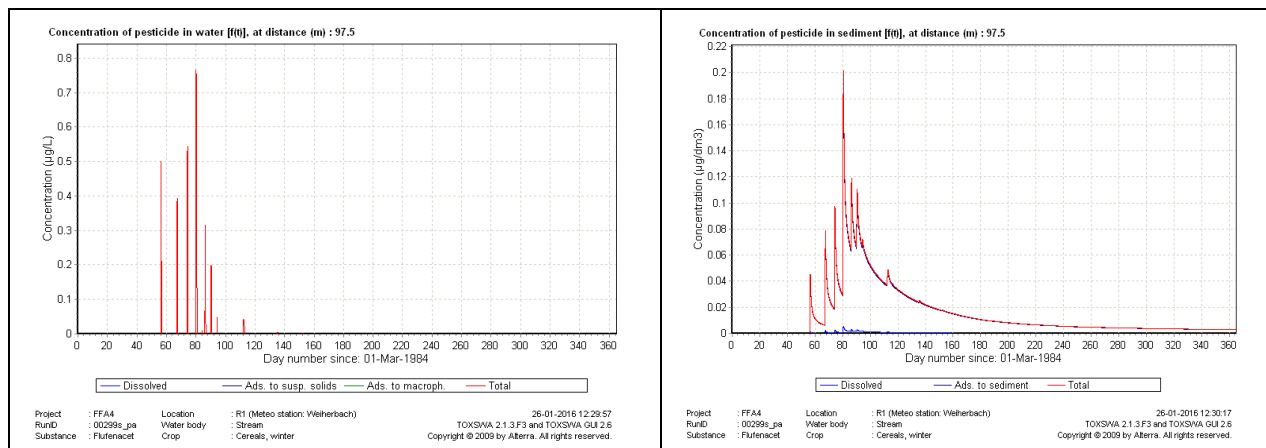


**Figure B.8.9-A.4.\_CP-66:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario D6 ditch.

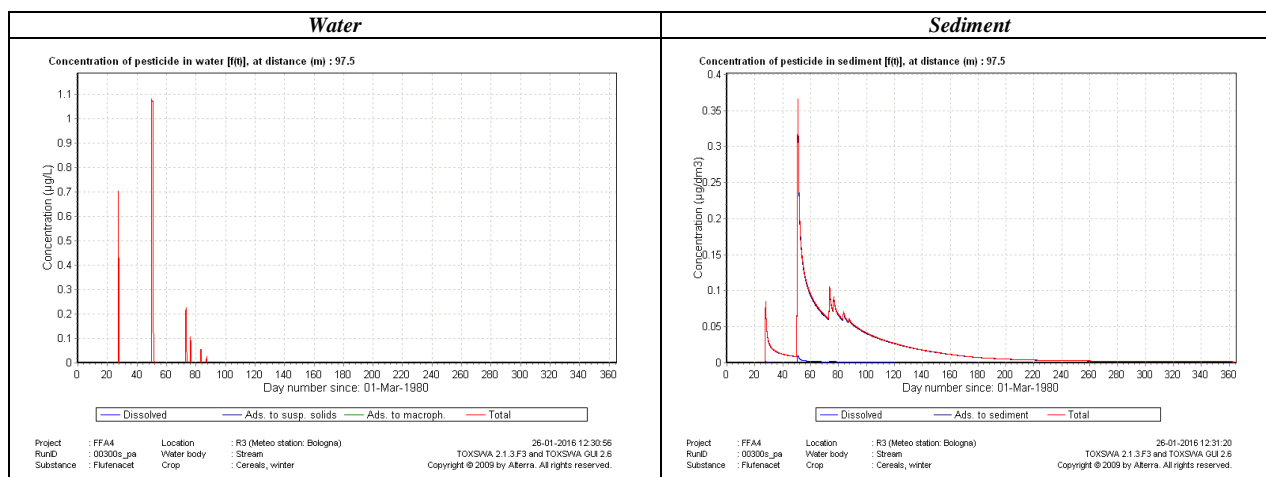


**Figure B.8.9-A.4.\_CP-67:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario R1 pond.

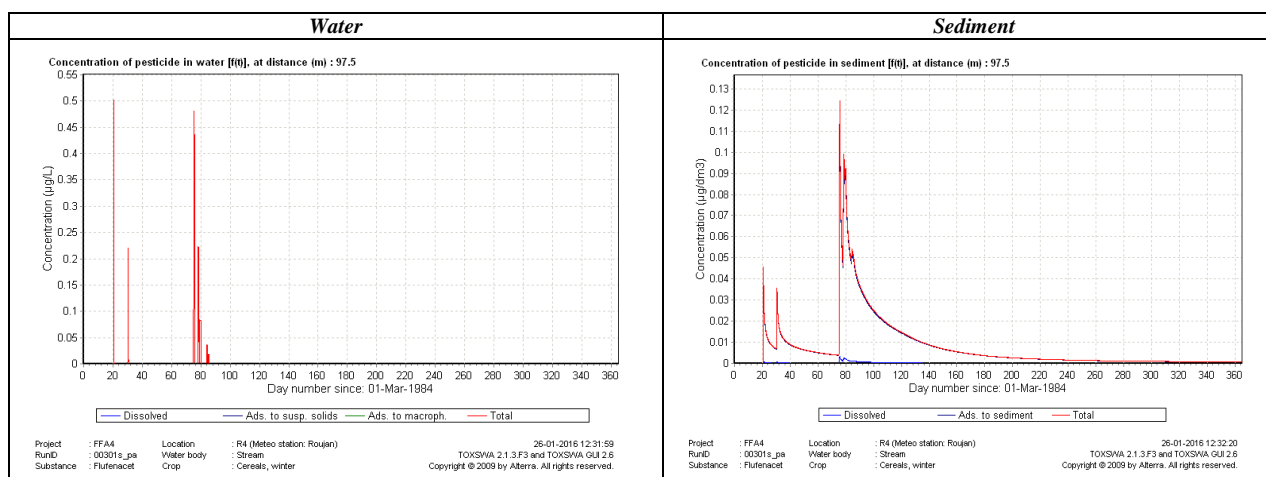
Water	Sediment
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**Figure B.8.9-A.4.\_CP-68:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R1 stream**.



**Figure B.8.9-A.4.\_CP-69:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R3 stream**.



**Figure B.8.9-A.4.\_CP-70:** The graphical results of estimation of  $PEC_{SW}$  and  $PEC_{SED}$  obtained for the FOCUS SW scenario **R4 stream**.

**B.8.9.-A.5 – Appendix 5: The graphical presentation of the Step-4 results of PEC<sub>sw</sub> calculations:**

Below are presented the graphical results of the estimation of PEC<sub>sw</sub> values for Flufenacet at Step 4. The results – the concentration profiles in water, were obtained using EPAT 1.0 modelling tool as a result of the analysis of the TOXSWA's *.cwa* files. They are presented individually for each use defined in the GAP table and the following mitigation measures adopted:

- 10-metres buffer zone (FOCUS);
- 20-metres buffer zone (FOCUS);
- 10-metres buffer zone in VFS-mod.

The threshold value marked on each graph by horizontal dashed line was 0.3 µg/L.

The concentration profiles of Flufenacet in water phase for each FOCUS SW scenario are presented below, individually for each mitigation measure:

1) Results obtained for the post-emergence use in Winter Cereals in autumn, at application rate 240 g/ha:

a) Mitigation measure: 10-metres FOCUS buffer zone

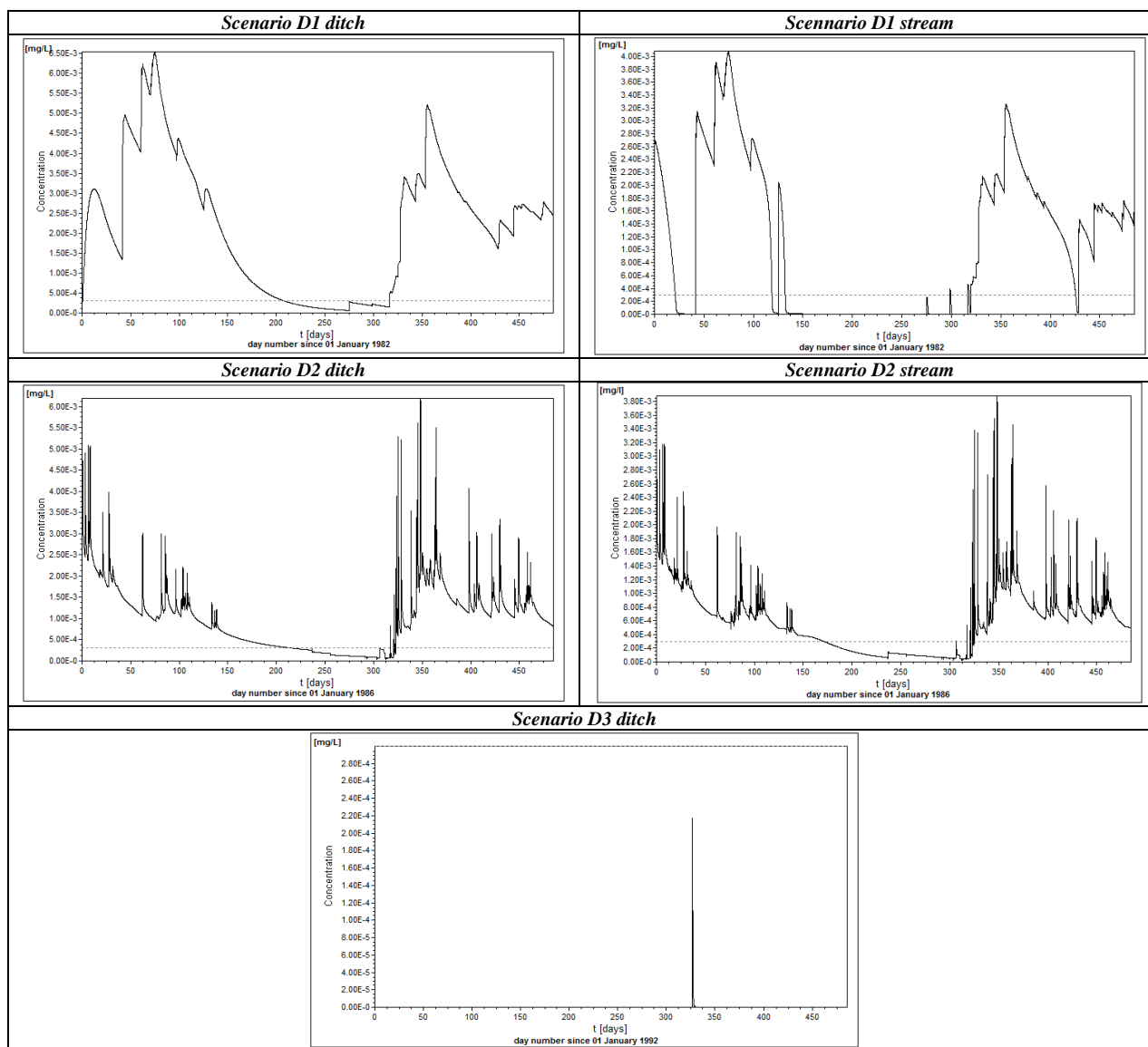


Figure B.8.9.-A.5.\_CP-1: The concentration profiles obtained in D scenarios using EPAT 1.0.

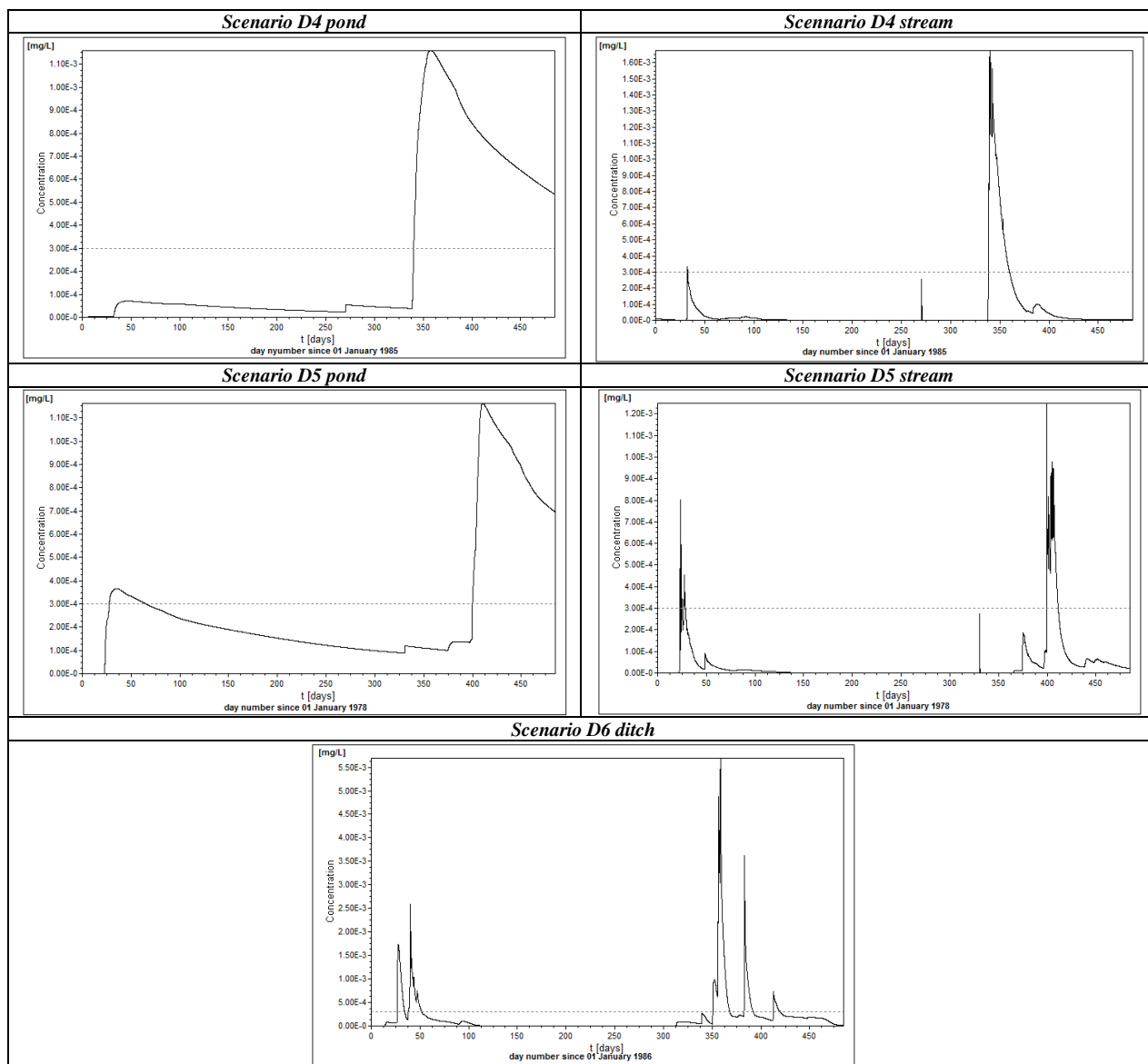
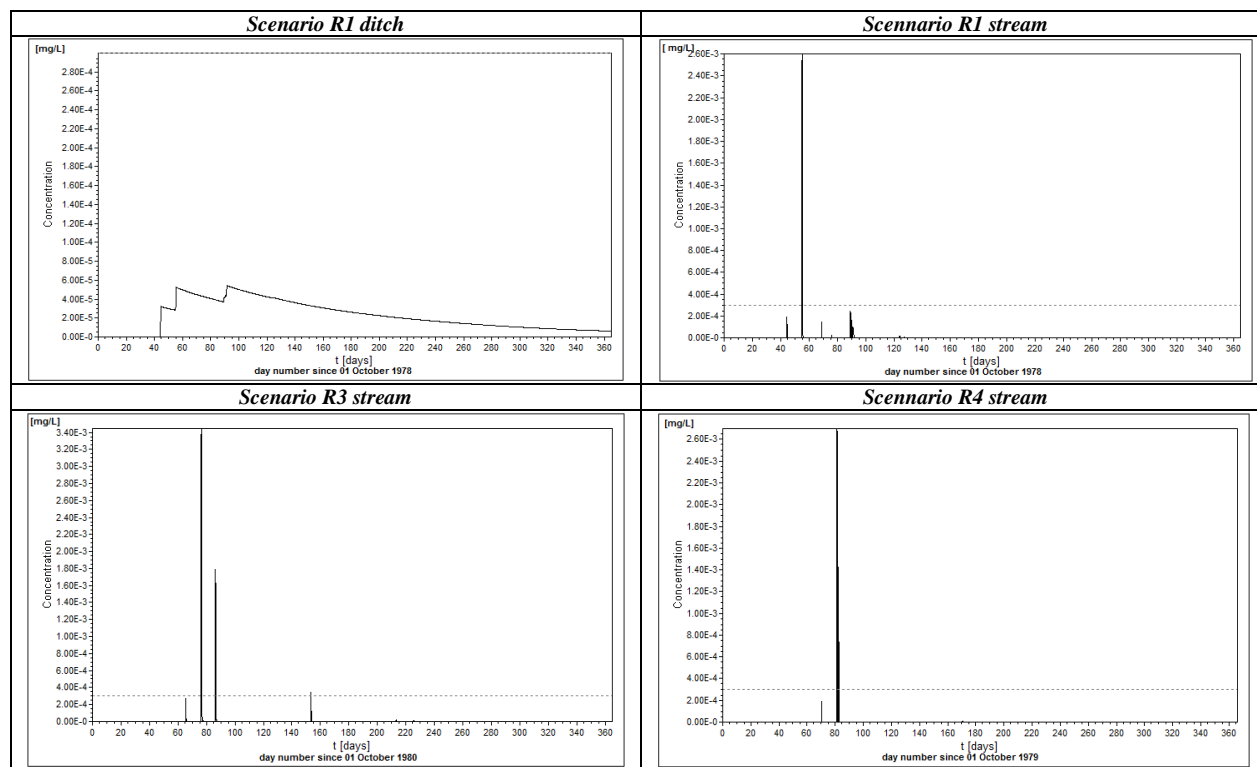


Figure B.8.9.-A.5.\_CP-2: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-3:** The concentration profiles obtained in R scenarios using EPAT 1.0.

b) Mitigation measure: 20-metres FOCUS buffer zone

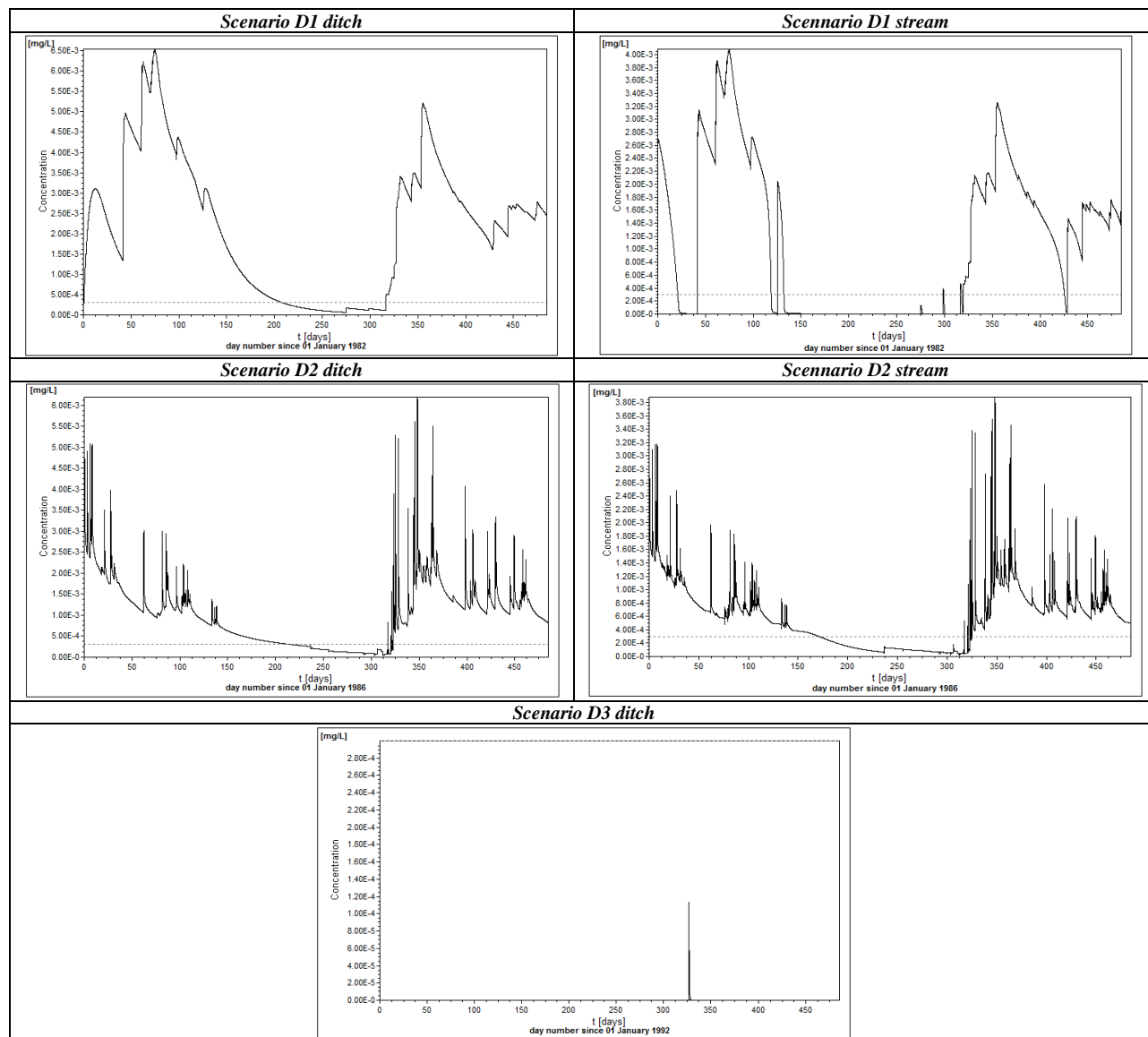


Figure B.8.9.-A.5.\_CP-4: The concentration profiles obtained in D scenarios using EPAT 1.0.

