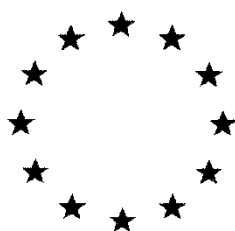


# ***European Commission***



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

**Napropamide-M**

**Volume 3 – B.8 (PPP) – D-Devrinol**

**Rapporteur Member State: United Kingdom**

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## **B.8. ENVIRONMENTAL FATE AND BEHAVIOUR AND ENVIRONMENTAL EXPOSURE ASSESSMENT**

### **Introduction**

Studies for the derivation of endpoints for the active substance, napropamide-M have been evaluated within the volume 3 CA document. This volume 3 CP document relies upon the endpoints which were determined from the CA document. All exposure modelling utilising those endpoints is shown within this CP document. All fate and behaviour studies evaluated within the CA document concern the isomer napropamide-M exclusively. Chiral purity of the supplied test substance was reported as 99.9% of the D-isomer for all studies. Chiral HPLC analysis was performed for all studies. The RMS has confirmed that napropamide-M remained as the D-isomer throughout all environmental fate studies and no isomerisation to the L-form occurred.

The product D-Devrinol (HBW03) is a suspension concentrate (SC) containing 450 g/L napropamide-M for use as a herbicide to control annual grasses and broadleaved weeds. Proposed GAP crop types are winter oilseed rape and brassicas. It is intended for use as a pre-emergence or pre-planting broadcast spray either with or without soil incorporation. Table B.8-1 presents all proposed GAP uses across all zones. Table B.8-2 summarises the compounds considered in the calculations of predicted environmental concentrations (PECs).

B.8-1 Intended GAP uses for the product D-Devrinol containing the active substance, napropamide-M

Crop	Member state or country	Method	Timing of application BBCH	Maximum number of applications	Maximum individual application rate (kg a.s./ ha)	Comments
Winter oilseed rape	All zones	Broadcast spray and incorporation	Pre-sowing; summer-autumn	1	0.765	
Winter oilseed rape	All zones	Broadcast spray and no incorporation	Pre-sowing; summer-autumn	1	0.765	
Brassica vegetables	All zones	Broadcast spray and incorporation	Pre-planting/ pre-sowing; spring-summer	1	0.765	Treatment is made to soil prior to sowing or transplanting of crops
Brassica vegetables	All zones	Broadcast spray and no incorporation	Pre-planting/ pre-sowing; spring-summer	1	0.765	Treatment is made to soil prior to sowing or transplanting of crops
Winter oilseed rape	All zones	Broadcast spray and no incorporation	Post-sowing, pre-emergence/ BBCH 00-08, summer-autumn	1	0.765	
Brassica vegetables	All zones	Broadcast spray and no incorporation	Post-sowing, pre-emergence/ BBCH 00-08, spring- summer	1	0.765	Treatment is made to soil post-sowing but not post-transplanting of crops

Table B.8-2 Compounds considered in the assessment of predicted environmental concentrations

Compartment	Parent and metabolites*
Soil	Napropamide-M
Surface Water	Napropamide-M, and metabolites Isomer-I, Isomer-II and 1-naphthol
Sediment	Napropamide-M
Groundwater	Napropamide-M
Air	None <sup>†</sup>

\* metabolites over >10% AR or >5% AR at two consecutive time-points or increasing at study end  
 + The calculation of  $PEC_{AIR}$  was considered unnecessary; see section 3CP B.8.6.

## B.8.1. FATE AND BEHAVIOUR IN SOIL

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

Napropamide-M degraded slowly in soil under aerobic laboratory conditions (section 3CA B.8.1.1.1) with  $DT_{50}$ s extrapolated well beyond the study duration (geometric mean  $DT_{50}$  608 days). Given the uncertainty of the laboratory values, the risk assessment for fate and behaviour in soil and consequently the  $PEC_{soil}$  values will rely solely on data obtained from field dissipation trials (section 3CA B.8.1.1.4). There were no major soil metabolites observed in either the laboratory or field studies to be included in the soil risk assessment.