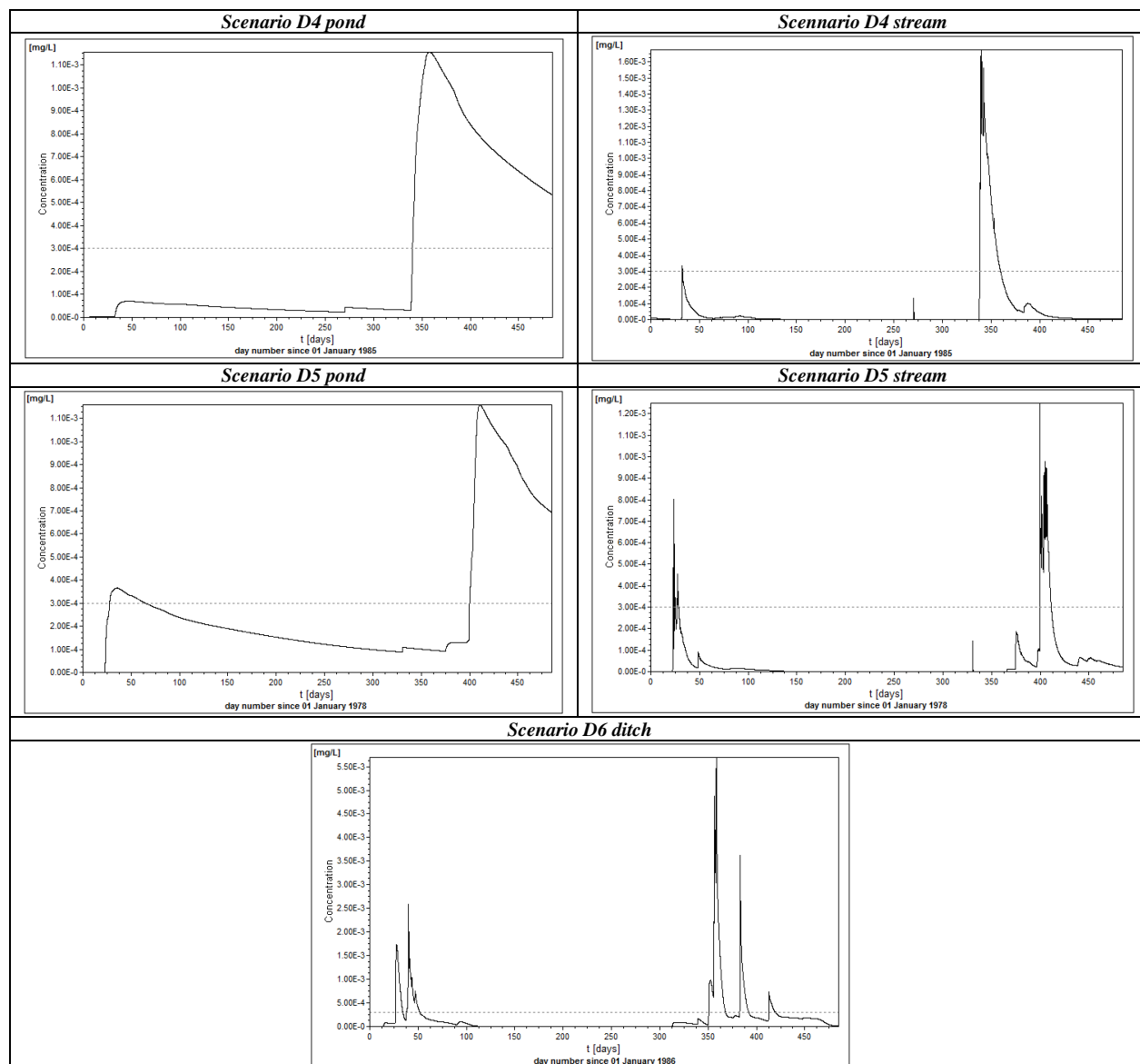


Figure B.8.9.-A.5.\_CP-5: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.

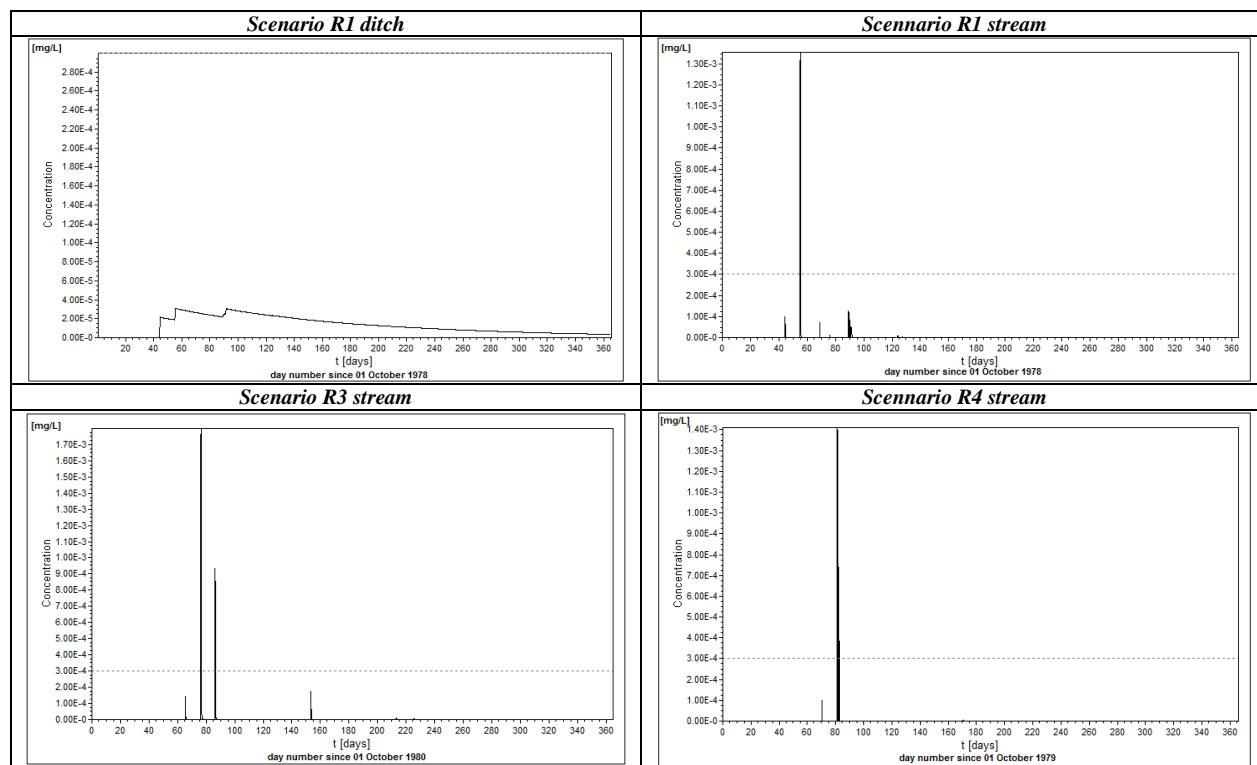


Figure B.8.9.-A.5.\_CP-6: The concentration profiles obtained in R scenarios using EPAT 1.0.

c) Mitigation measure: 10-metres buffer zone in VFS-mod

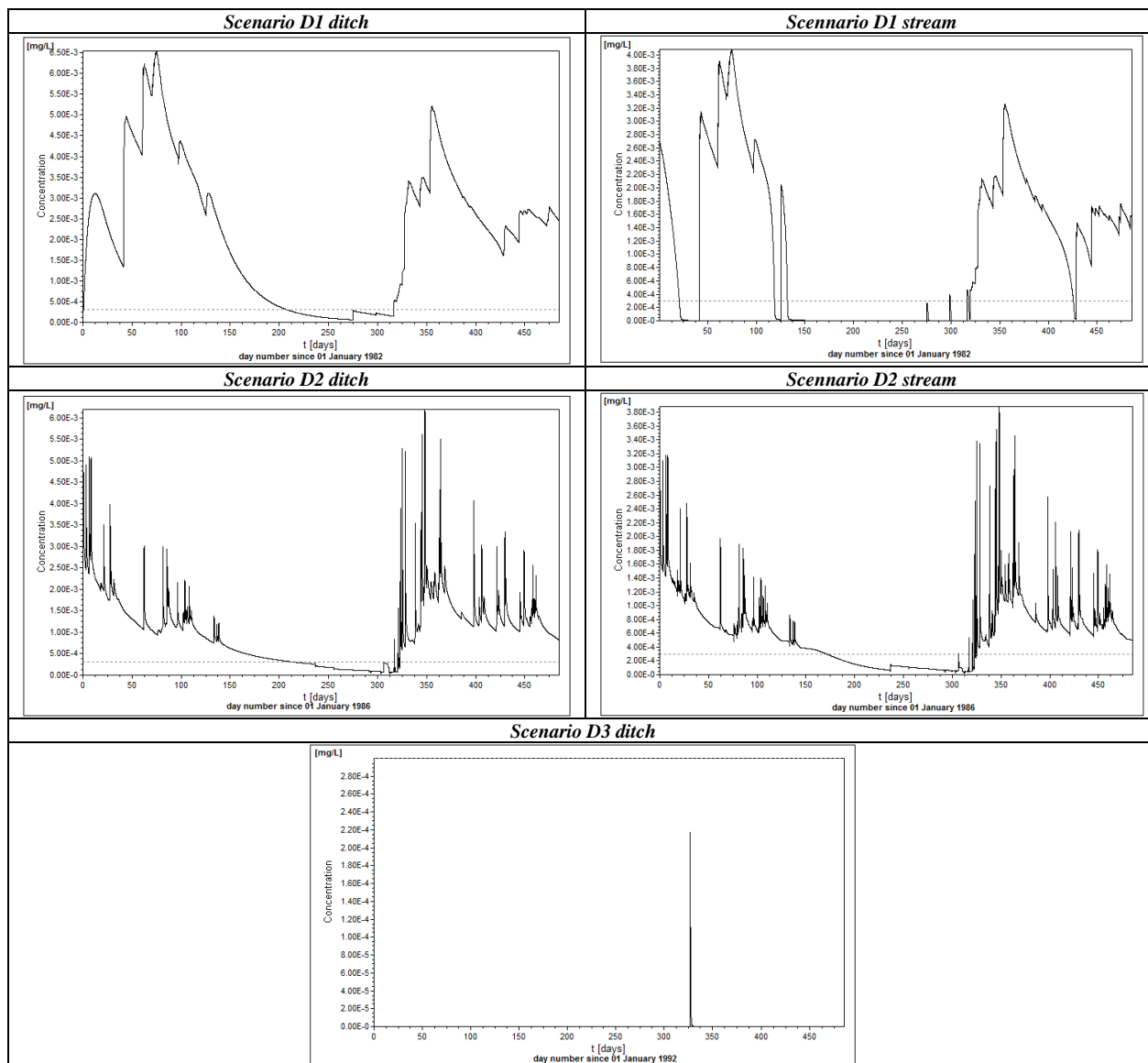


Figure B.8.9.-A.5.\_CP-7: The concentration profiles obtained in D scenarios using EPAT 1.0.

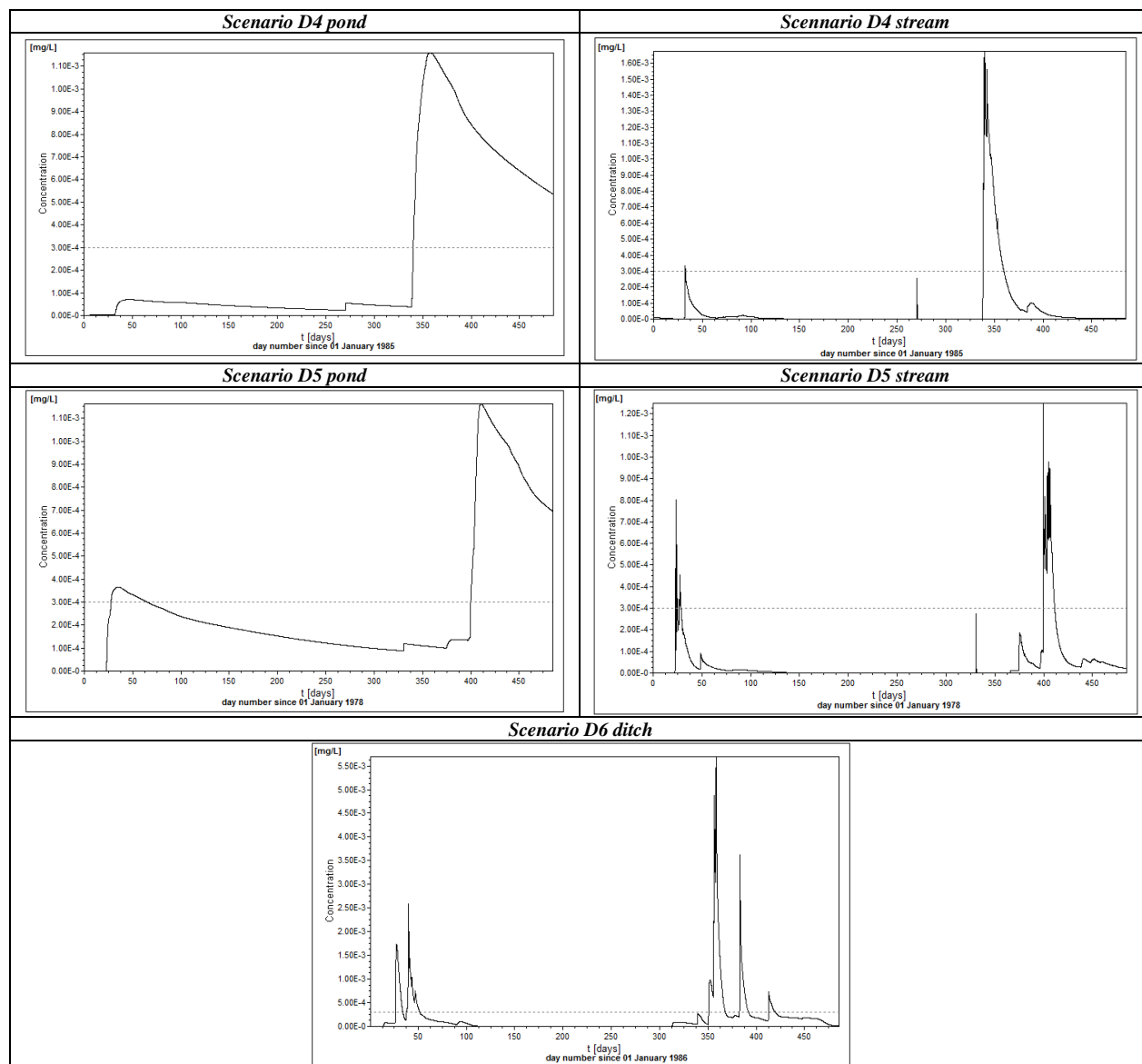
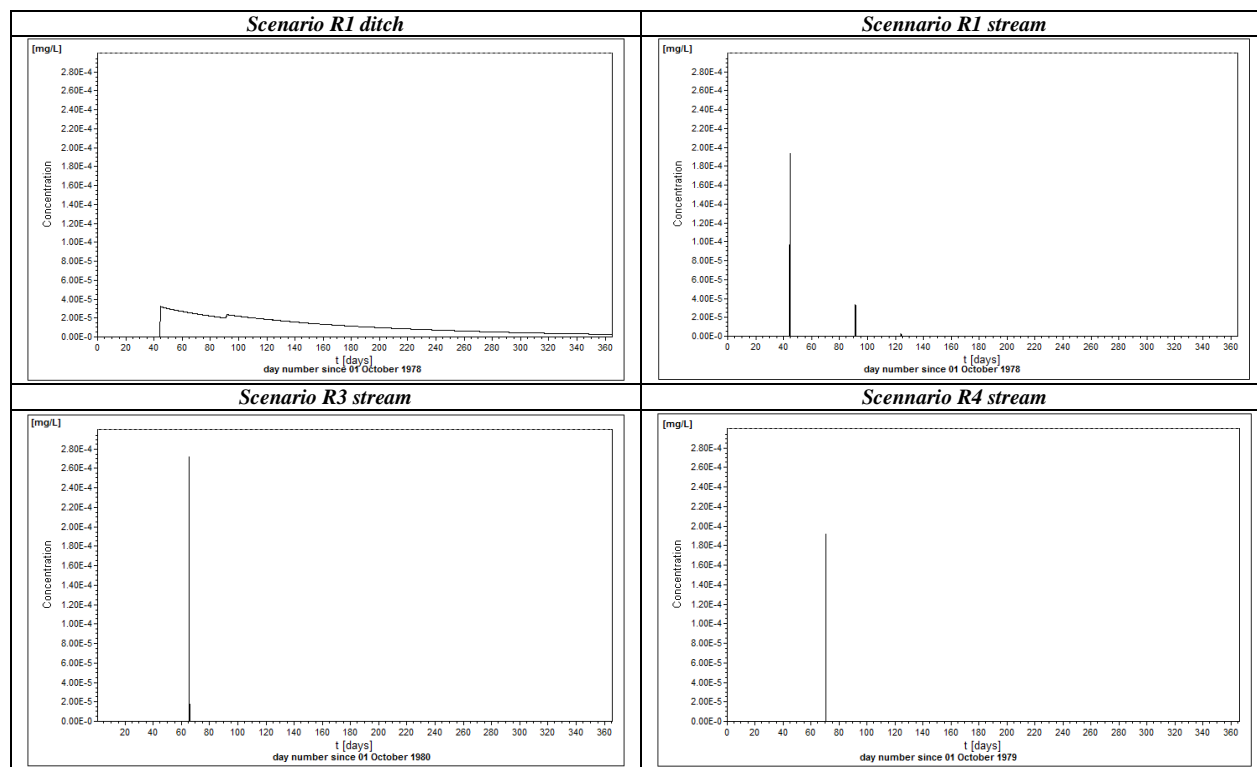


Figure B.8.9.-A.5.\_CP-8: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-9:** The concentration profiles obtained in R scenarios using EPAT 1.0.

- 2) Results obtained for the post-emergence use in Winter Cereals in autumn, at application rate 160 g/ha:

- a) Mitigation measure: 10-metres FOCUS buffer zone

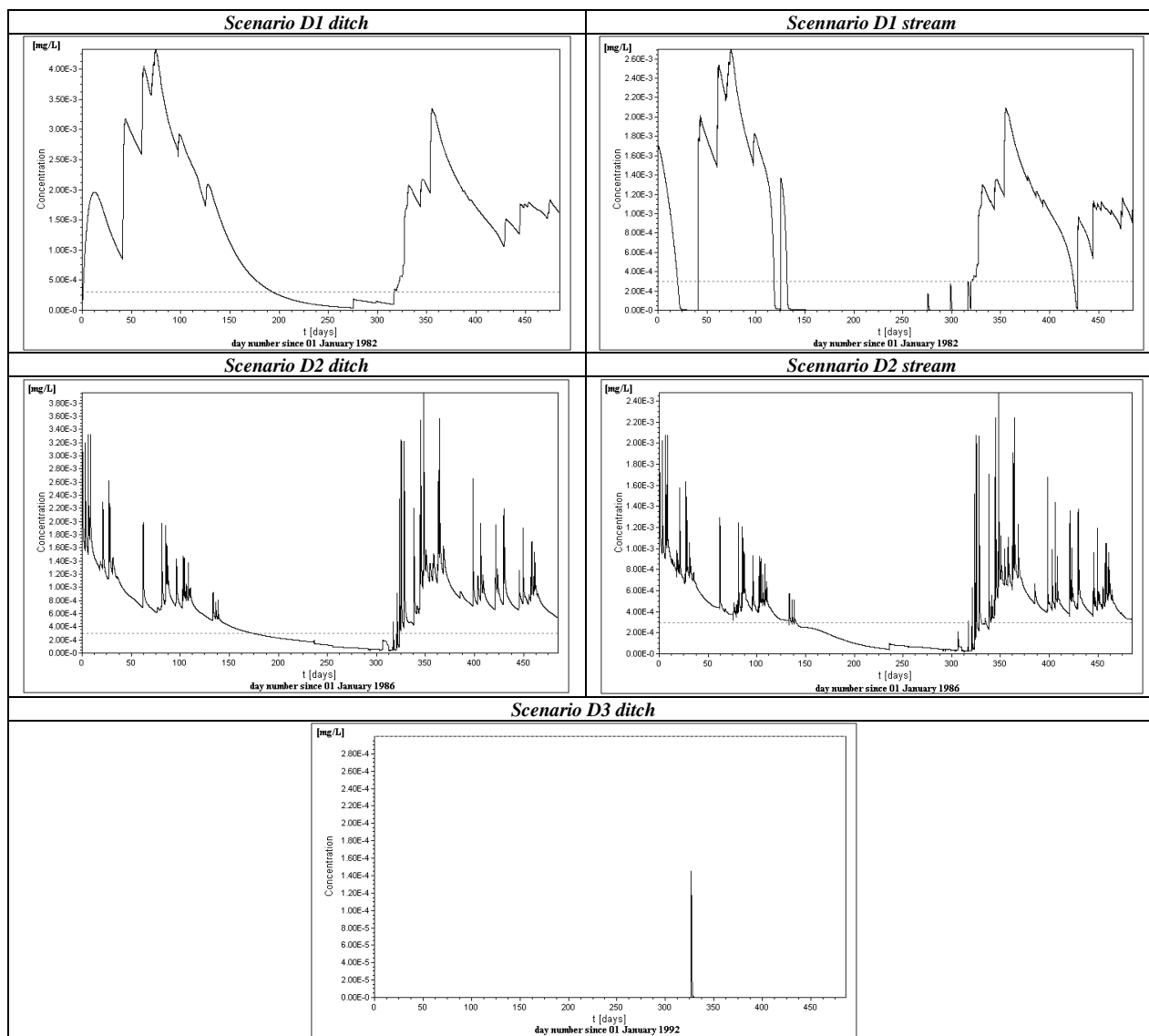


Figure B.8.9.-A.5\_CP-10: The concentration profiles obtained in D scenarios using EPAT 1.0.

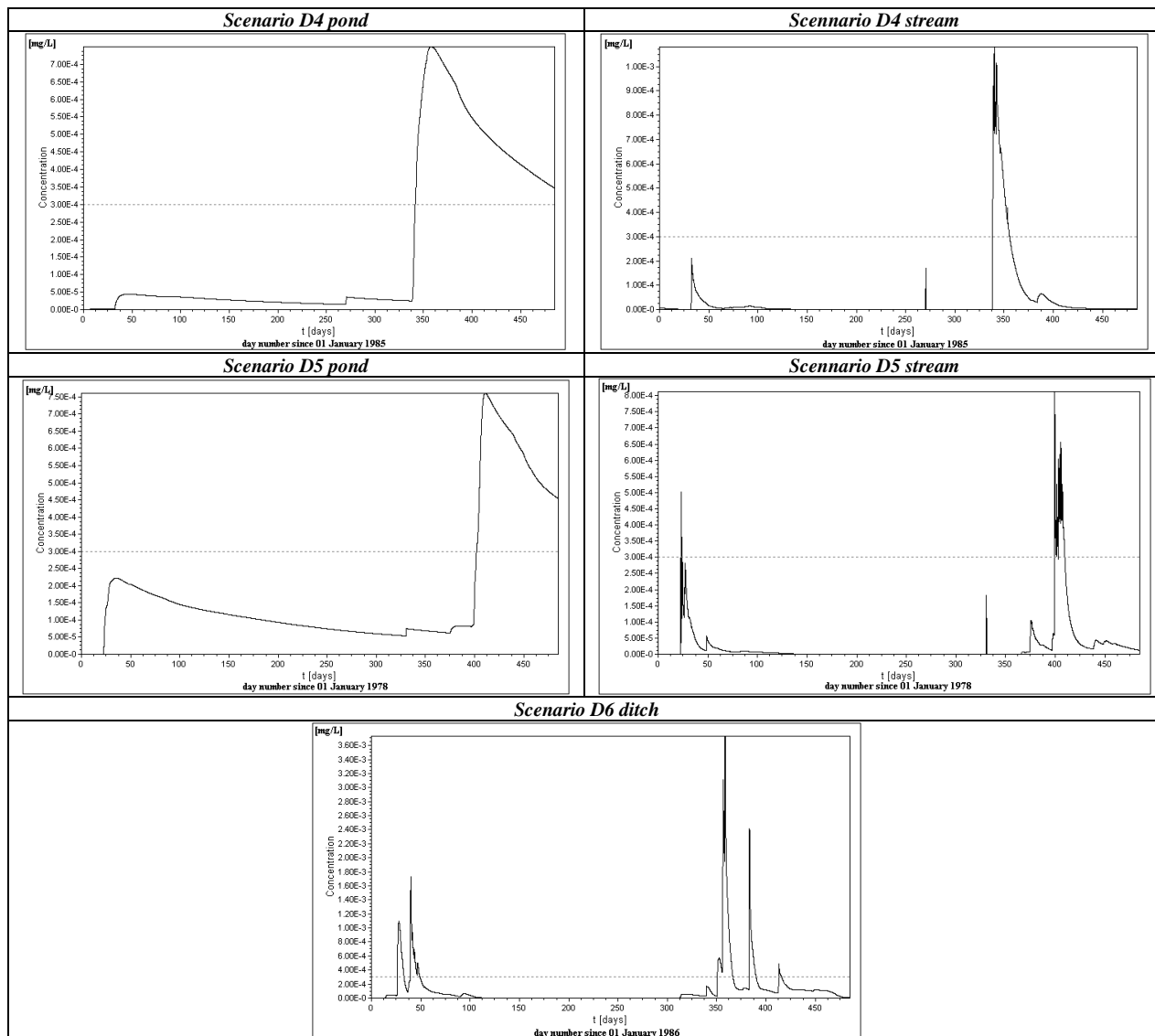


Figure B.8.9.-A.5.\_CP-11: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.

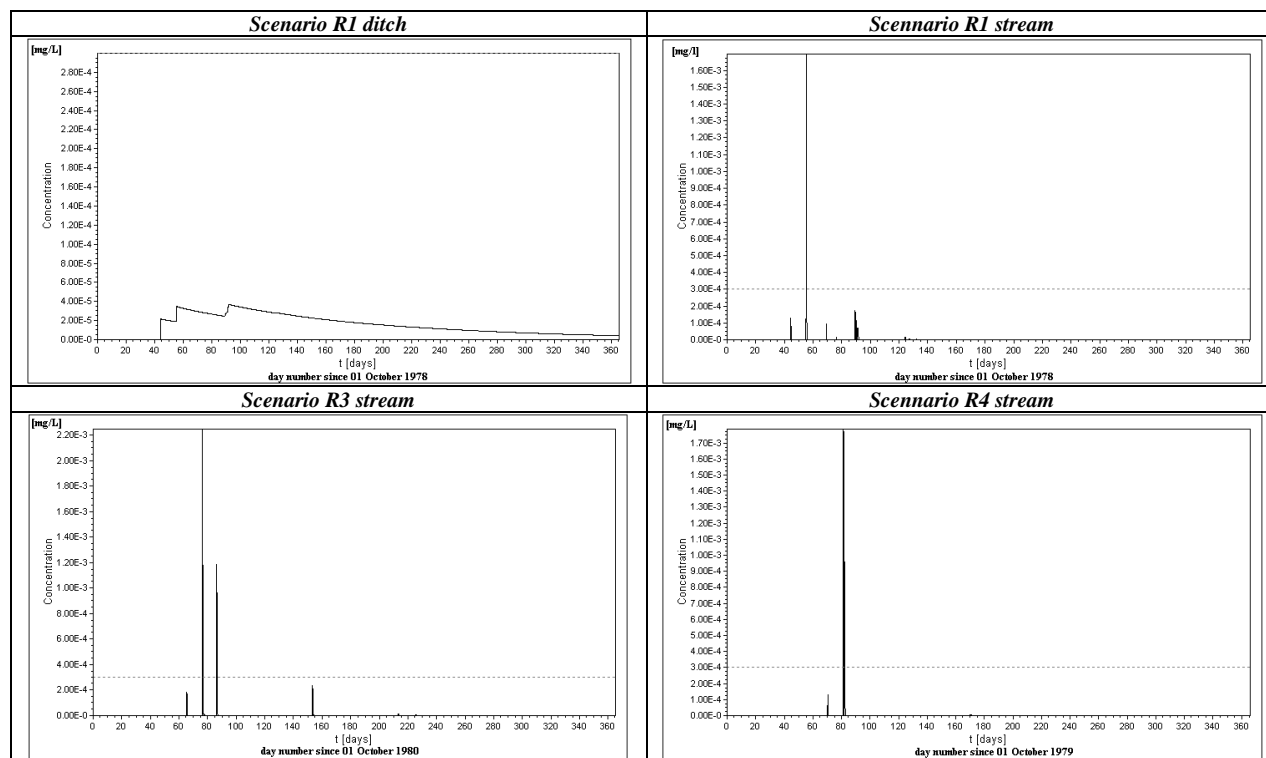


Figure B.8.9.-A.5.\_CP-12: The concentration profiles obtained in R scenarios using EPAT 1.0.

b) Mitigation measure: 20-metres FOCUS buffer zone

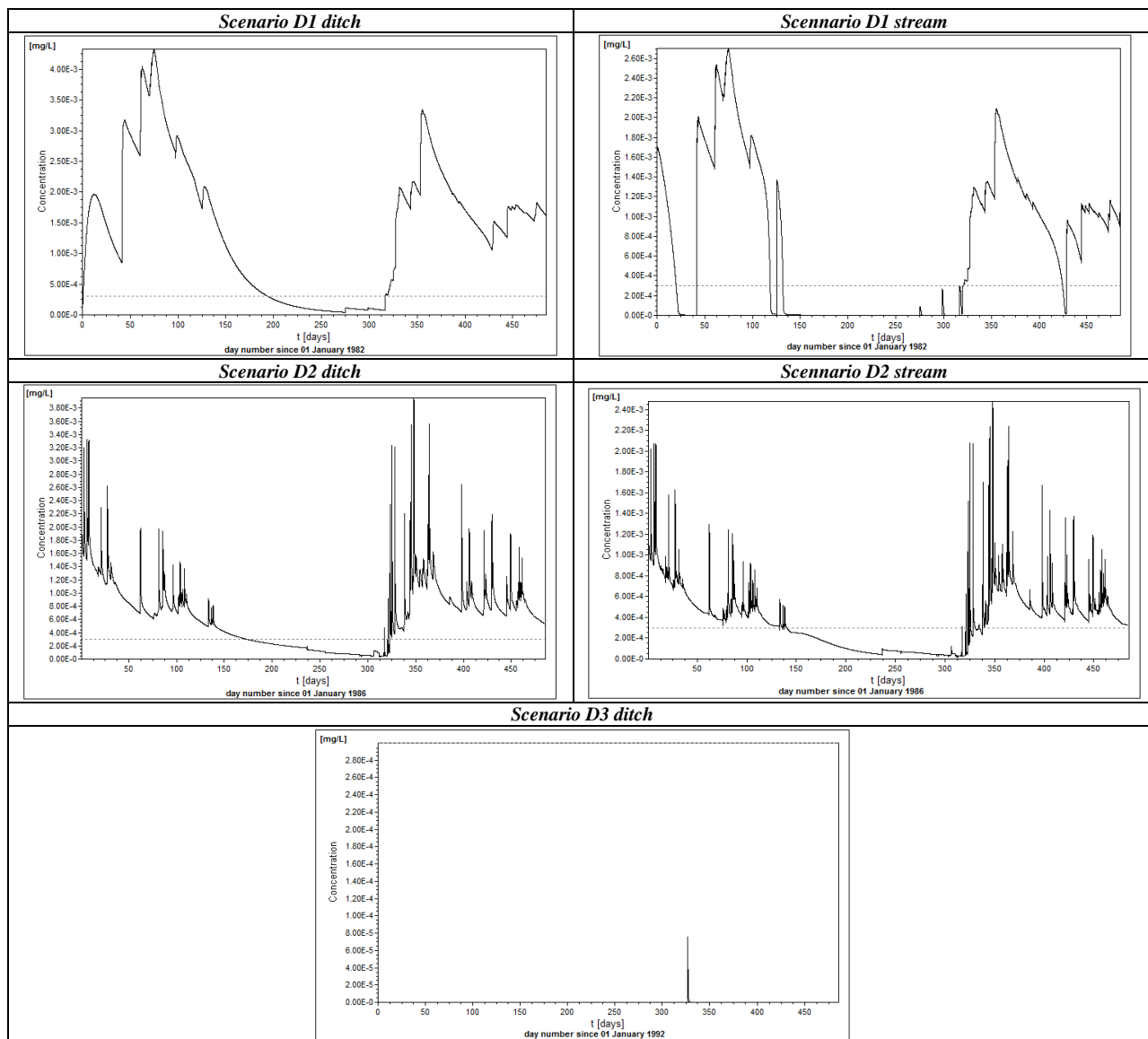


Figure B.8.9.-A.5.\_CP-13: The concentration profiles obtained in D scenarios using EPAT 1.0.

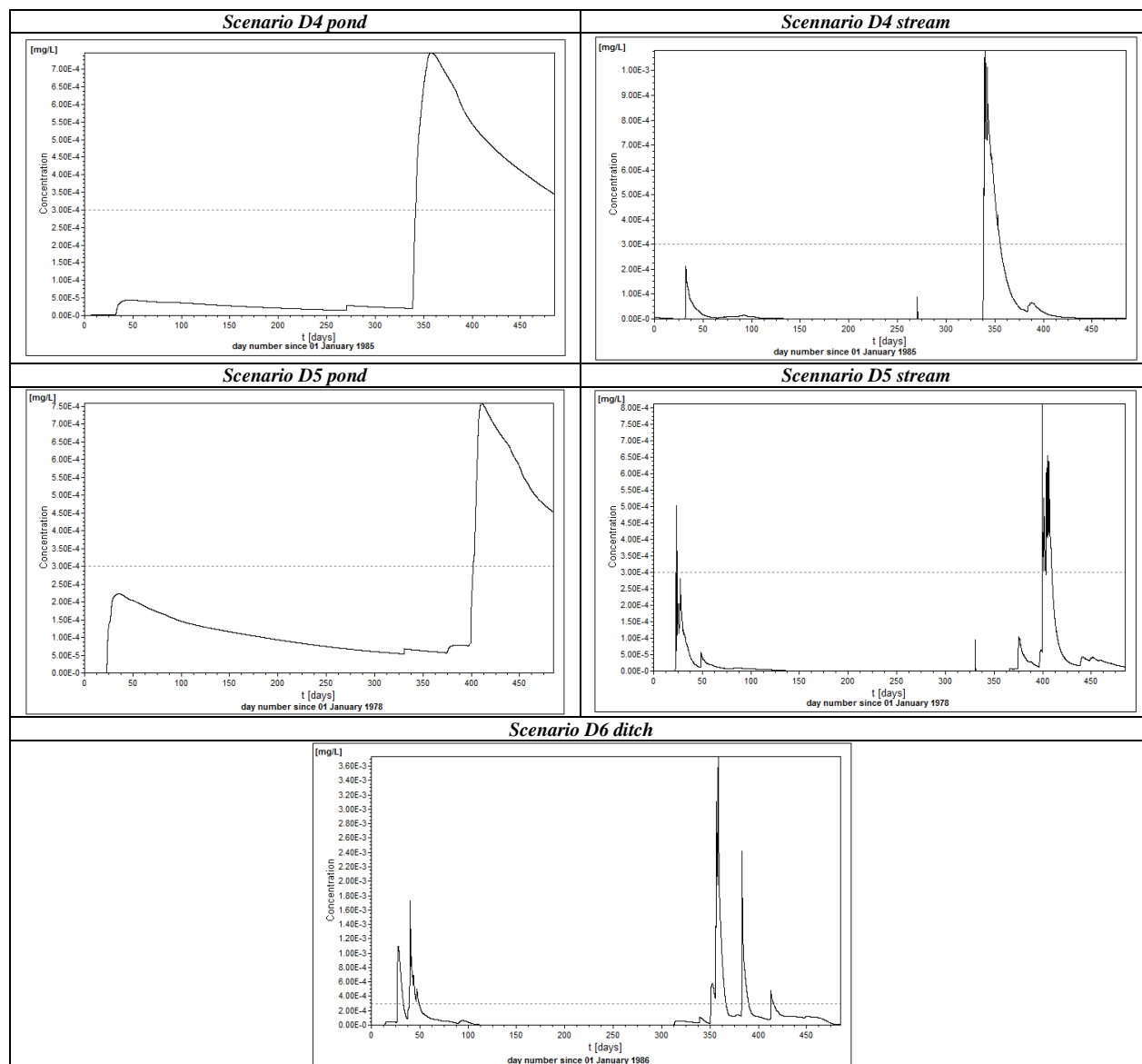
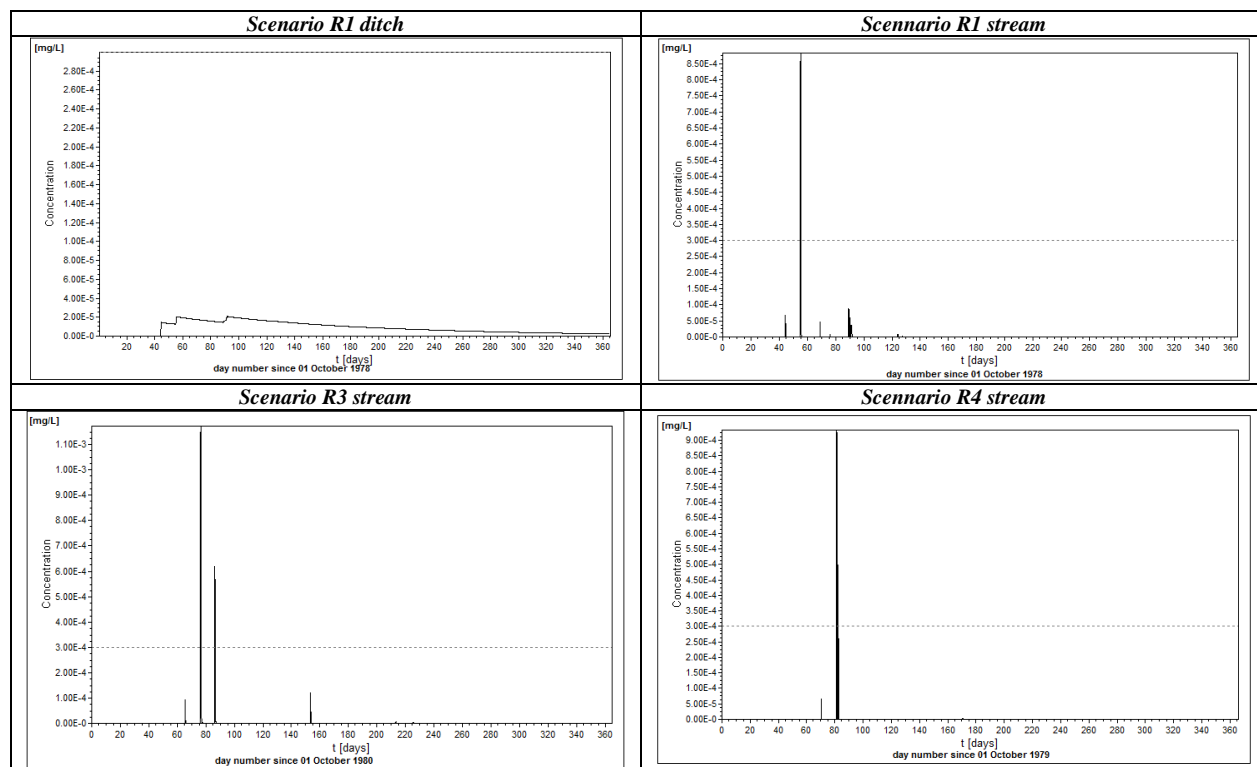


Figure B.8.9.-A.5.\_CP-14: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-15:** The concentration profiles obtained in R scenarios using EPAT 1.0.

c) Mitigation measure: 10-metres buffer zone in VFS-mod

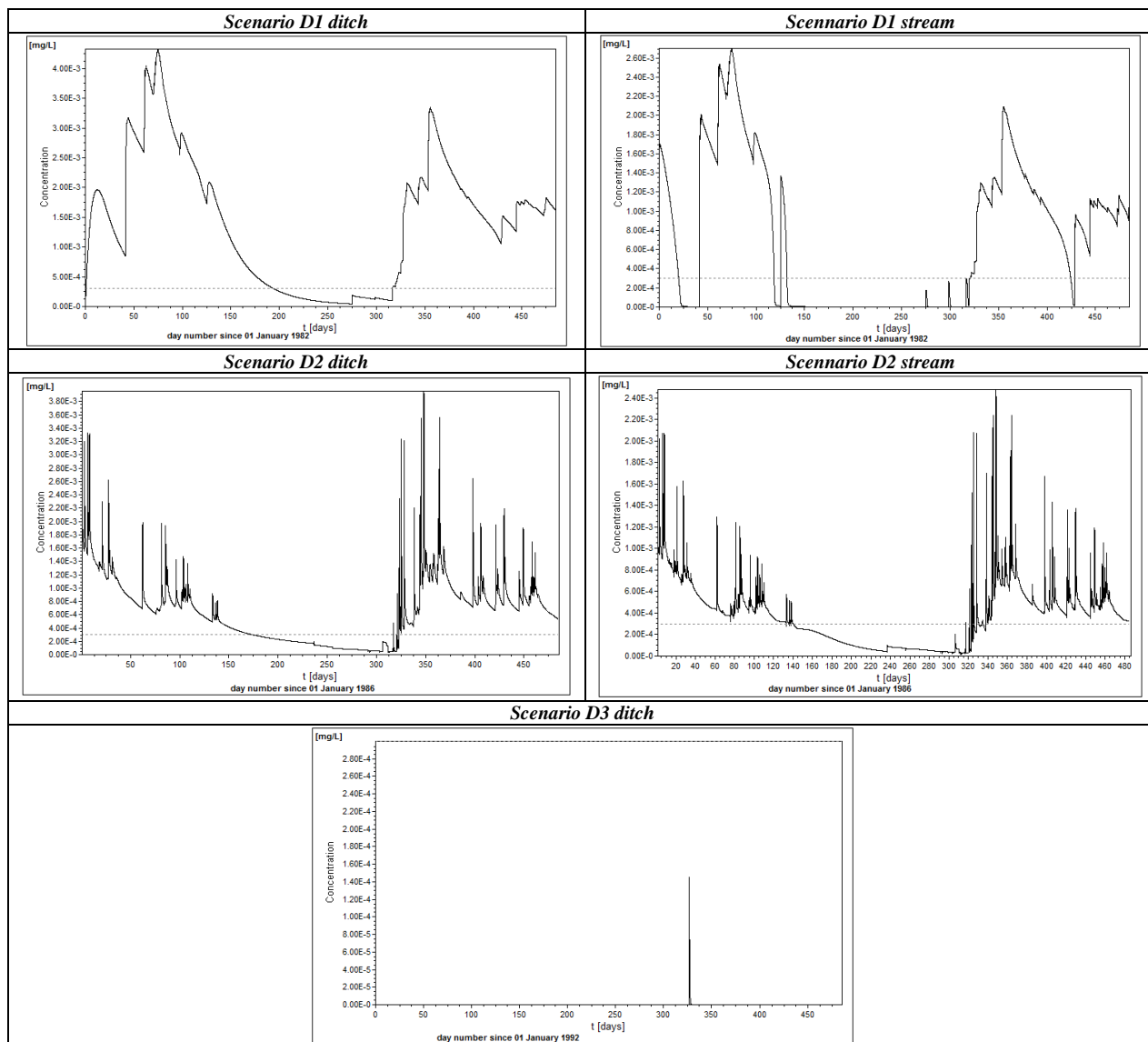


Figure B.8.9.-A.5.\_CP-16: The concentration profiles obtained in D scenarios using EPAT 1.0.