### B.8.1.2. Mobility in soil

The  $K_{FOC}$  values derived from adsorption-desorption studies (section 3CA B.8.1.2) ranged from 313.09 to 746.69 mL/g, (geometric mean 472.61 mL/g) indicating that napropamide-M exhibits low to medium mobility. The Freundlich exponent  $1/n$ , ranged 0.843 to 0.917, with arithmetic mean of 0.865. No pH dependency was observed.

Column leaching studies, field leaching studies or lysimeter studies were not submitted for napropamide-M nor were they required. Data on the column leaching of metabolites, breakdown and reaction products are not available. Further data are not required as only minor components were observed and all were <10% of the applied radioactivity or <5% of applied radioactivity on two subsequent sampling occasions. Therefore, column leaching studies are not required for any metabolites of napropamide-M.

## B.8.2. PREDICTED ENVIRONMENTAL CONCENTRATIONS IN SOIL ( $PEC_{soil}$ )

Predicted environmental concentrations in soil ( $PEC_{soil}$ ) were calculated for napropamide-M based on the single longest persistence  $DT_{50}$  derived from field dissipation trials using non-normalised data (section 3CA B.8.1.1.4). The worst-case persistence endpoint  $DT_{50}$  was 101 days for the Spanish autumn trial (sandy clay loam), determined by HS kinetics (table 3CA B.8.1.1.4-19). The worst case application scenario for napropamide-M used by the Applicant is presented in table B.8.2-1 and assumes only one application per year. The RMS notes that for some European locations, it is possible to grow a second brassica crop on the same field within a single year. Therefore it is possible that the same soil could be exposed to two doses within the same year. However, the RMS has proceeded with  $PEC_{soil}$  calculations using the Applicant's proposed scenario. This will mean that the risk assessment for soil will be based on and support a single application of 765g napropamide-M per hectare per year.

Table B.8.2-1 Applicant's proposed worst case application scenarios for napropamide-M

Crop group	Application rate (g a.s./ha)	Number of applications	Application type	Application timing
Winter oilseed rape	765	1	Ground spray and incorporation	Pre-sowing summer-autumn
Brassicas vegetable crop	765	1	Ground spray and incorporation	Pre-planting / sowing spring-summer

*Initial  $PEC_{soil}$*

The  $PEC_{soil}$  for zero time (i.e. immediately after the first application) was calculated using FOCUS 1997 guidance with the following equation:

$$PEC \text{ (mg/kg)} = \frac{A[\text{g/ha}] \times (1 - F)}{100 \times d [\text{cm}] \times \rho [\text{g/cm}^3]}$$

Where:

A = Application rate

F = Fraction intercepted by crop

d = Depth of field soil layer (5 cm)

$\rho$  = Dry bulk density (1.5 g/cm<sup>3</sup>)

The initial  $PEC_{soil}$  values for both proposed GAP uses are summarised in table B.8.2-2. The initial PECs (1.02 mg a.s./kg) are the same for both crop types as application is broadcast spray to bare soil under all proposed GAP uses and therefore there is no crop interception under any scenario.

Table B.8.2- 2 Summary of initial  $PEC_{soil}$  of napropamide-M

Crop	Number of applications	Interval (days)	Maximum use rate (g a.s./ha)	Crop interception (%)	Effective soil exposure rate (g a.s./ha)	$PEC_{soil}$ (mg a.s./kg)
Winter oilseed rape	1	-	765	0	1 x 765	1.02
Brassicas vegetable crop	1	-	765	0	1 x 765	1.02

#### *Annual $PEC_{soil}$*

The ESCAPE v2.0 model was used as it is suitable for the calculation of  $PEC_{soil}$  values using  $DT_{50}$ s derived from non-SFO kinetics. The input values used by the RMS are given in table B.8.2-3. The RMS selected laboratory conditions in ESCAPE and set Q10 to 1 and Walker to 0 on account of the  $DT_{50}$  being from non-normalised field data. Table B.8.2-4 presents the annual  $PEC_{soil}$  (time dependent total soil concentrations over 5 cm).