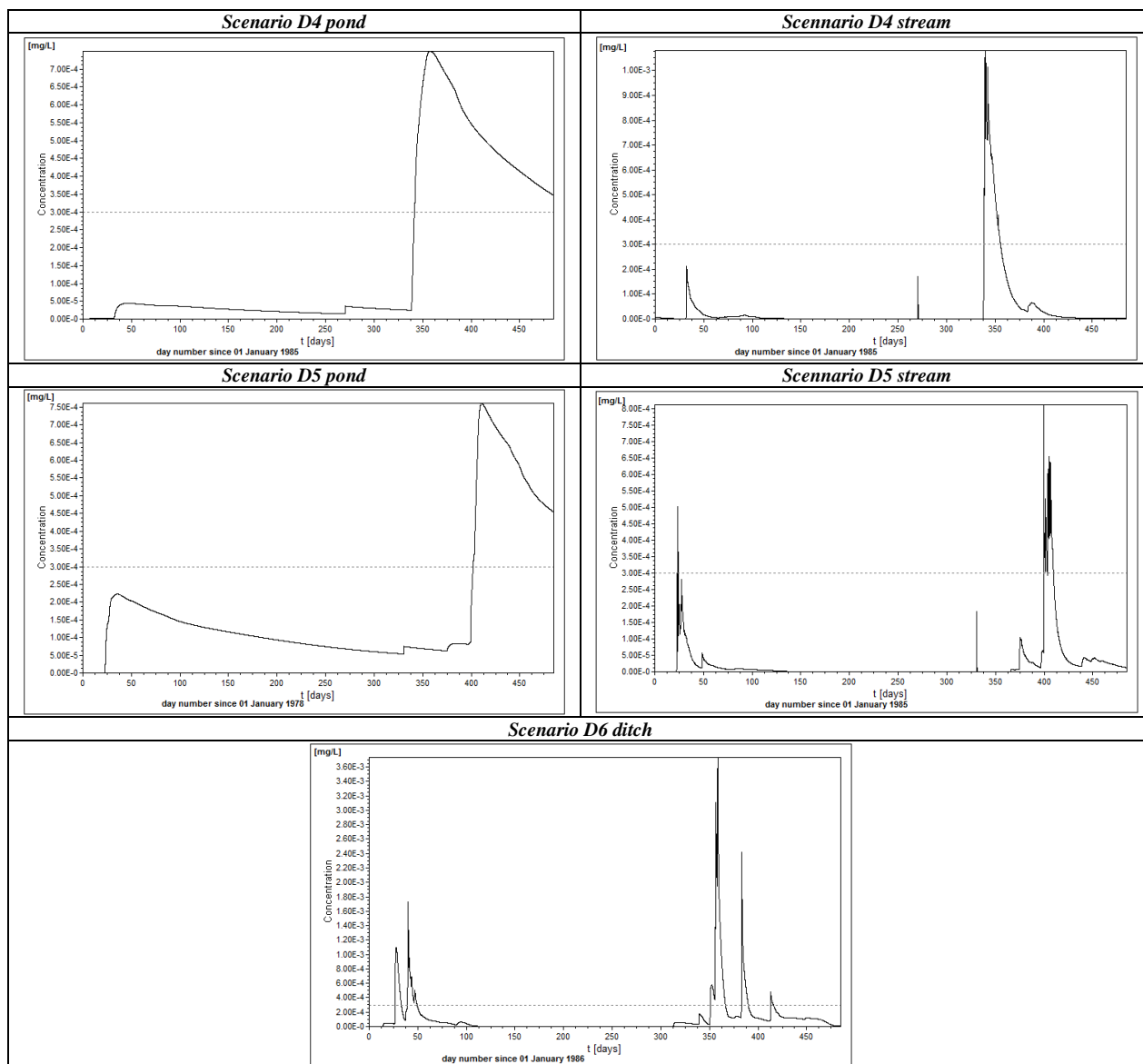
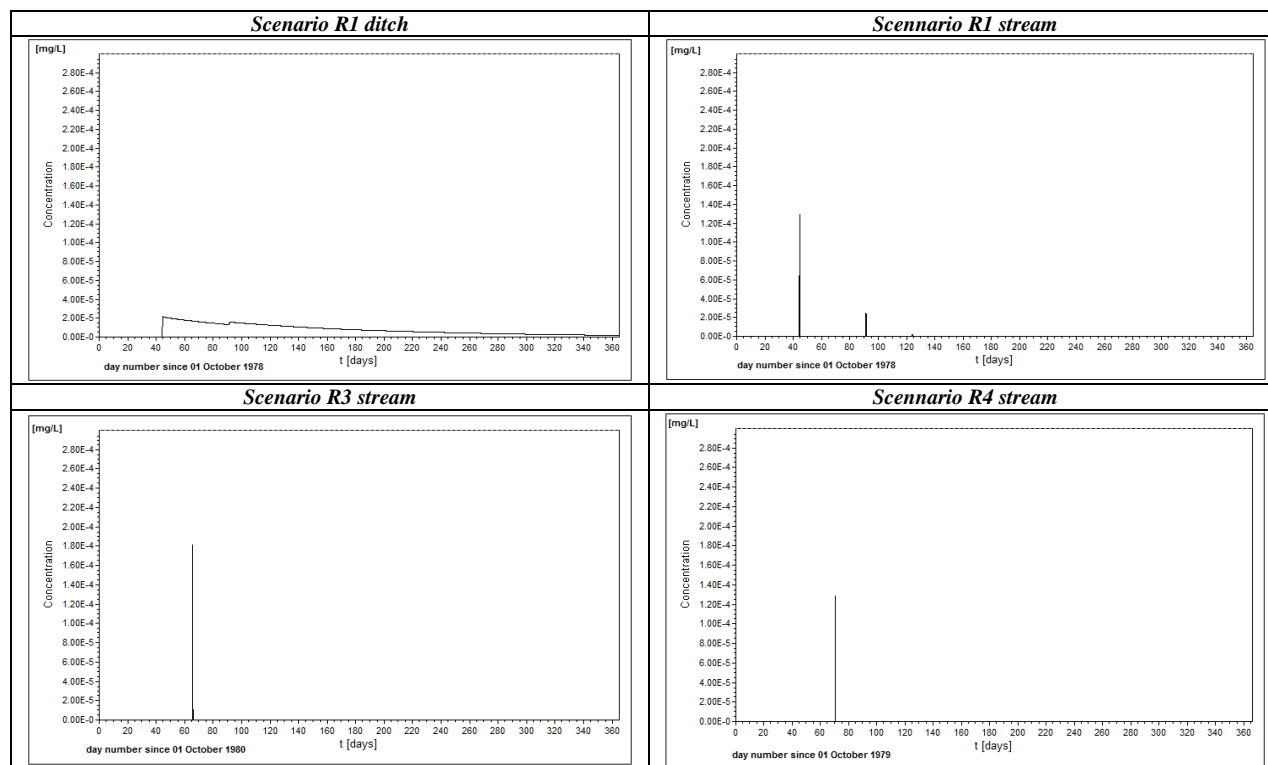


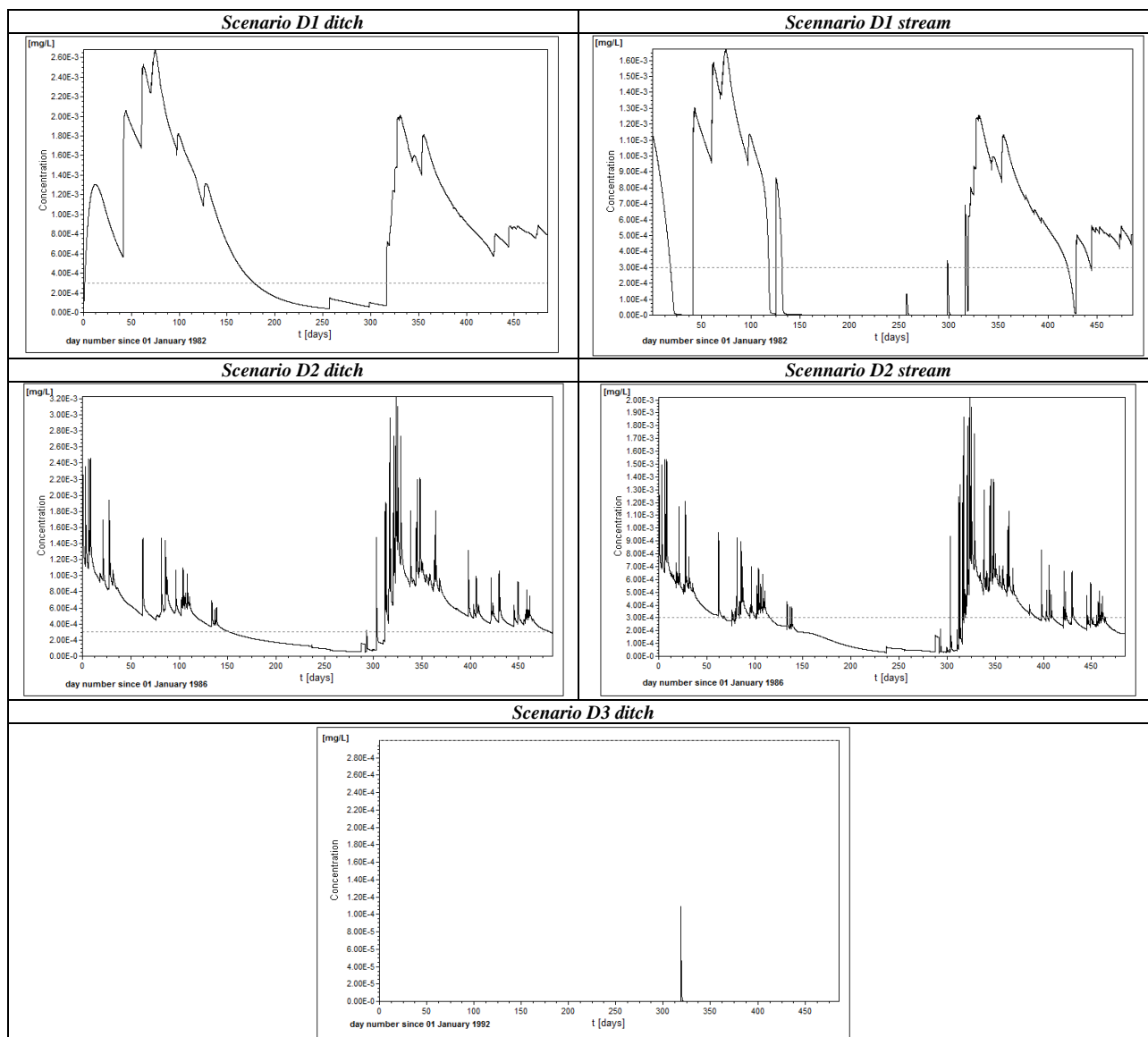
Figure B.8.9.-A.5.\_CP-17: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-18:** The concentration profiles obtained in R scenarios using EPAT 1.0.

3) Results obtained for the pre-emergence use in Winter Cereals in autumn, at application rate 120 g/ha:

a) Mitigation measure: 10-metres FOCUS buffer zone



**Figure B.8.9.-A.5.\_CP-19:** The concentration profiles obtained in D scenarios using EPAT 1.0.

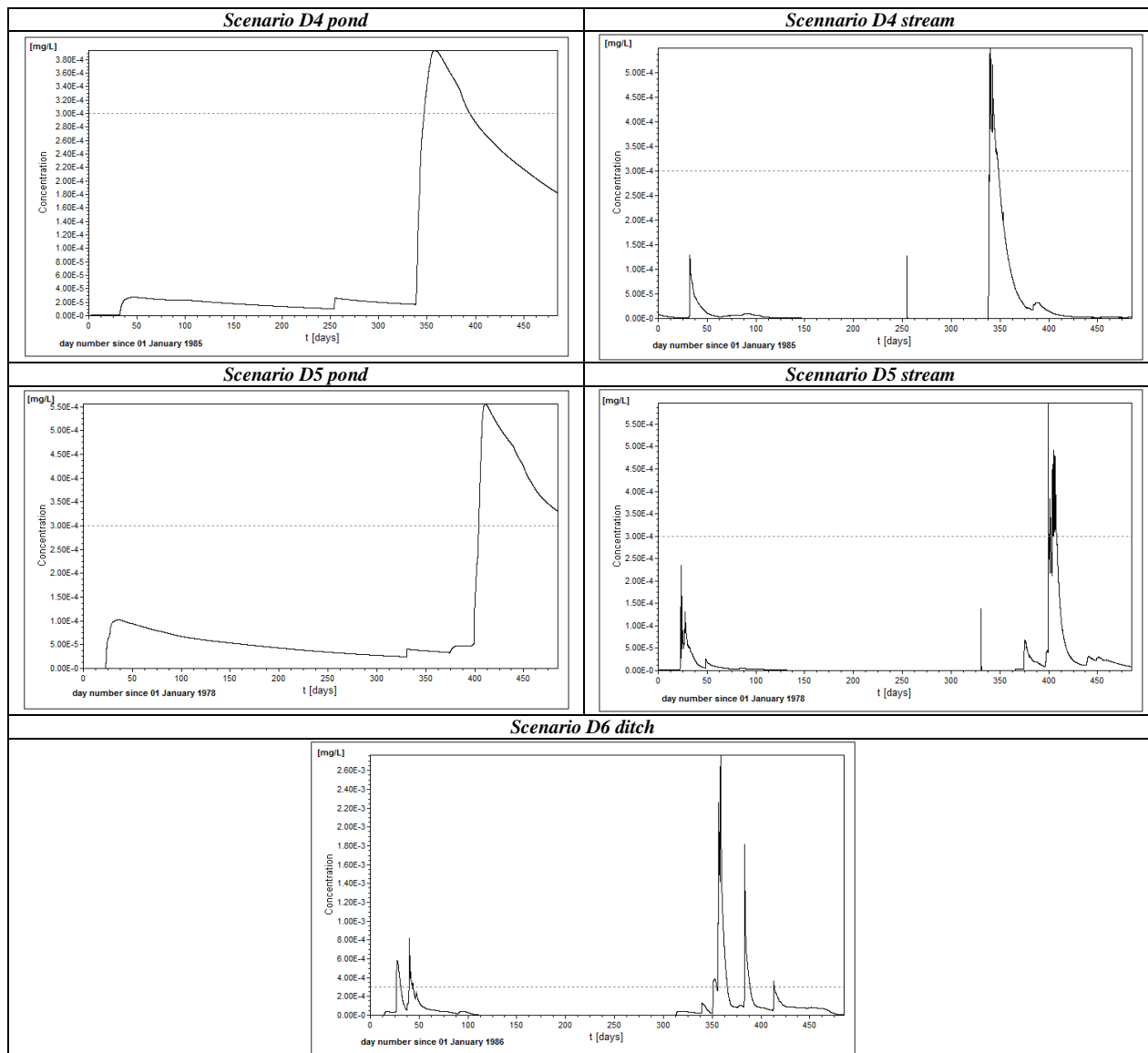
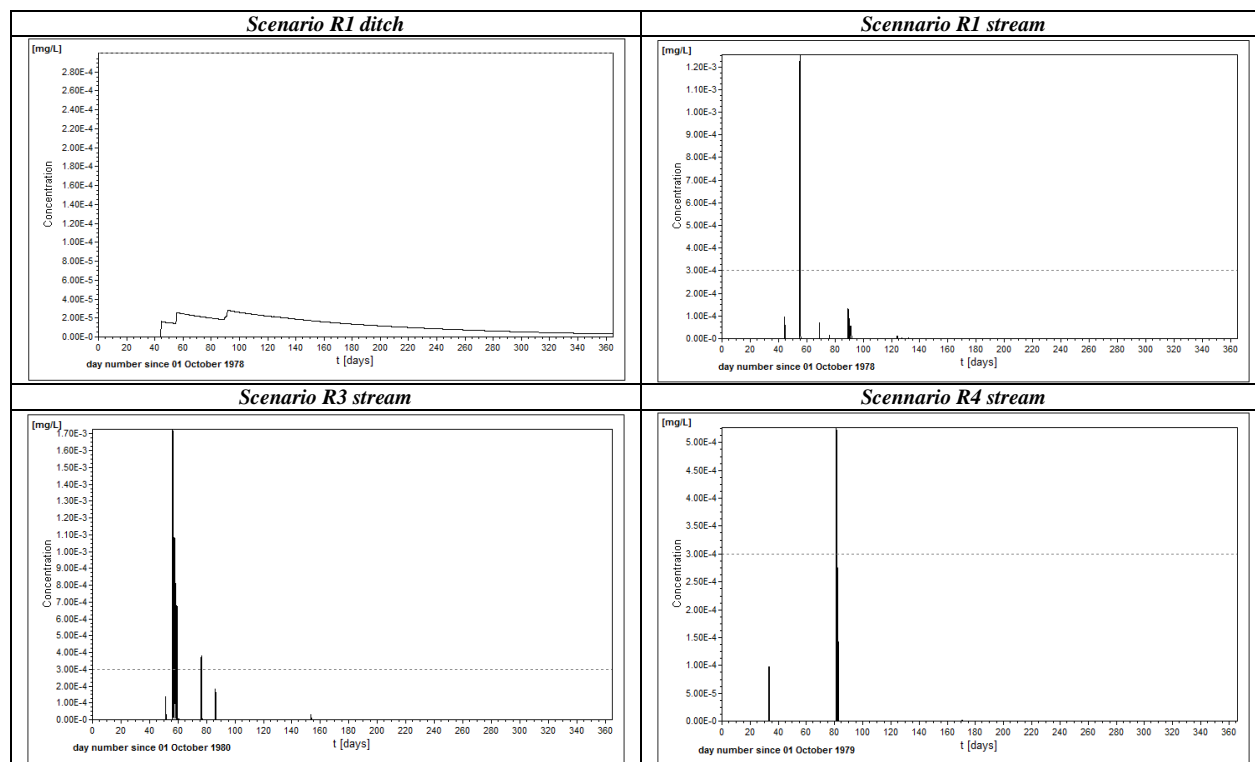


Figure B.8.9.-A.5.\_CP-20: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-21:** The concentration profiles obtained in R scenarios using EPAT 1.0.