Table B.8.2-3 RMS input values for  $PEC_{soil}$  calculation in ESCAPE v2.0

Parameter	Value
<i>Scenario</i>	
Soil density (Kg/L)	1.5
Soil depth (cm)	5
Tillage depth (cm)	5
Organic carbon content (%)	1.0
Field capacity (Vol %)	29.2 (default)
Wilting point (%)	6.4 (default)
<i>Application pattern</i>	
Application rate	765 g a.s./ha
Number of applications	1
Crop interception (%)	0
<i>Substance data</i>	
Kinetics	HS
Fast phase $DT_{50}$ (days)*	18.9 (K1= 0.0367)
Slow phase $DT_{50}$ (days)*	344.3 (K2 = 0.002013)
Break point (days)	14.14
Q10 factor	1
Walker exponent	0.0
Ref. temperature (°C)	20
$K_{FOC}$ (L/Kg) (geometric mean)+	472.61
<i>Program settings</i>	
Calculation mode	Residues from different applications are considered separately

\* Based on the longest, worst case persistence endpoint  $DT_{50}$ = 101.0 days (Spanish autumn)

trial; sandy clay loam soil; non-normalised field data; table 3CA B.8.1.1.4-19 )  
+ section 3CA B.8.1.2 adsorption and desorption in soil, table B.8.1.2-3

Table B.8.2-4 RMS annual single application  $PEC_{soil}$  values

Days from last application or TWA period	Actual $PEC_S$ (mg/kg)	Maximum TWA $PEC_S$ (mg/kg)
0	1.0200	-
1	0.9833	1.0016
2	0.9479	0.9836
4	0.8808	0.9488
7	0.7891	0.8997
14	0.6104	0.7978
21	0.6019	0.7339
28	0.5934	0.6999
42	0.5769	0.6616
50	0.5677	0.6473
100	0.5134	0.5937

#### *Accumulation $PEC_{soil}$*

The maximum  $DT_{90}$  from field trials exceeded one year (900 days), therefore the potential for the accumulation of napropamide-M in soil resulting from consecutive annual applications was considered. The Applicant calculated accumulation  $PEC_{soil}$  values based on the assumption that residues from previous years were distributed in the top 20 cm soil layer and that the current year application was contained in the top 5 cm. However, the RMS notes that use of a 20 cm tillage depth is inappropriate for the proposed GAP crop types (winter oilseed rape and brassicas) and believes that a 5 cm depth should have been used. Table B.8.2-5 reports accumulation  $PEC_{soil}$  values independently calculated by the RMS using a soil depth of 5 cm and a tillage depth of 5 cm for calculating the background concentration

Table B.8.2-5 RMS accumulation  $PEC_{soil}$  values following repeated annual applications of napropamide-M

Days from last application	Actual $PEC_S$ (mg/kg)	Maximum TWA $PEC_S$ (mg/kg)
$PEC_{max}$	1.5979	-
1	1.5612	1.5795
2	1.5258	1.5615
4	1.4587	1.5267
7	1.367	1.4776
14	1.1883	1.3758
21	1.1798	1.3118
28	1.1713	1.2778
42	1.1549	1.2395
50	1.1456	1.2252
100	1.0913	1.1716

$PEC$  calculations are based on a soil depth of 5 cm and a tillage depth of 5 cm for calculating the background concentration.

In conclusion, an initial  $PEC_{soil}$  value of 1.020 mg/kg was calculated for napropamide-M based on a single application of 765 g a.s./ha per year with no crop interception with a soil depth of 5 cm and a soil density of 1.5 g/cm<sup>3</sup>. The worst case DT<sub>90</sub> derived from field dissipation trials exceeded one year and so the potential for accumulation of the active after repeated annual applications was investigated. The maximum accumulation  $PEC_{soil}$  was 1.5979 mg/kg assuming 5 cm tillage depth and 5 cm soil depth for annual application. The peak plateau reached was 1.5979 mg/kg after 6 years of application.

#### Formulation $PEC_{soil}$

The RMS has calculated the formulation  $PEC_{soil}$  in order to allow the risk posed by the formulation to be assessed. To assess the potential risk posed by a formulated product, only a single application is considered, as the product is thought to rapidly dissociate into its individual components following application.

The proposed maximum application of D-Devrinol is 1.7 L/ha; the formulated product has a relative density of 1.09 g/mL, which corresponds to a formulation application rate of 1853 g/ha. This value was divided by the soil depth (5 cm assumed) and the soil bulk density (1.5 g/cm<sup>3</sup>) as is show in the equation below.

$$\text{Formulation } PEC_{soil} = \frac{\text{formulation density} * \text{max. individual dose (L product/ha)}}{100 * \text{soil depth (cm)} * \text{soil bulk density}}$$

Assuming a single application, to bare soil with no crop interception, the formulation  $PEC_{soil}$  for D-Devrinol is 2.471 mg/kg.

### B.8.3. PREDICTED ENVIRONMENTAL CONCENTRATIONS IN GROUND WATER ( $PEC_{GW}$ )

Groundwater modelling was performed for napropamide-M using the FOCUS models PEARL v.4.4.4. and PELMO v.5.5.3. Simulated scenarios were based on the proposed EU GAP of single application of 0.765 Kg a.s/ ha SC formulation as a pre-emergence broadcast spray for winter oilseed rape and brassica crops. No major metabolites were observed in any of the soil laboratory or field dissipation studies therefore groundwater modelling was performed with parent compound only.

The RMS has independently performed groundwater modelling for napropamide-M, replicating the Applicant's evaluation using the FOCUS models PEARL v.4.4.4. and PELMO v.5.5.3. Regulation under SANCO 13144/ 2010 states that crops of interest defined for the Châteaudun scenario require groundwater simulations in MACRO in addition to two other models. The proposed GAP crops, winter oilseed rape and brassicas, are defined for Châteaudun and so additional modelling in MACRO v.5.5.4 was also undertaken.

Table B.8.3-1 compares the input parameters used by the Applicant and the RMS for groundwater modelling. The DegT<sub>50</sub> values are derived from the geometric modelling mean from the kinetic assessment of field dissipation study results using normalised data (section 3CA B.8.1.1.4). The Applicant used a DegT<sub>50</sub> of 22 days, based on three out of the four field trial locations. RMS disagrees with the Applicant's decision to exclude one of the trial sites from overall half-life calculations. Section 3CA B.8.1.1.4 provides a full explanation for the decision. Within the 3CA document, tables B.8.1.1.4- 38 and B.8.1.1.4- 39 present the Applicant's and RMS' chosen modelling endpoints. The modelling DegT<sub>50</sub>s used by the RMS include one value derived using DFOP kinetics.

In accordance with the FOCUS degradation kinetics guidance the procedure for implementing the bi-exponential approach into a leaching model is to conduct two separate groundwater simulations, adjusting the application rate for each simulation for the percentage degrading as 'fast' phase' (K1) or 'slow phase' (K2) as determined by the g-value. The results of each simulation are then summed together. However, as breaking the pesticide into two fractions introduces a small error when the Freundlich exponent is not one, a conservative estimate is made by doubling the application rate and then dividing the final answer by two. This is the approach taken here with input values derived from Table B.8.3-1. For K1 (fast phase) application rate was adjusted for 73% (from g-value 0.73) and K2 (slow phase) by 27%. The geometric mean DegT<sub>50</sub> values assumed were 14.19 and 28.41 days, respectively.

As soil incorporation methods were used in the field dissipation trials to minimise losses by volatilisation, the vapour pressure was set to zero. This approach avoided volatilisation being double accounted. As napropamide-M is intended for pre-emergence use, the worst case modelling scenario was application to bare soil with no plant uptake. The Applicant ran simulations using a soil incorporation depth of 10 cm. The RMS disagrees with this approach as most of the proposed GAP uses for both brassicas and



winter oilseed rape state no soil incorporation. Therefore the simulations were independently verified using the worst-case scenario of no soil incorporation (i.e. 0 cm).