## b) Mitigation measure: 20-metres FOCUS buffer zone

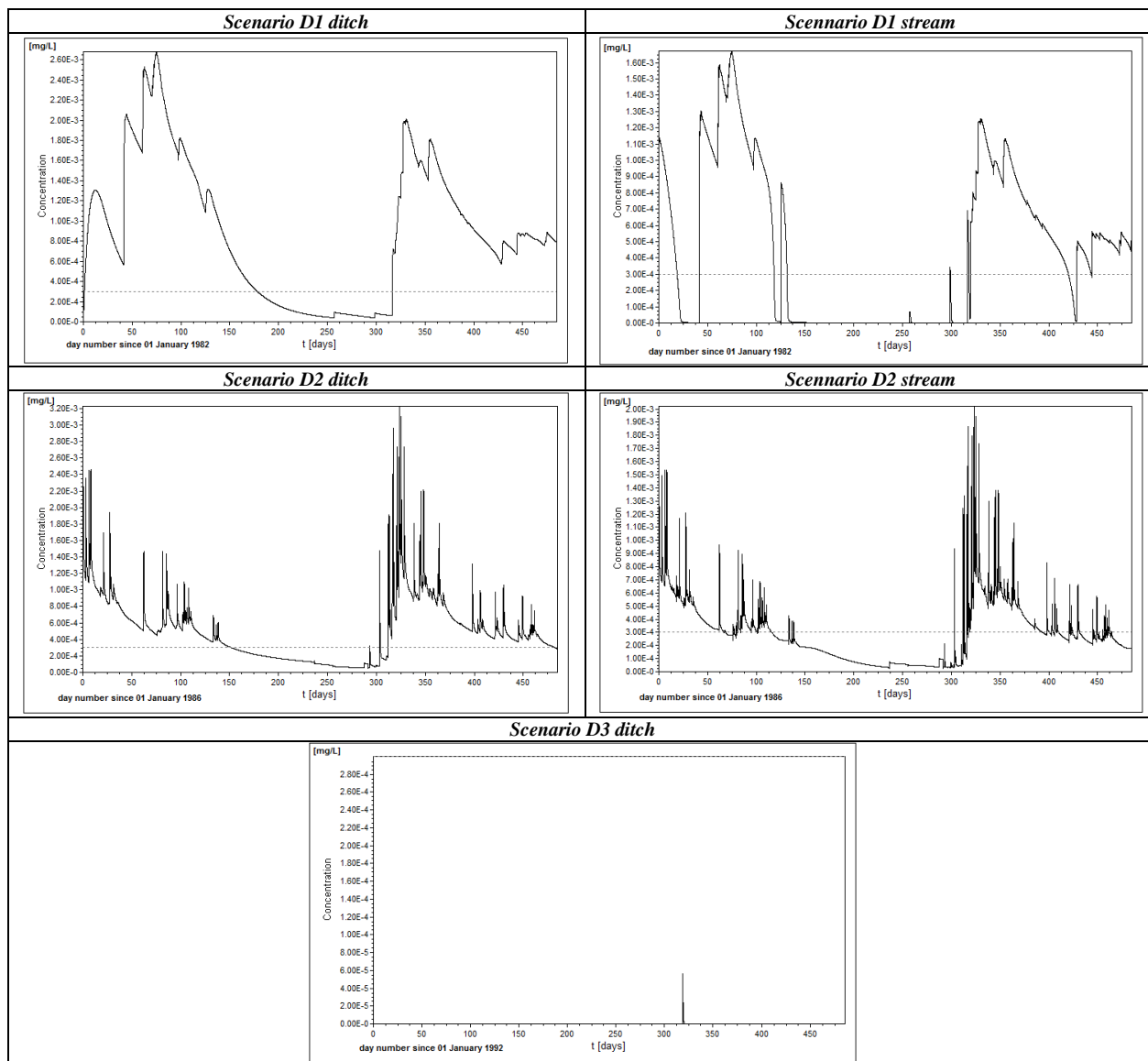


Figure B.8.9.-A.5.\_CP-22: The concentration profiles obtained in D scenarios using EPAT 1.0.

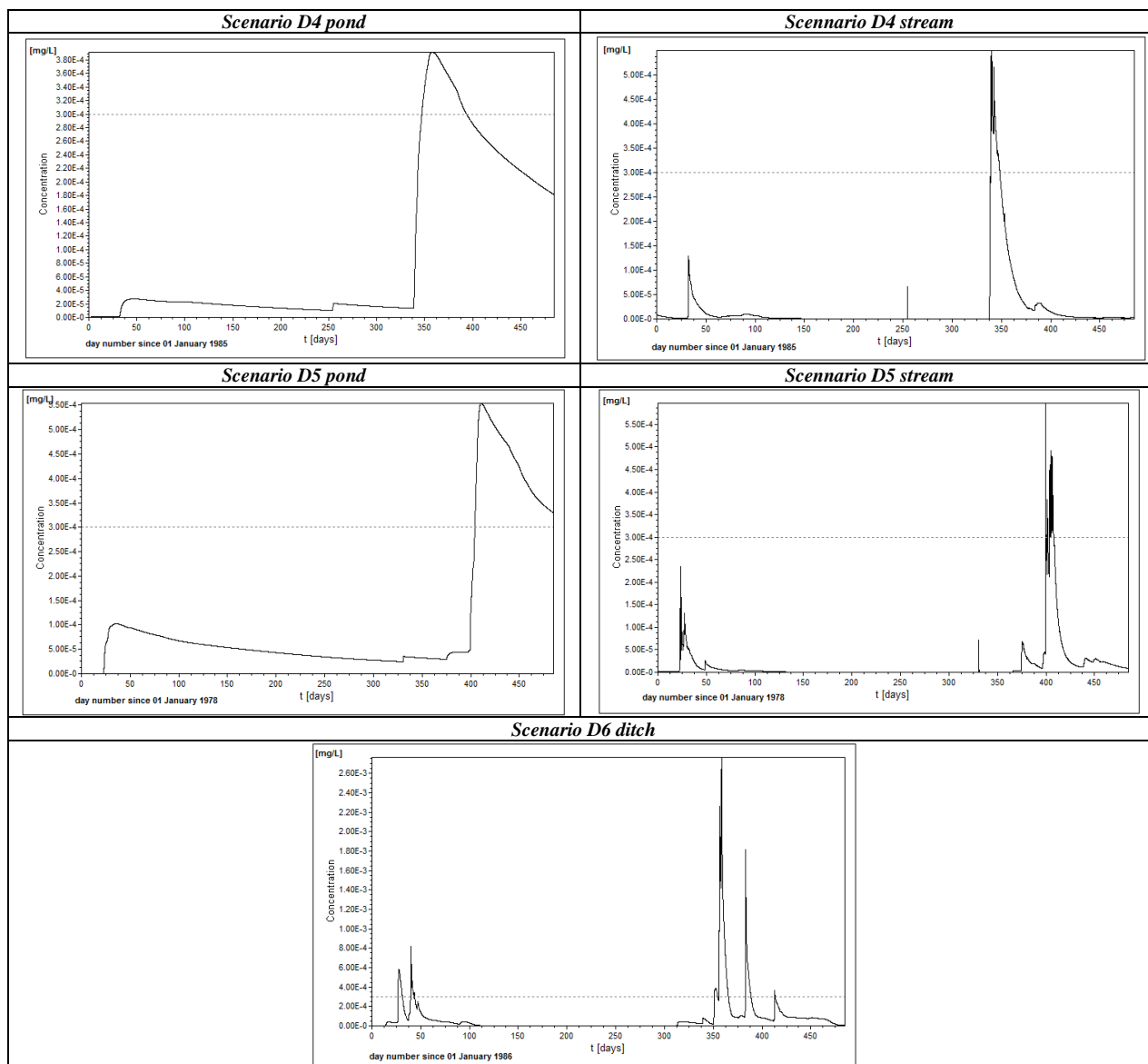
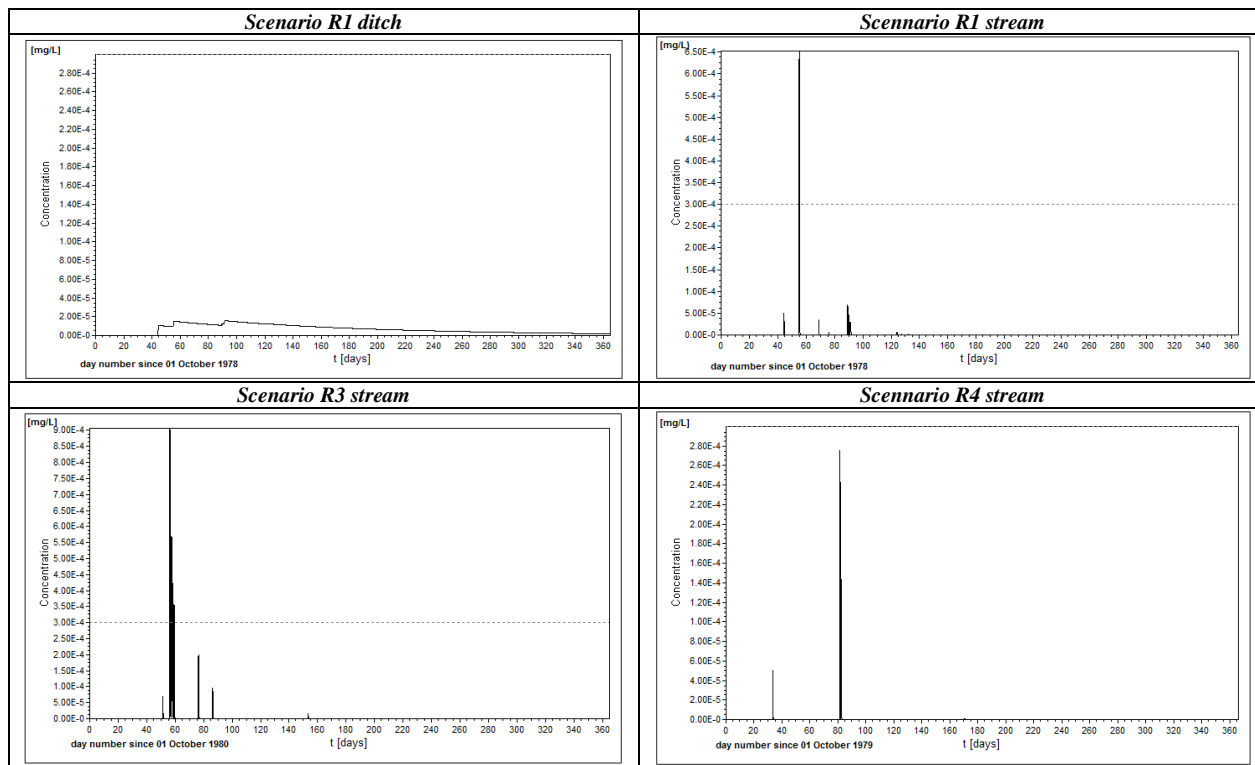


Figure B.8.9.-A.5.\_CP-23: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-24:** The concentration profiles obtained in R scenarios using EPAT 1.0.

c) Mitigation measure: 10-metres buffer zone in VFS-mod

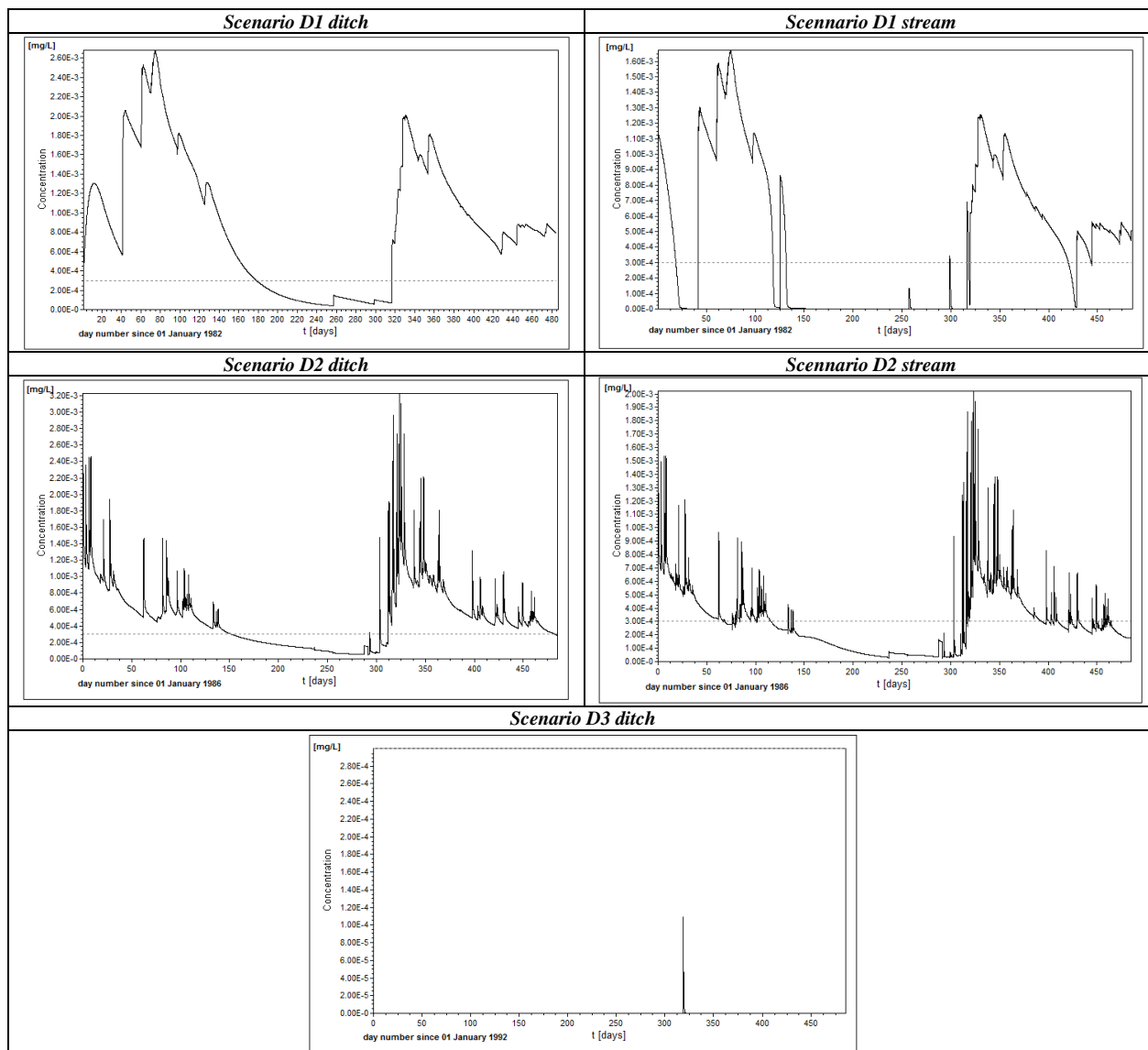


Figure B.8.9.-A.5.\_CP-25: The concentration profiles obtained in D scenarios using EPAT 1.0.

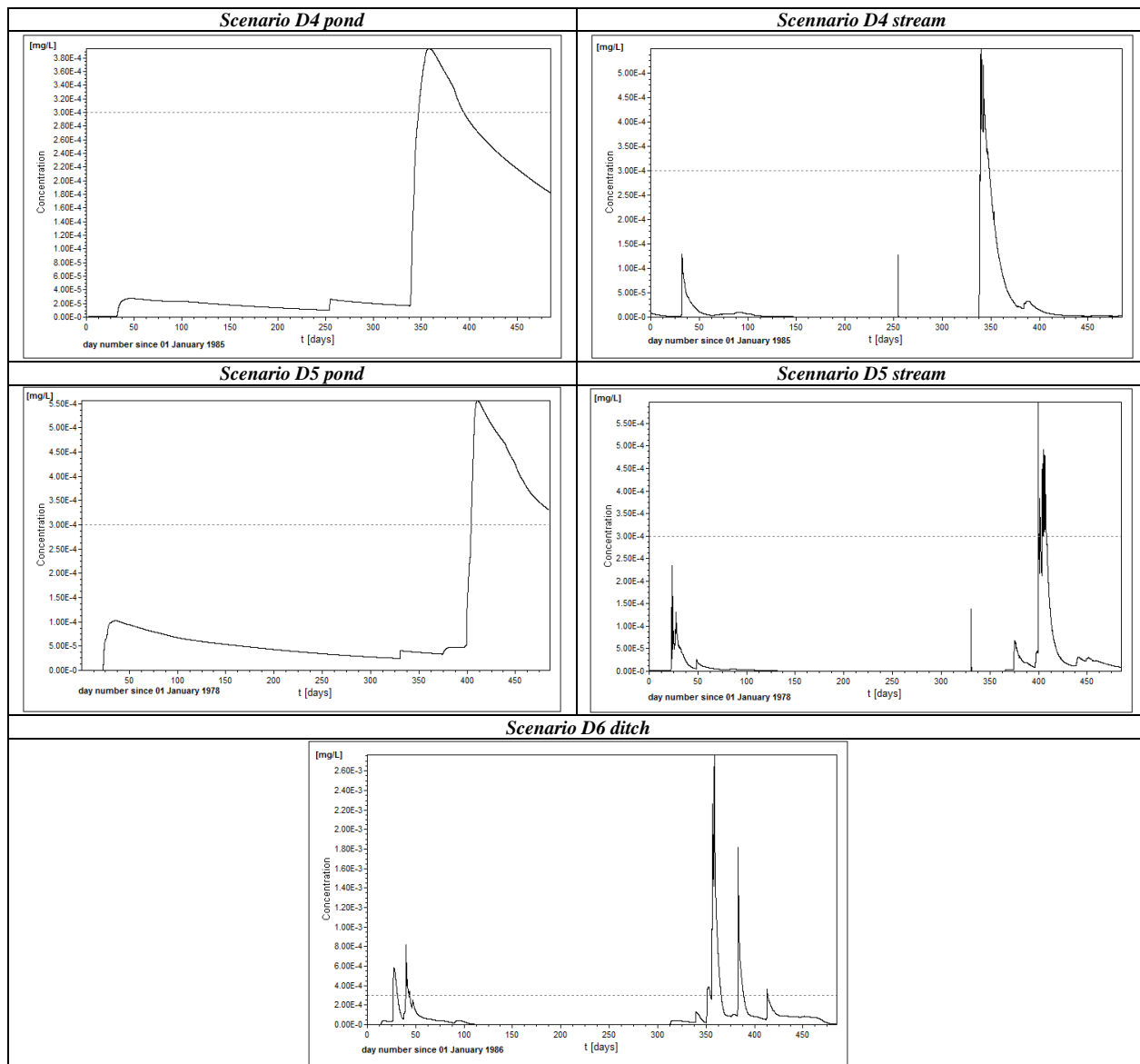
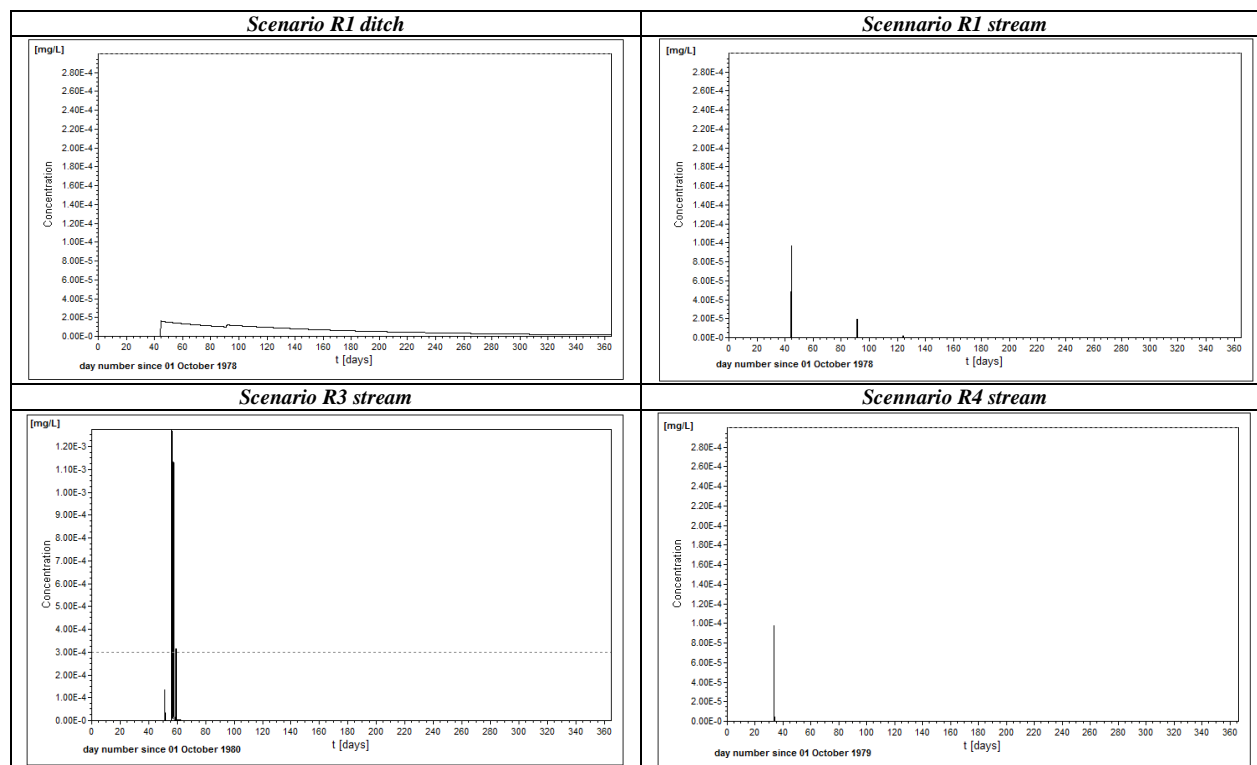


Figure B.8.9.-A.5.\_CP-26: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-27:** The concentration profiles obtained in R scenarios using EPAT 1.0.