Table B.8.3-1 Input parameters used in FOCUS groundwater modelling of napropamide-M

Input parameter	Values provided by Applicant	Values used by RMS
Molecular mass (g/mol)	271	271.35
K <sub>FOC</sub> (ml/ g) (geometric mean, n=5)	468	472.61
K <sub>FOM</sub> (ml/ g) (geometric mean, n=5)	272	272.25 <sup>+</sup>
Freundlich constant (1/n) (arithmetic mean, n=5)	0.865	0.865
Aqueous solubility (mg/ L) pH 7 and 20°C	39	39
Vapour pressure (Pa)	0	0
Plant uptake coefficient	0	0
Method of application	Soil incorporation to 10 cm depth.	Application to soil surface, no soil incorporation.
Crop interception	none	none
DegT <sub>50</sub> in soil (days, geometric mean) field normalised	22.0	14.19 (fast phase) 28.41 (slow phase)
Application rate (Kg a.s. / ha)	0.765	1.1169 (adjusted for g value* and doubled) 0.4131 (adjusted for 1-g value* and doubled)

<sup>+</sup> Note: The geometric mean K<sub>FOM</sub> of 272.25 was used directly from 3CA Table B.8.1.2-3. This differs slightly from geometric mean K<sub>FOM</sub> of 472.61/ 1.724 because values reported for OM in the adsorption study, that were used to calculate K<sub>FOM</sub>, had been rounded up so did not equate exactly to OC\*1.724. As this does not make a significant difference to the results, it has not been corrected here.

\*g value for Spanish spring trial DFOP =0.73

Relative application dates used were the date of emergence (i.e. 0 day) as representative for day of transplantation of cabbage and 7 days before emergence (i.e. -7 days) for winter oilseed rape. FOCUS groundwater modelling assumes two brassica plantings within a single year for certain locations hence simulations for “crop 1” and “crop 2”. Table B.8.3-2 below reports the application dates for brassicas crop 1 and 2 and winter oilseed rape from the FOCUS generic guidance for groundwater modelling. FOCUS groundwater modelling scenarios automatically applied irrigation schemes to the Châteaudun, Sevilla, Thiva and Porto scenarios for brassicas. FOCUS modelling assumes application every year for 20 years (with a 6-year warm up period).

Table B.8.3-2 Defined FOCUS crop scenarios for the proposed GAP uses of brassicas and winter oilseed rape for use in groundwater modelling

FOCUS scenario	FOCUS application dates		
	Brassica crop 1 (cabbage)	Brassica crop 2 (cabbage)	Winter oilseed rape
Châteaudun	20 <sup>th</sup> April	31 <sup>st</sup> July	31 <sup>st</sup> August
Hamburg	20 <sup>th</sup> April	31 <sup>st</sup> July	26 <sup>th</sup> August
Jokioinen	20 <sup>th</sup> May	N/A	N/A
Kremsmünster	20 <sup>th</sup> April	31 <sup>st</sup> July	26 <sup>th</sup> August
Okehampton	N/A	N/A	7 <sup>th</sup> August
Piacenza	N/A	N/A	28 <sup>th</sup> September
Porto	28 <sup>th</sup> February	31 <sup>st</sup> July	31 <sup>st</sup> August
Sevilla	1 <sup>st</sup> March	15 <sup>th</sup> June	N/A
Thiva	15 <sup>th</sup> August	N/A	N/A

N/A =crop not relevant to this scenario

Tables B.8.3-3 and B.8.3-4 summarise the RMS' results of the simulations run in the PEARL v4.4.4 and PELMO v5.5.3 models respectively. The 80<sup>th</sup> percentile annual average PEC<sub>GW</sub> for all crop and location scenarios simulated at 1 m soil depth for both FOCUS models were < 0.001 µg/l. The “fast phase” and “slow phase” simulations both resulted in PEC<sub>GW</sub> values of 0.000 µg/L for all scenarios for both models. Therefore only overall PEC values based on an application of 0.765 Kg/ha are presented below.