- 4) Results obtained for the post-emergence use in Winter Cereals at spring, at application rate 160 g/ha:

a) Mitigation measure: 10-metres FOCUS buffer zone

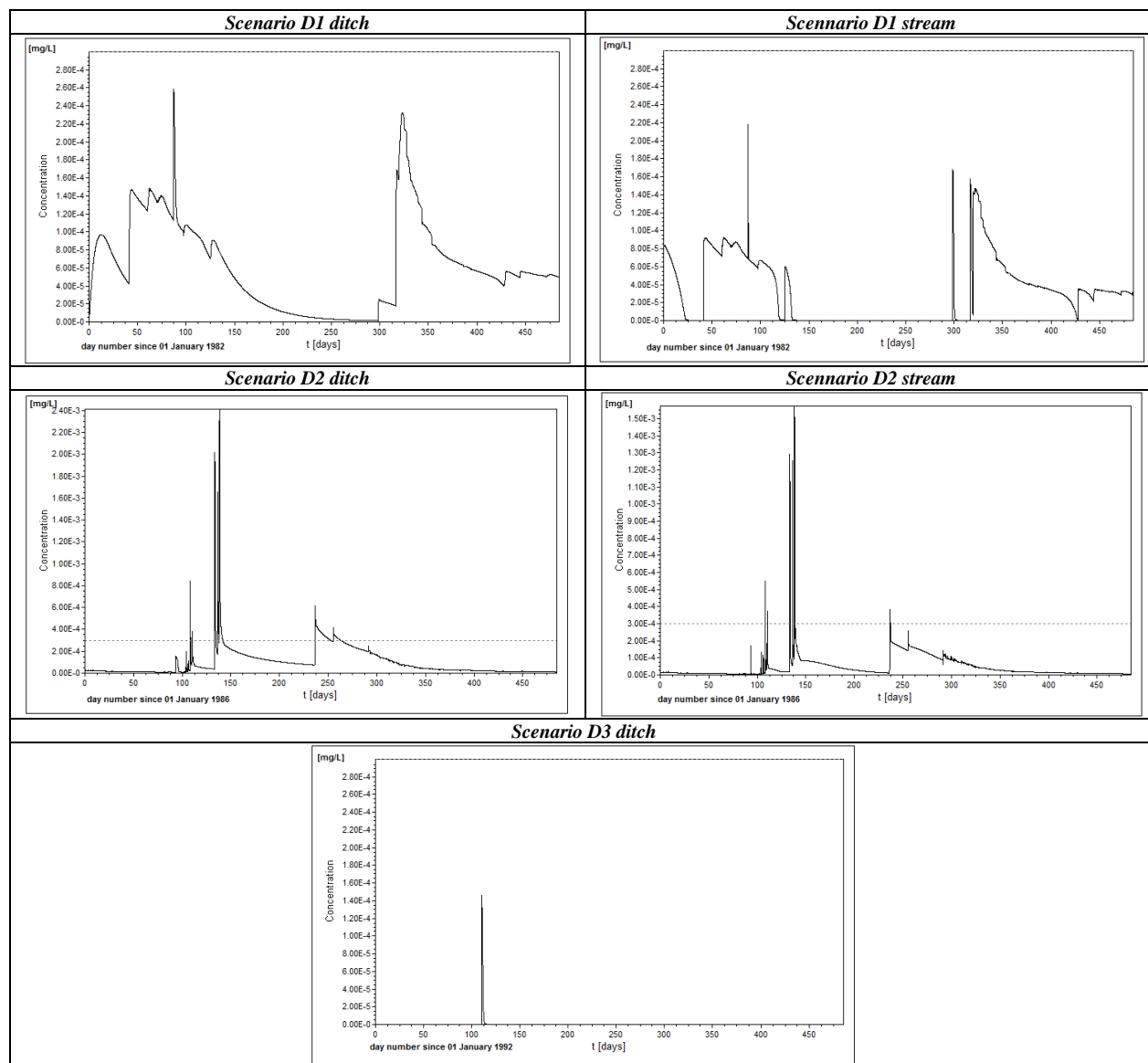


Figure B.8.9.-A.5.\_CP-28: The concentration profiles obtained in D scenarios using EPAT 1.0.

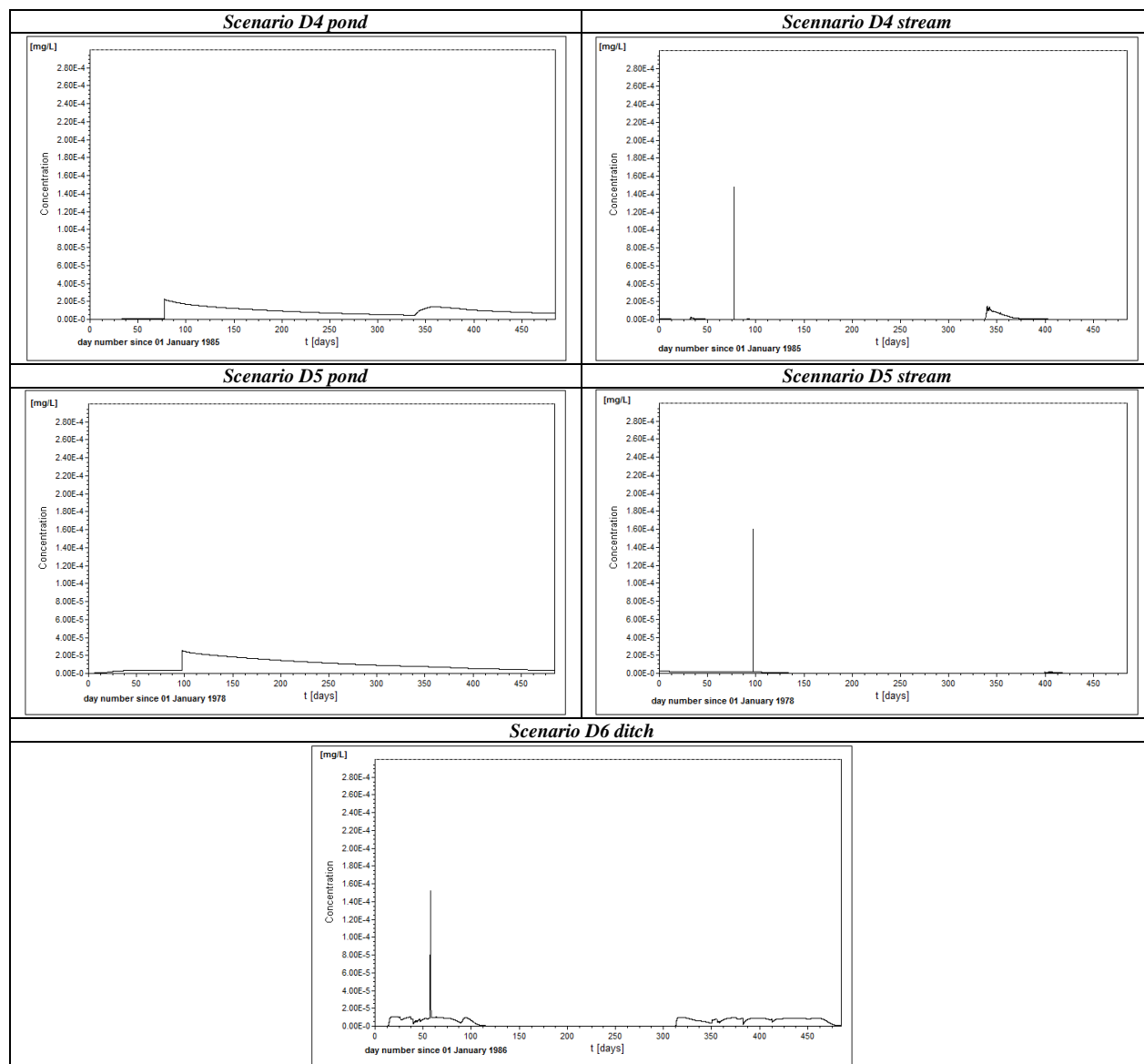
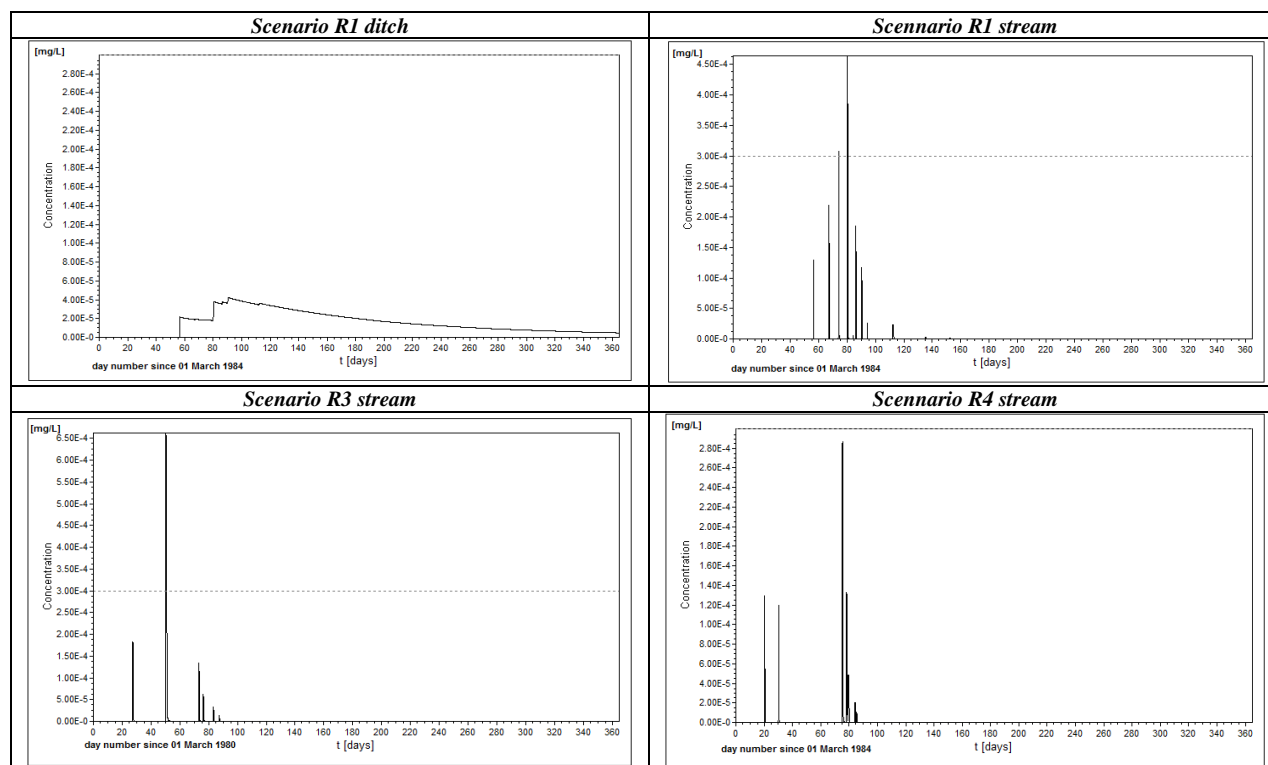


Figure B.8.9.-A.5.\_CP-29: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-30:** The concentration profiles obtained in R scenarios using EPAT 1.0.

b) Mitigation measure: 20-metres FOCUS buffer zone

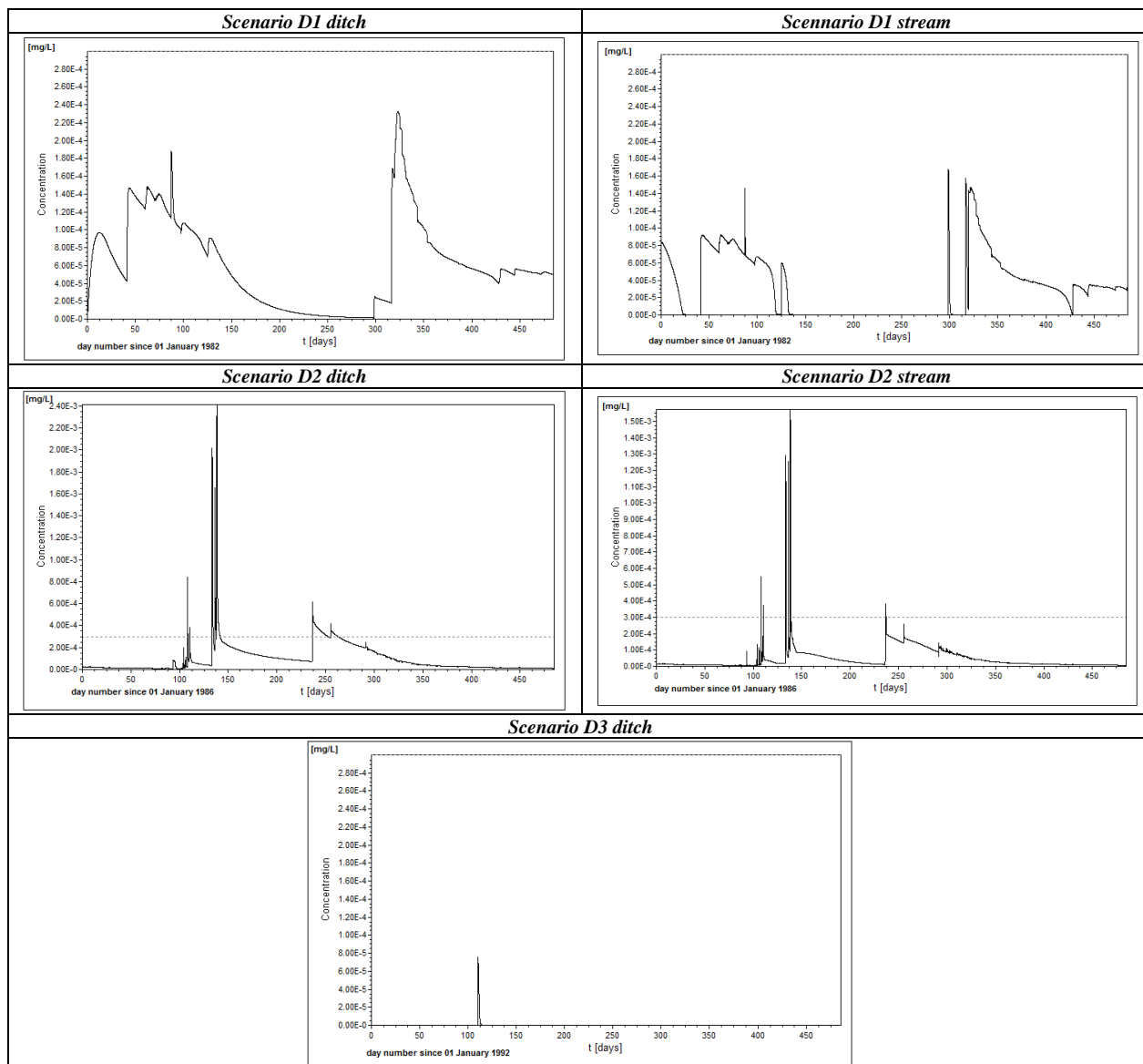


Figure B.8.9.-A.5.\_CP-31: The concentration profiles obtained in D scenarios using EPAT 1.0.

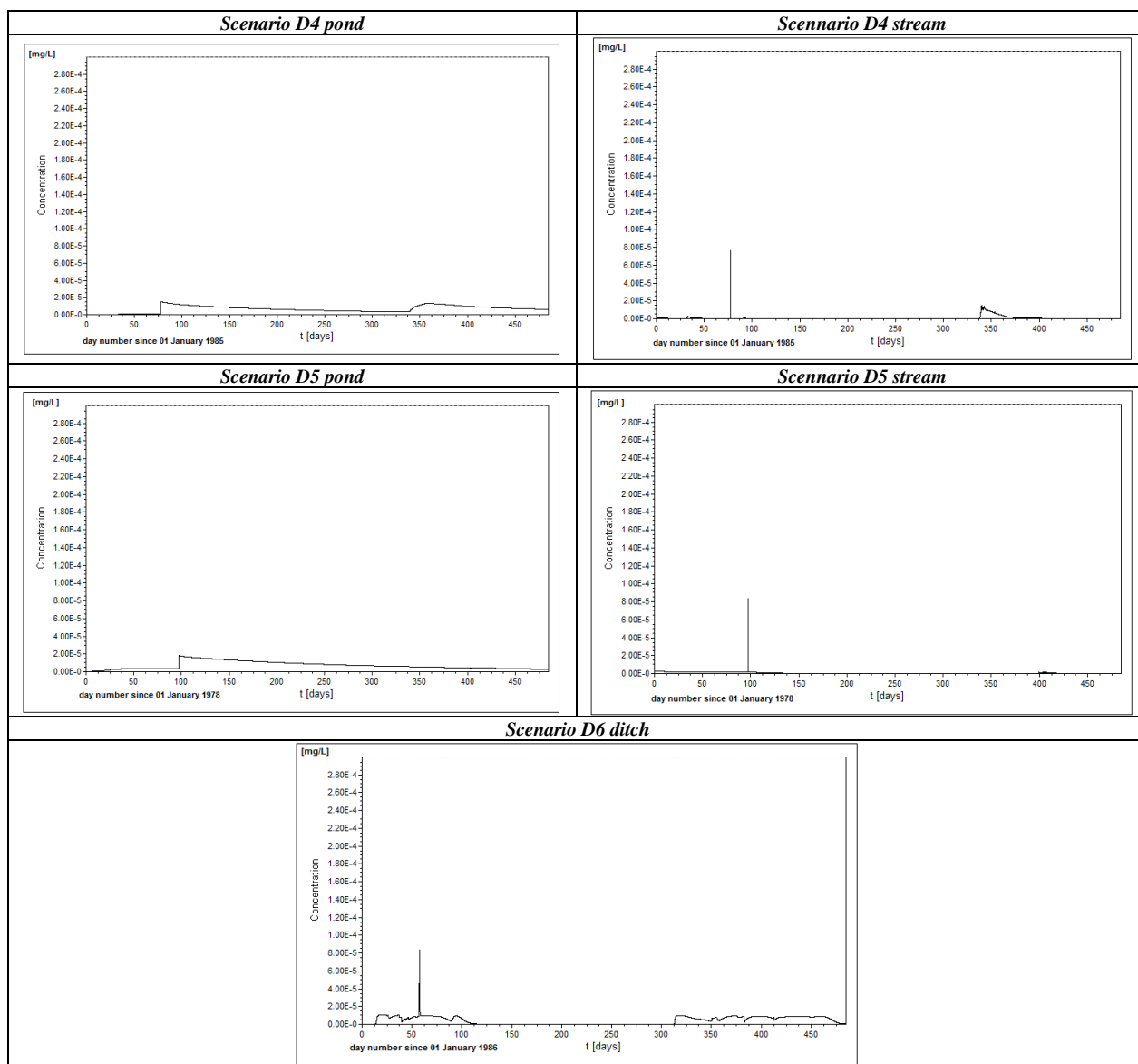
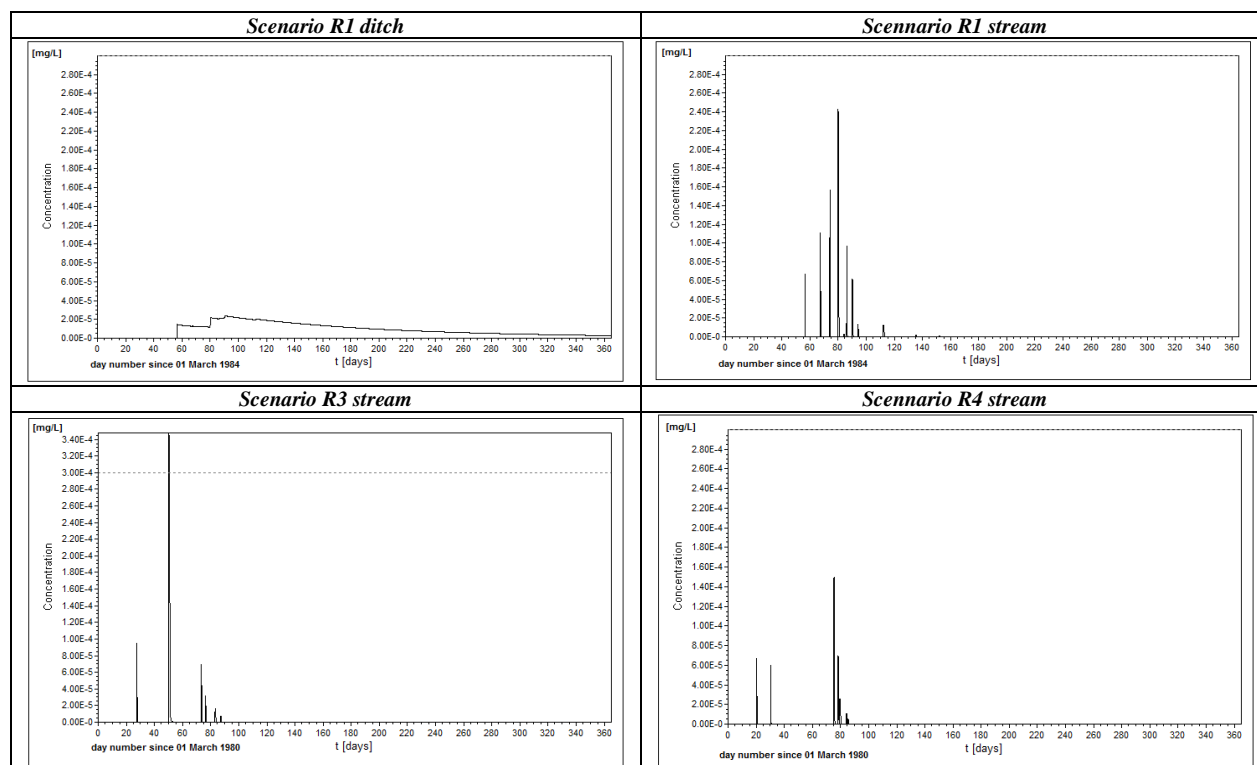


Figure B.8.9.-A.5.\_CP-32: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-33:** The concentration profiles obtained in R scenarios using EPAT 1.0.

c) Mitigation measure: 10-metres buffer zone in VFS-mod

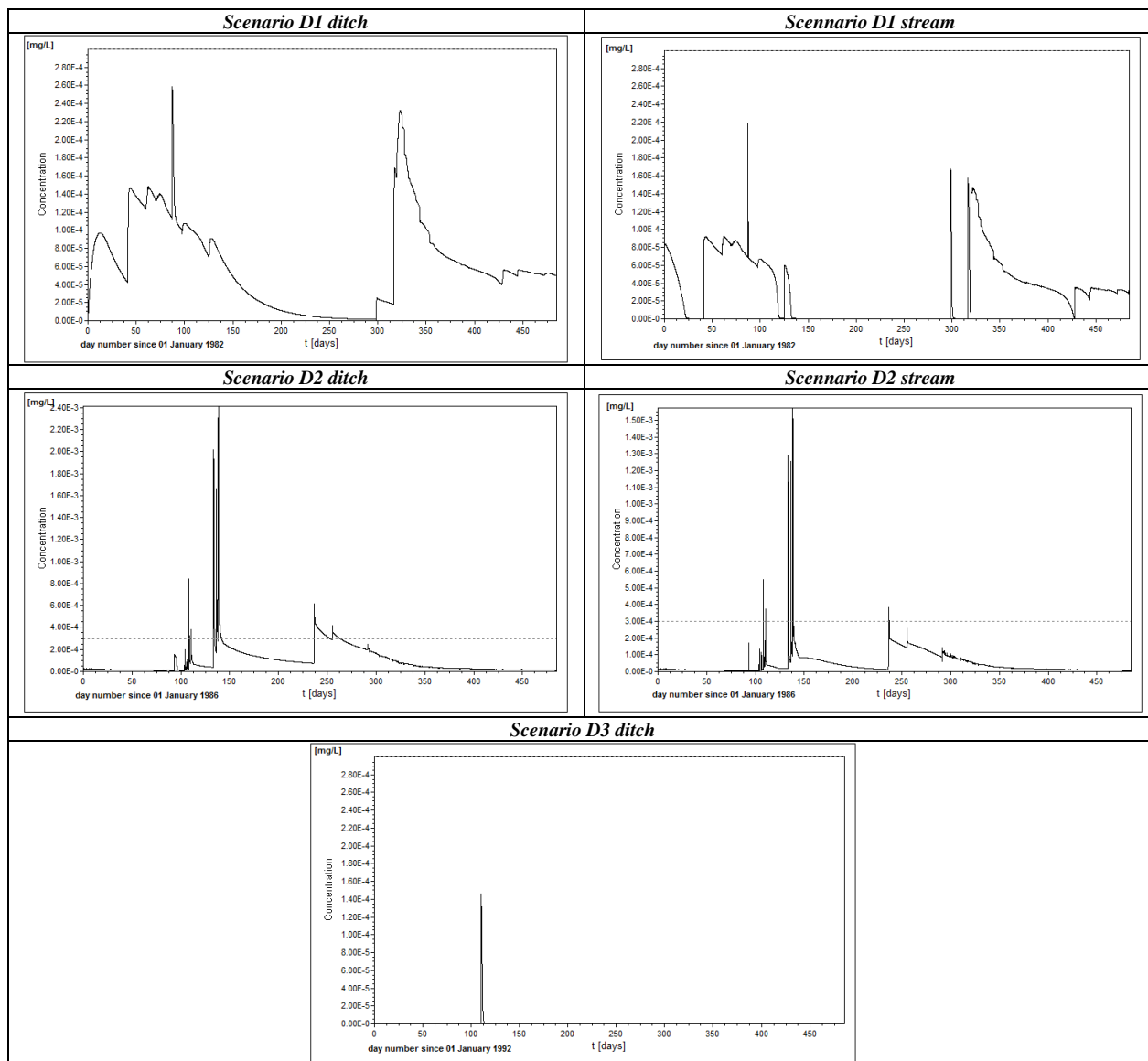


Figure B.8.9.-A.5.\_CP-34: The concentration profiles obtained in D scenarios using EPAT 1.0.

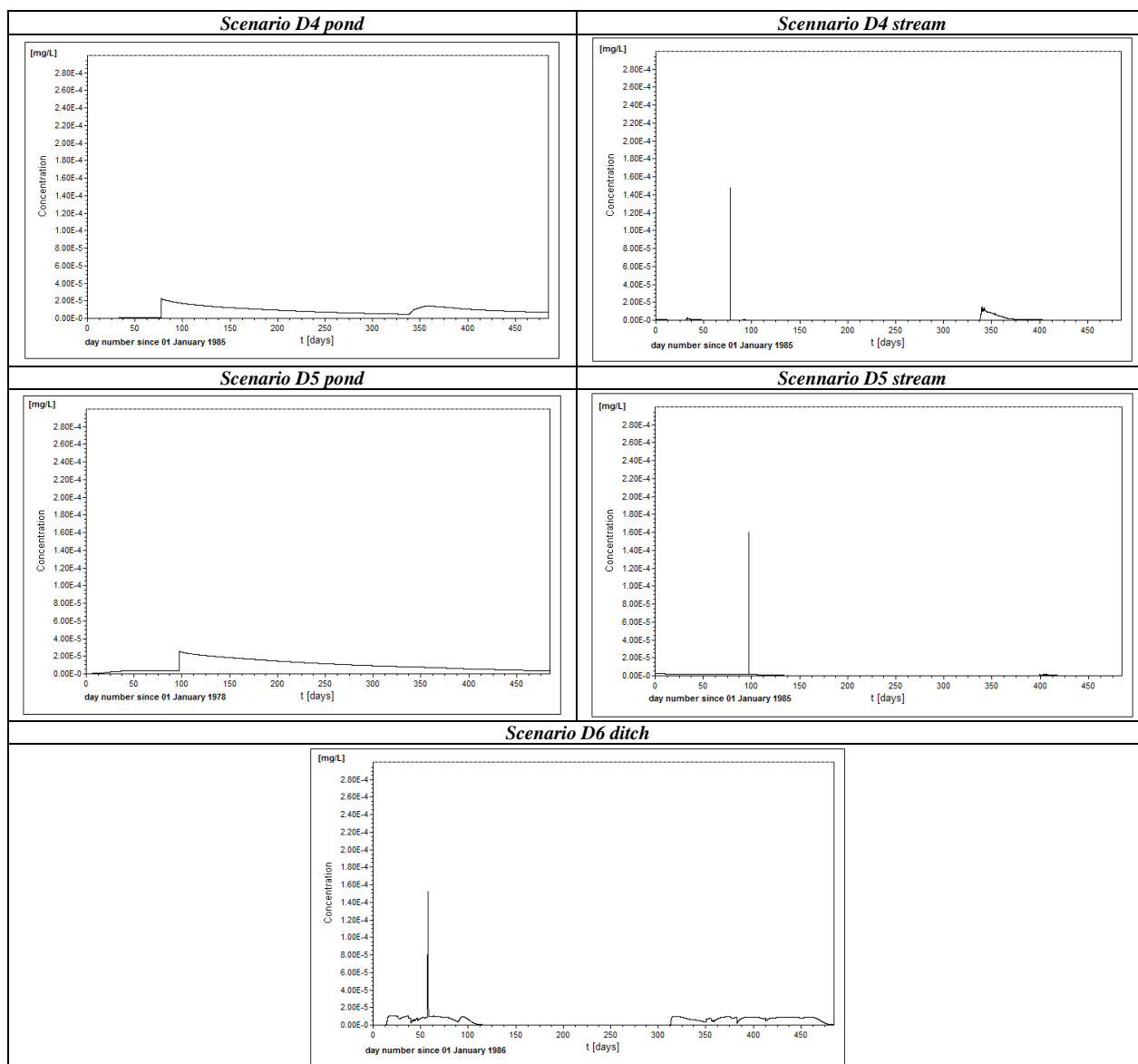
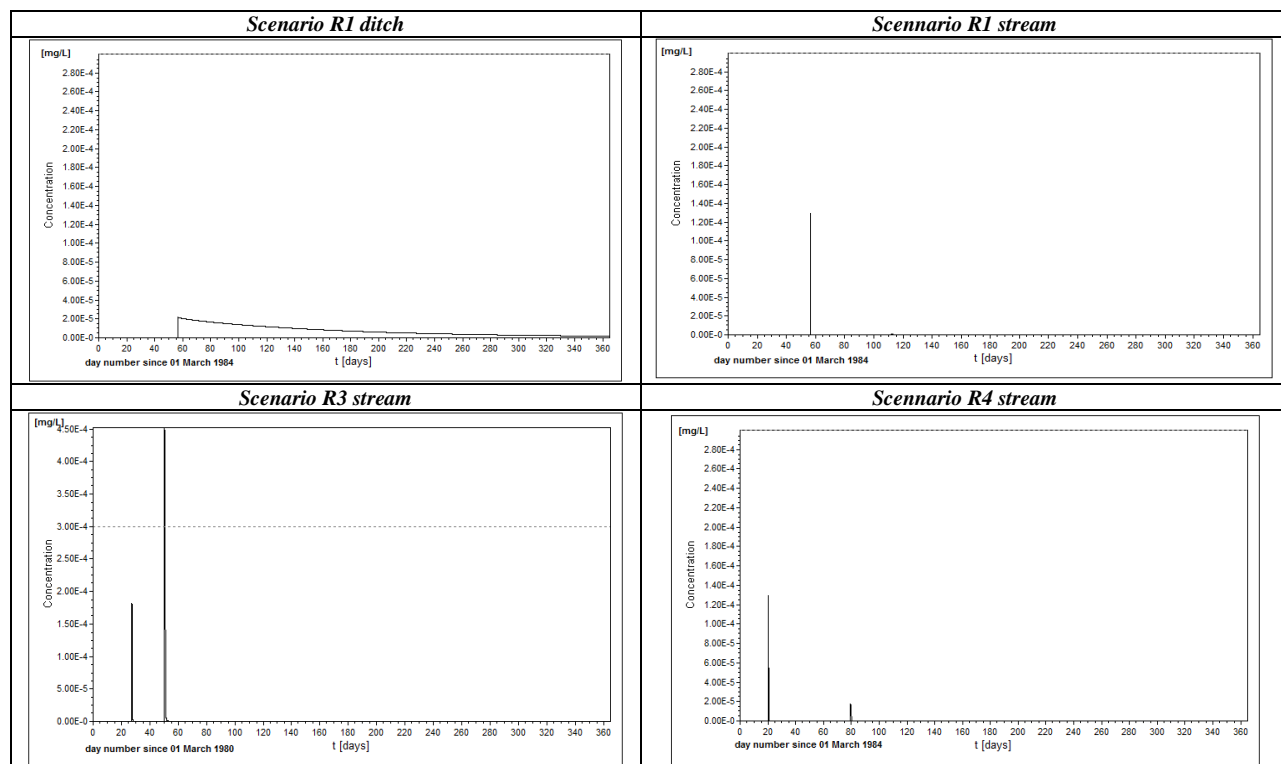


Figure B.8.9.-A.5.\_CP-35: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-36:** The concentration profiles obtained in R scenarios using EPAT 1.0.

5) Results obtained for the post-emergence use in Winter Cereals at spring, at application rate 120 g/ha:

a) Mitigation measure: 10-metres FOCUS buffer zone

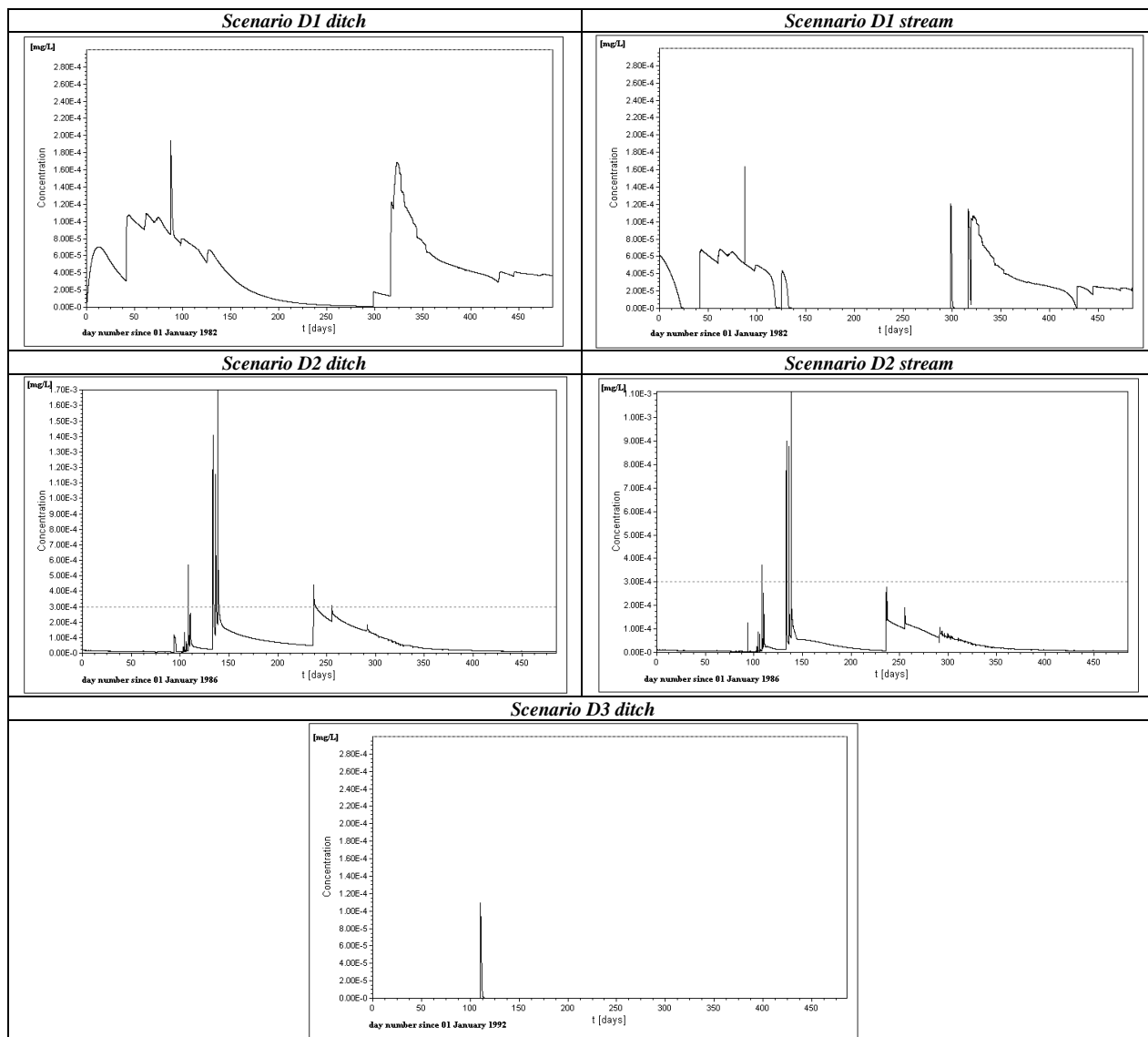


Figure B.8.9.-A.5.\_CP-37: The concentration profiles obtained in D scenarios using EPAT 1.0.

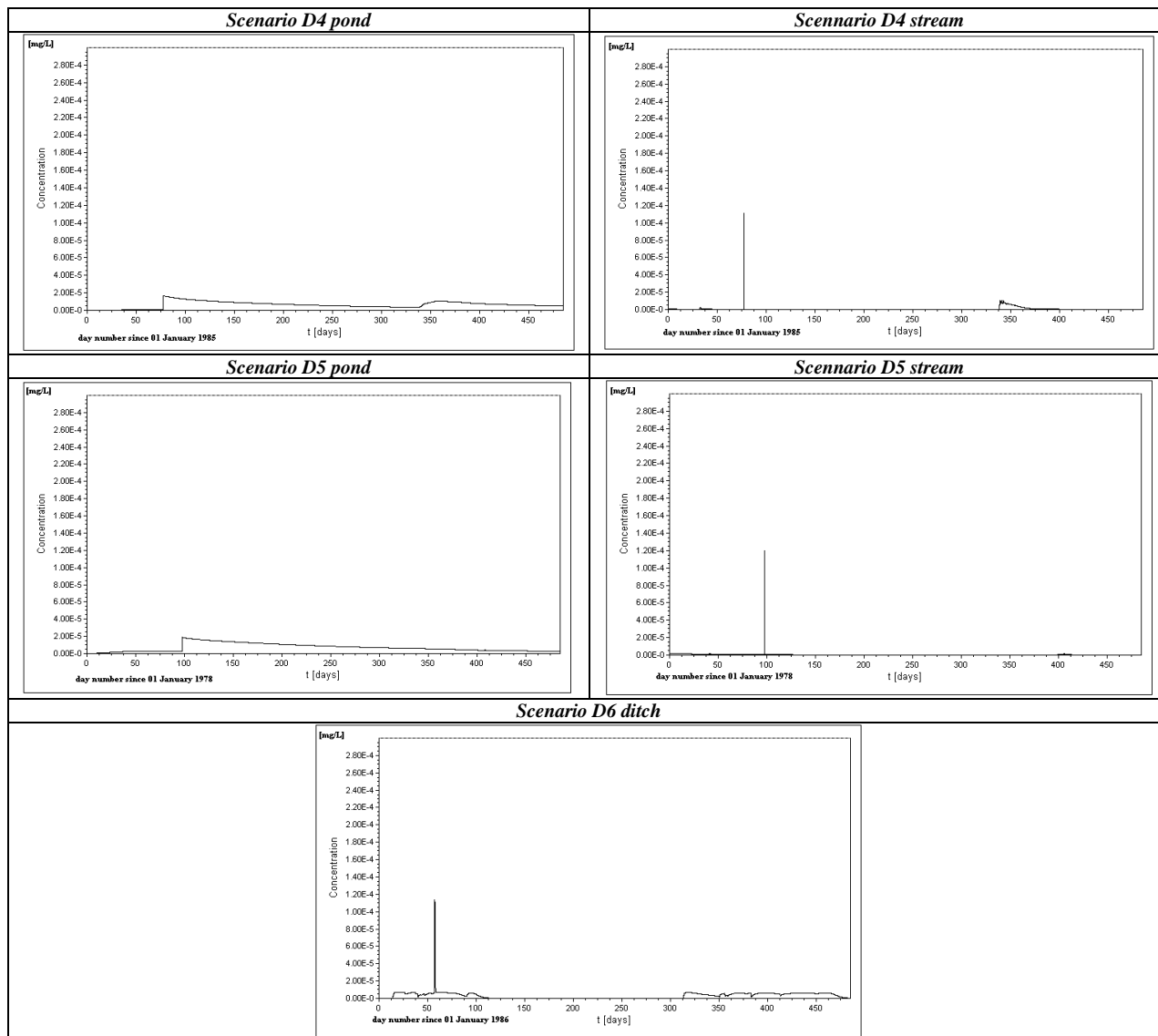


Figure B.8.9.-A.5.\_CP-38: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.

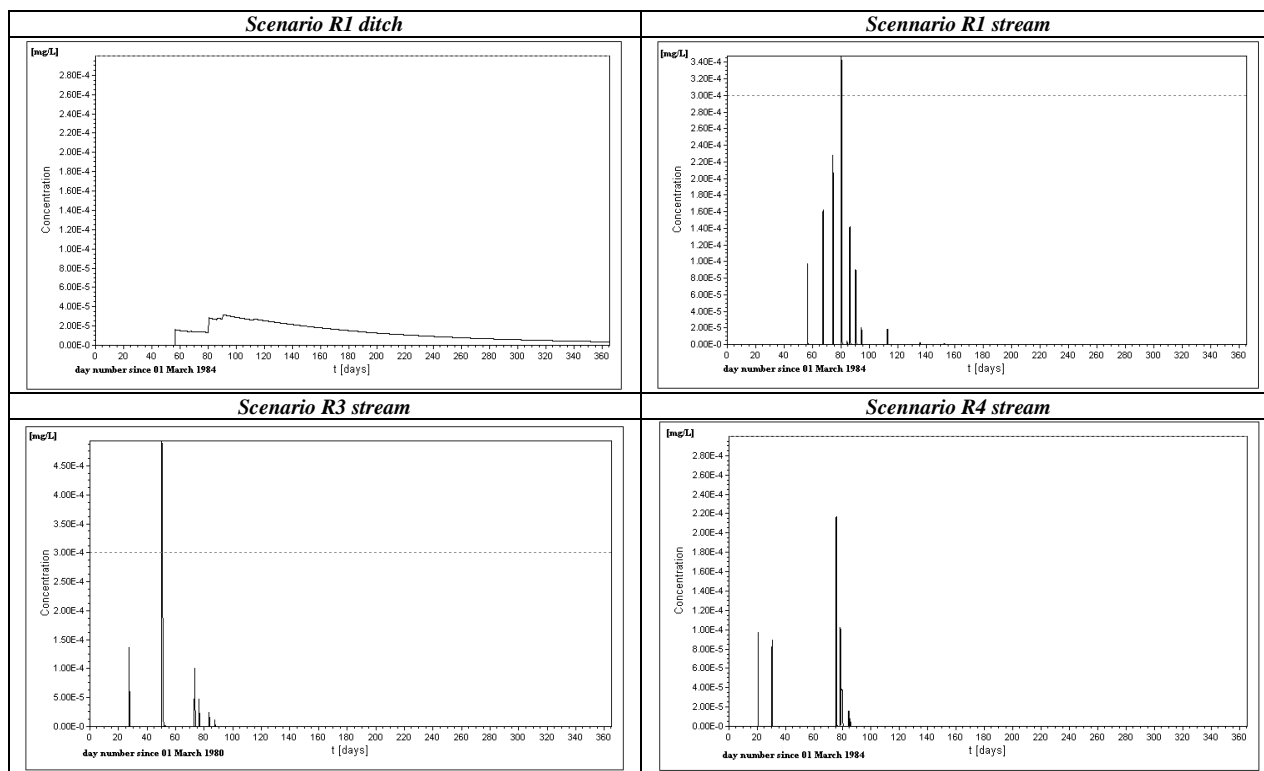


Figure B.8.9.-A.5.\_CP-39: The concentration profiles obtained in R scenarios using EPAT 1.0.