Table B.8.3-3 RMS FOCUS PEC<sub>GW</sub> for napropamide-M modelled with FOCUS PEARL v4.4.4

FOCUS scenario	Groundwater modelling 80 <sup>th</sup> percentile PECs (µg/L)		
	Brassica crop 1 (cabbage)	Brassica crop 2 (cabbage)	Winter oilseed rape
Châteaudun	<0.001	<0.001	<0.001
Hamburg	<0.001	<0.001	<0.001
Jokioinen	<0.001	N/A	N/A
Kremsmünster	<0.001	<0.001	<0.001
Okehampton	N/A	N/A	<0.001
Piacenza	N/A	N/A	<0.001
Porto	<0.001	<0.001	<0.001
Sevilla	<0.001	<0.001	N/A
Thiva	<0.001	N/A	N/A

N/A =crop not relevant to FOCUS scenario

Table B.8.3-4 RMS FOCUS PEC<sub>GW</sub> for napropamide-M modelled with FOCUS PELMO v5.5.3

FOCUS scenario	Groundwater modelling 80 <sup>th</sup> percentile PECs (µg/L)		
	Brassica crop 1 (cabbage)	Brassica crop 2 (cabbage)	Winter oilseed rape
Châteaudun	<0.001	<0.001	<0.001
Hamburg	<0.001	<0.001	<0.001
Jokioinen	<0.001	N/A	N/A
Kremsmünster	<0.001	<0.001	<0.001
Okehampton	N/A	N/A	<0.001
Piacenza	N/A	N/A	<0.001
Porto	<0.001	<0.001	<0.001
Sevilla	<0.001	<0.001	N/A
Thiva	<0.001	N/A	N/A

N/A =crop not relevant to FOCUS scenario

Simulations using the groundwater model MACRO v.5.5.4 obtained identical PEC<sub>GW</sub> values (<0.001 µg/L) to those obtained with the PEARL and PELMO models. Simulations from all three models calculated annual average 80<sup>th</sup> percentile PEC<sub>GW</sub> concentrations at 1m depth that were at least three orders of magnitude below the regulatory threshold of 0.1 µg/L, concluding that the groundwater leaching risk for napropamide-M is negligible.

## B.8.4. FATE AND BEHAVIOUR IN WATER AND SEDIMENT

### B.8.4.1. Aerobic mineralisation in surface water

An 'aerobic mineralisation in surface water' study (section 3CA B.8.2.2.2) resulted in <20% degradation of napropamide-M over the study duration (90 days), resulting in uncertain DT<sub>50</sub> values. A transient transformation product that formed between days 28 and 90 was tentatively identified as a napropamide dimer (max. formation 80.6% AR in a single replicate at day 47 in the highest test concentration of 5 µg/L), however the identity was not confirmed and the Applicant claims this product may have been an artefact of sample preparation. No other metabolites were formed during the study.

### B.8.4.2. Water/sediment study

The fate and behaviour of radiolabelled [naphthyl-1-<sup>14</sup>C] napropamide-M was studied in sandy loam and clay loam water sediment systems under laboratory conditions (section 3CA B.8.2.2.3). Parent rapidly partitioned into the sediment phase from the water phase with mean values in water decreasing from 95.81% AR- 95.10% AR at day 0 to 30.48% AR- 41.50% AR at day 7 over the two systems, with further dissipation of napropamide-M to the sediment phase throughout the study. No major transformation products were detected in the surface water or the sediment extracts. Parent concentrations increased rapidly in the sediment phase of both water-sediment systems to ≥50 % by day 7 of the study and remained at similar levels until study end.

Table B.8.4.2-1 presents the modelling endpoints derived for water and sediment compartments. The level P-II kinetic assessment failed statistically and so degradation values generated at level P-I were used for modelling endpoints. The whole system DegT<sub>50</sub>

was assigned to the faster degrading compartment, in this case the water phase. A conservative default value of 1000 days was assigned to the slower degrading sediment compartment.

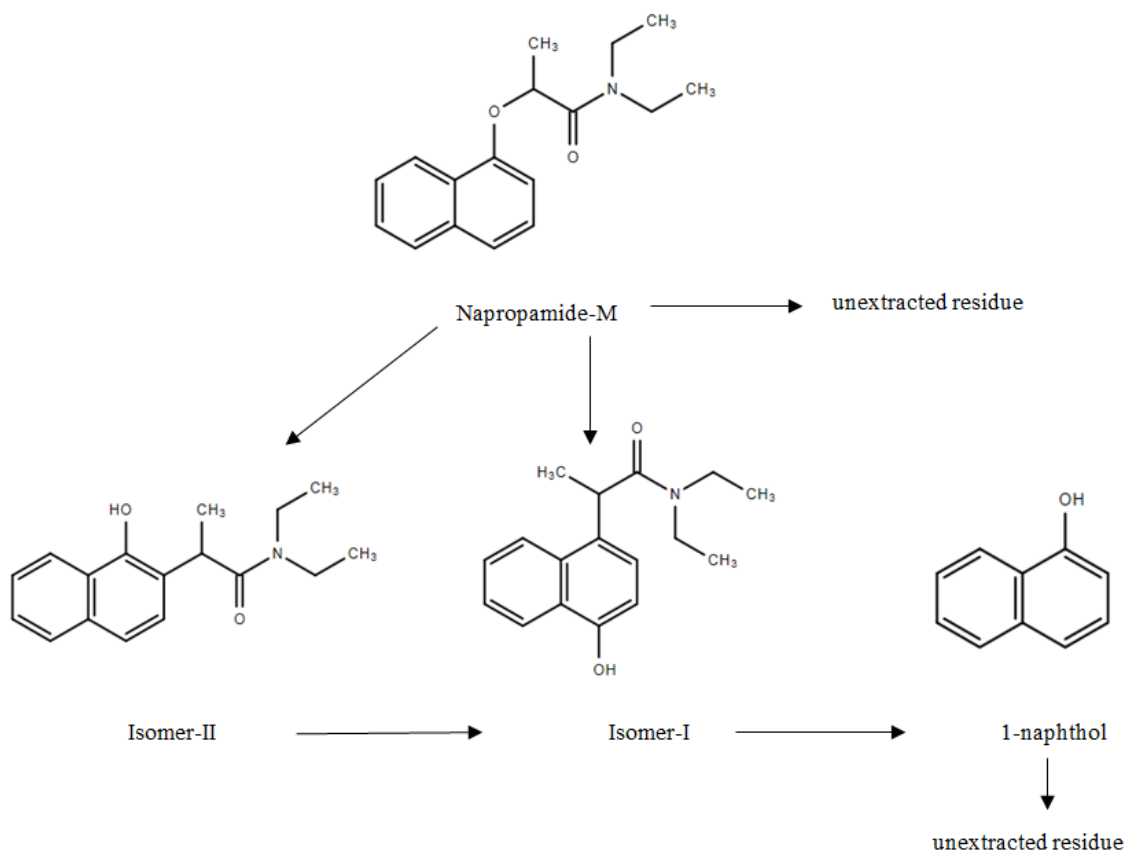
#### B.8.4.2-1 Modelling endpoints for napropamide-M in water sediment systems at level P-I

Compartment	Sediment type	Kinetics	$\chi^2$ error %	DT <sub>50</sub>	DT <sub>90</sub>
Water	Sandy loam	SFO	1.9	301	1000
	Clay loam	SFO	1.43	333	1110
	Arithmetic mean			317.00	1055.00
	Geometric mean			316.60	1053.57
Sediment	Sandy loam	N/A	N/A	1000 (default)	N/A
	Clay loam	N/A	N/A	1000 (default)	N/A
	Arithmetic mean			1000	N/A
	Geometric mean			1000	N/A

#### B.8.4.3. Irradiated water study

Napropamide-M degraded completely within the duration of the aqueous photolysis study (section 3CA B.8.2.1.2) in irradiated samples. Three major photolytic metabolites >10% AR formed; isomer-I (max. mean 37.03% AR at 60 minutes), isomer-II (max. mean 57.1% AR at 30 minutes) and 1-naphthol (max. mean 23.31% AR at 120 minutes). The kinetic assessment of the aqueous photolysis study calculated the parent DT<sub>50</sub> as 6.13 minutes and DT<sub>50</sub> values for isomer-II, isomer-I and 1-naphthol as 54.5, 75.5 and 90.5 minutes respectively. The three major aqueous photolysis metabolites were included in the calculation of PEC for surface water and sediment. Figure B.8.4.3-1 below shows the degradation scheme used in the kinetic assessment.