b) Mitigation measure: 20-metres FOCUS buffer zone

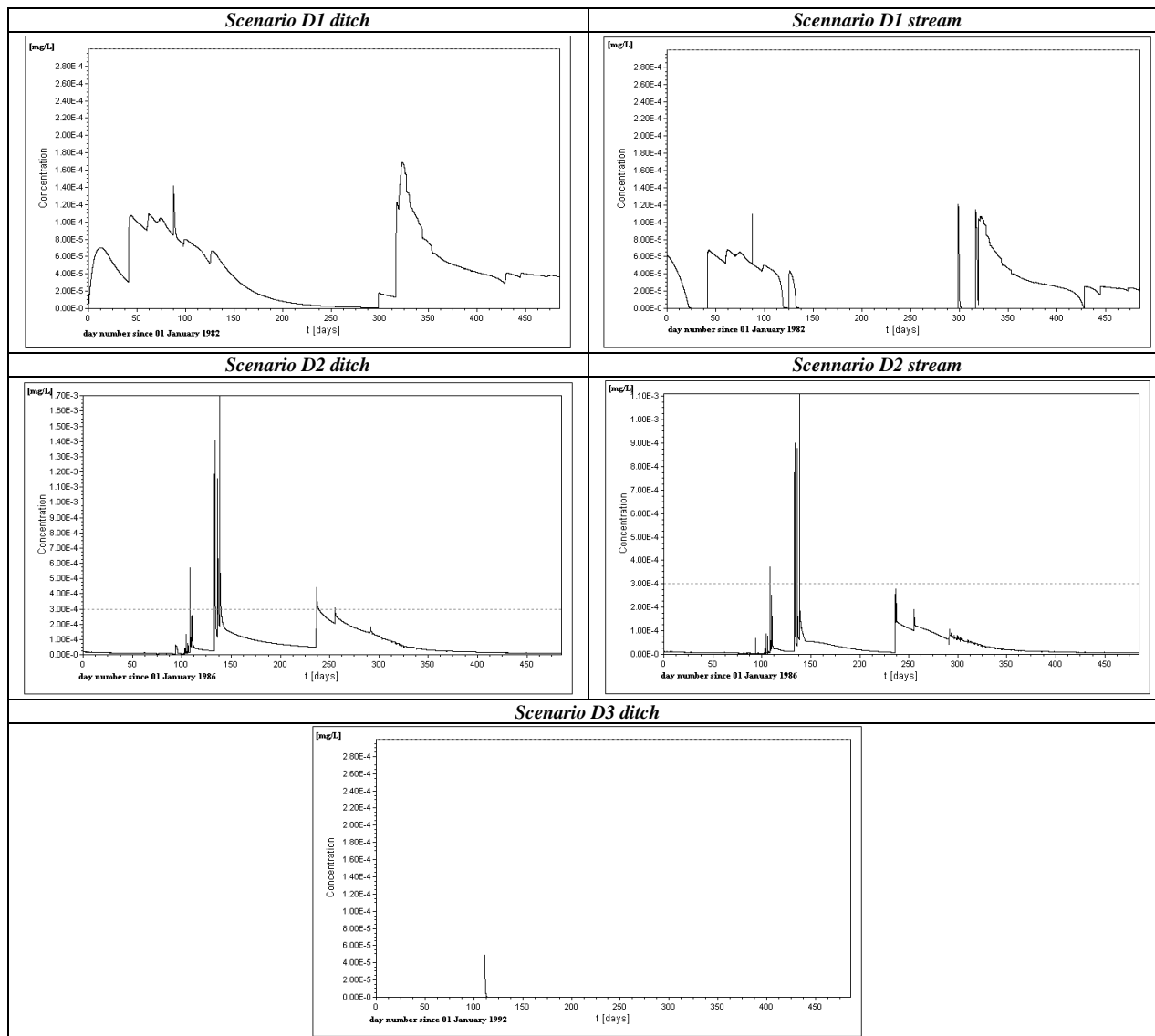


Figure B.8.9.-A.5.\_CP-40: The concentration profiles obtained in D scenarios using EPAT 1.0.

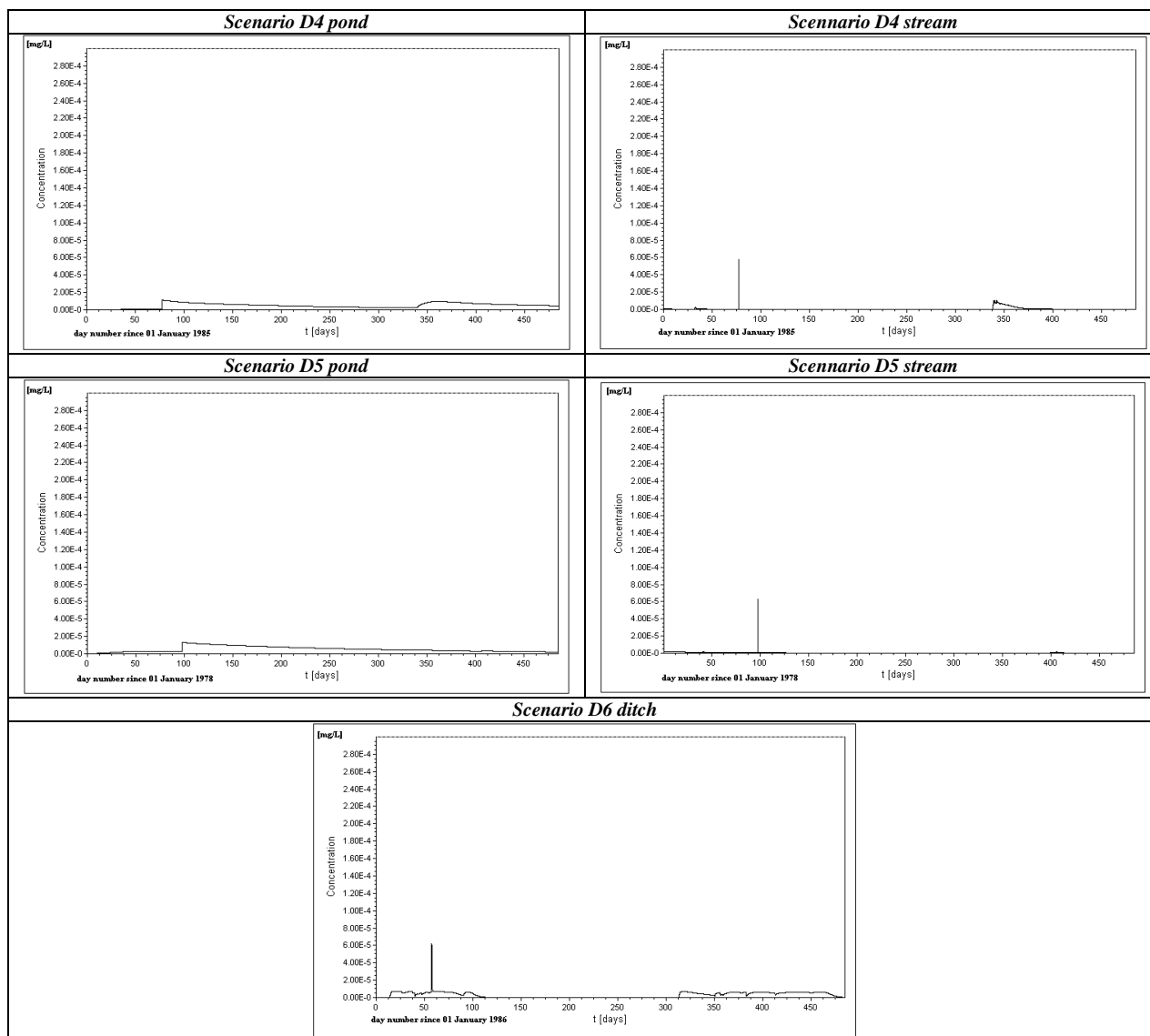
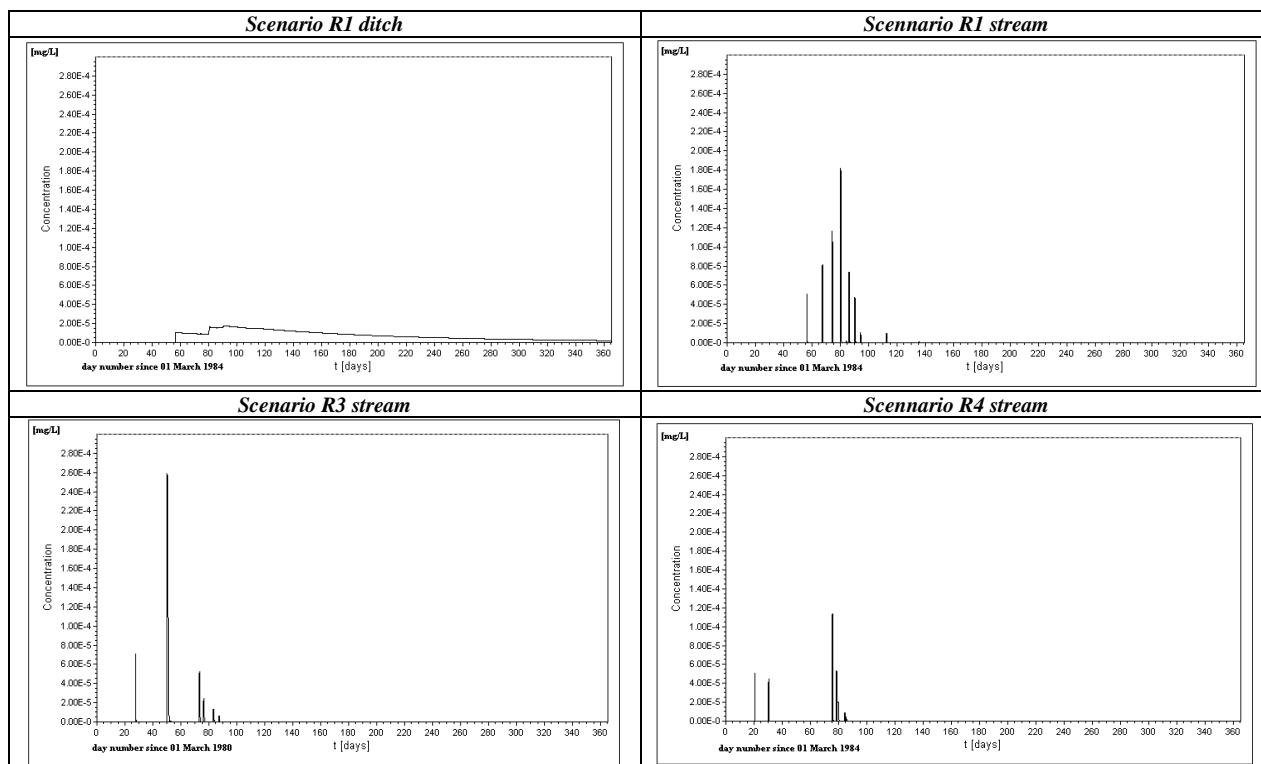


Figure B.8.9.-A.5.\_CP-41: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-42:** The concentration profiles obtained in R scenarios using EPAT 1.0.

c) Mitigation measure: 10-metres buffer zone in VFS-mod

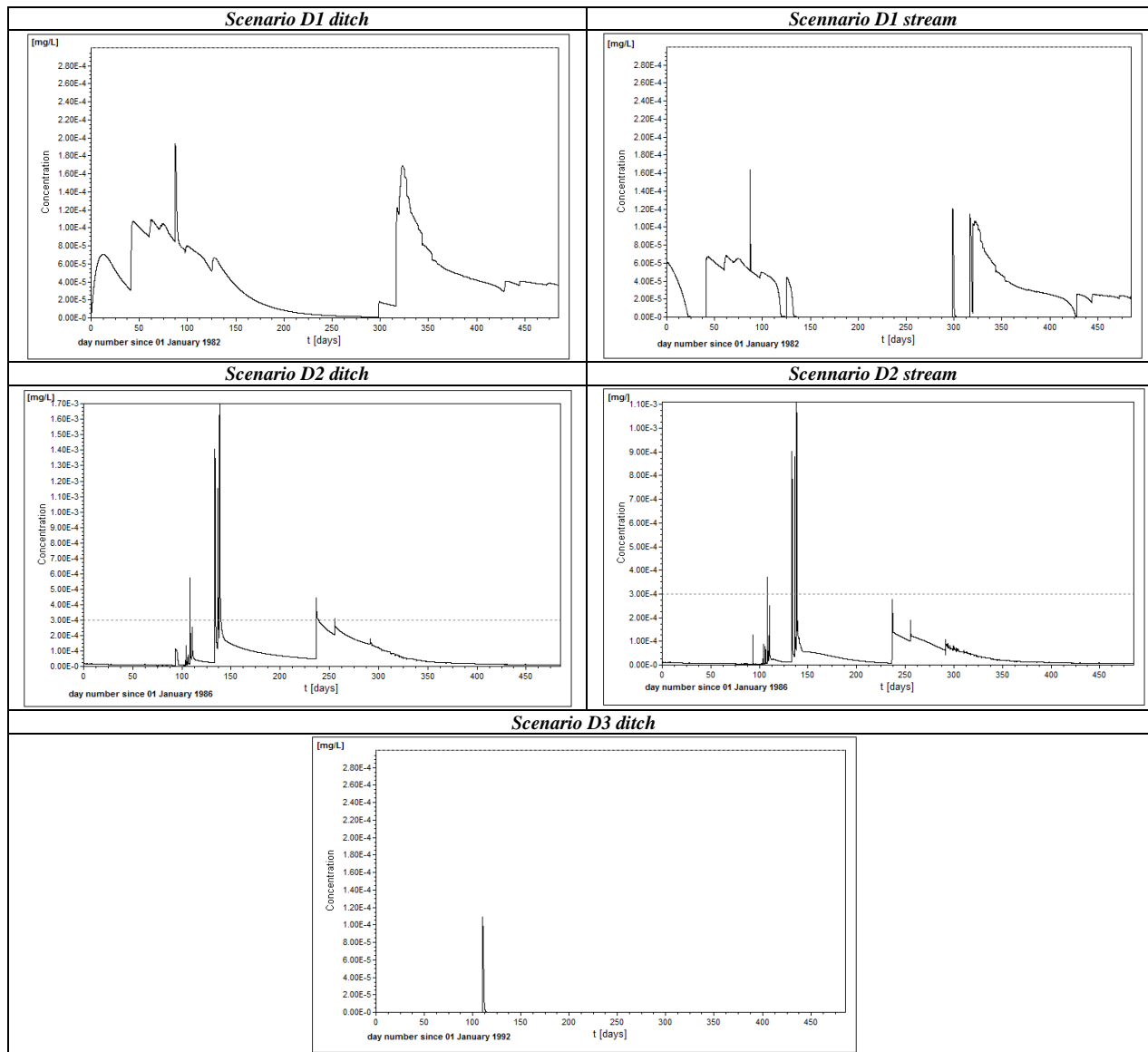


Figure B.8.9.-A.5.\_CP-43: The concentration profiles obtained in D scenarios using EPAT 1.0.

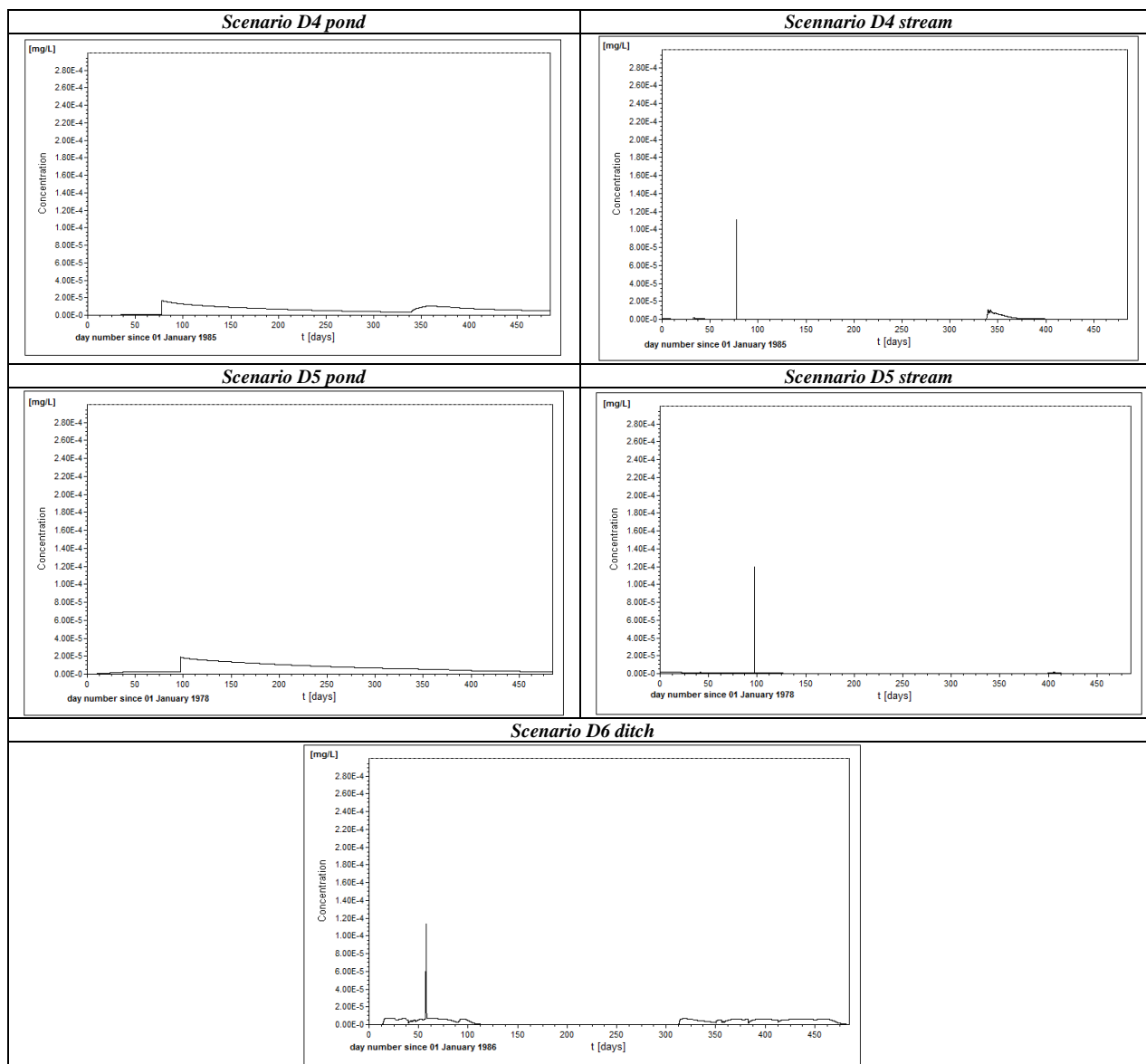
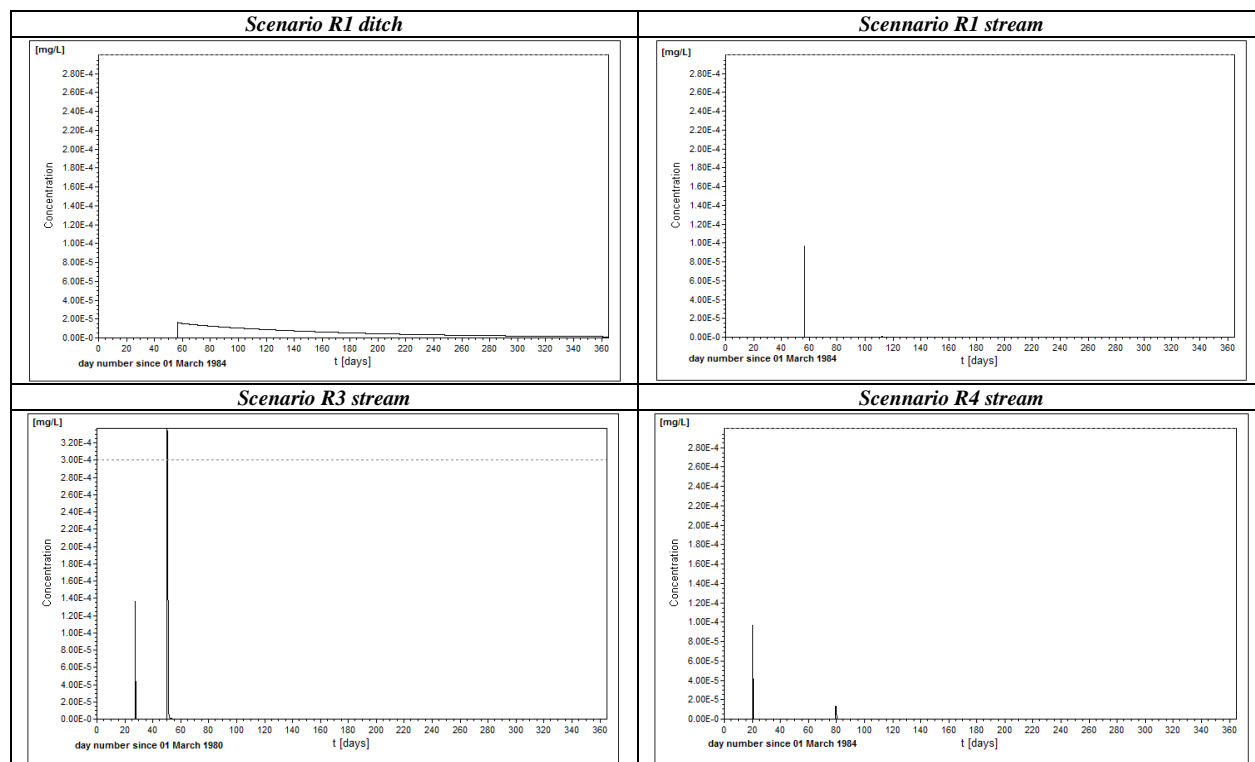


Figure B.8.9.-A.5.\_CP-44: The concentration profiles obtained in D scenarios using EPAT 1.0, continued.



**Figure B.8.9.-A.5.\_CP-45:** The concentration profiles obtained in R scenarios using EPAT 1.0.