Figure B.8.4.3-1 Aqueous photolysis degradation scheme of napropamide-M



**B.8.5. PREDICTED ENVIRONMENTAL CONCENTRATIONS IN SURFACE WATER AND SEDIMENT (PEC<sub>sw</sub>, PEC<sub>sd</sub>)**

Predicted environmental concentrations (PEC) of napropamide-M and major metabolites in surface water and sediment were estimated according to FOCUS surface water models and scenarios.

*FOCUS STEPs 1 and 2-parent*

Initial calculations were done for the parent compound at FOCUS Steps 1 and 2 using the FOCUS STEP1-2 calculator v3.2. The input values used by the RMS in their independent assessment and those used by the Applicant are reported in table B.8.5-1 below. A whole system DegT<sub>50</sub> for water and sediment systems was used for FOCUS STEP 1 as recommended to provide a worst case scenario. As level P-II compartment DegT<sub>50</sub>s could not be obtained within acceptable statistical criteria (see section 3CA B.8.2.2.3), the whole system DegT<sub>50</sub> was used for both compartments at STEP 2. In accordance with the proposed GAP, simulations were based on applications to winter oilseed rape and brassica crops at the maximum recommended rate of 765 g a.s./ha. The leafy vegetable scenario was used as a surrogate for brassicas in accordance with FOCUS recommendations. At Step 2, the season of application was set to either June- September or October-February for winter oilseed rape and March-May, June-September or October-February for brassicas. Napropamide-M is intended for pre-emergence use and so simulated applications were to bare soil with no crop interception.

Table B.8.5-1 Input parameter for surface water modelling at FOCUS STEP 1 and 2

Parameter	Values provided by Applicant	Values used by RMS	Study	Comments
<i>Chemical properties</i>				
Molecular mass (g/mol)	271	271.35	MCA Summary Section 1- Identity of the Active Substance.	
Aqueous solubility (mg/L)	39	39	Bates, G. (2014). Physical and chemical determinations on napropamide-M technical and purified material.	
Vapour pressure (Pa)	3.8 x 10 <sup>-6</sup>	0	Patel, A.H. (2013). Vapour Pressure of Napropamide-M Purified.	VP set to zero by RMS in consistency with approach used in groundwater modelling see section 3CP B.8.3. It was verified that in this case VP did not alter the PEC values.
K <sub>FOM</sub> (ml/g)	272	272.25	Dubey, P. (2013). Determination of the adsorption coefficient (K <sub>oc</sub> ) for [naphthyl-1- <sup>14</sup> C] napropamide-M.	Slight differences in calculation method and rounding. See section 3CA B.8.1.2. Geometric mean (n=5) (Note: The geometric mean K <sub>FOM</sub> of 272.25 was used directly from 3CA Table B.8.1.2-3. This differs slightly from geometric mean K <sub>FOM</sub> of 472.61/ 1.724 because values reported for OM in the adsorption study, that were used to calculate K <sub>FOM</sub> , had been rounded up so did not equate exactly to OC*1.724. As this does not make a significant difference to the results, it has not been corrected here).
K <sub>FOC</sub> (mL/g)	468	472.61	Dubey, P. (2013)	Slight differences in calculation method and rounding. See section 3CA B.8.1.2. Geometric mean (n=5)

1/n	0.865	0.865	Dubey, P. (2013)	Arithmetic mean (n=5)
<i>Environmental factors</i>				
Application rate (g/ha)	765	765		Based on proposed GAP maximum application rate per treatment.
Application method	Ground spray	Ground spray		In accordance with proposed GAP use as broadcast spray.
Number of applications	1	1		
Crop uptake factor	0	0		Based on proposed GAP use as a pre-emergence/ pre-sowing application to bare soil.
Soil DegT <sub>50</sub> (days, geomean)	22	28.41	Croucher, A. & Ford, S. (2015) Napropamide-M: Kinetic assessment of field dissipation studies.	Geometric mean of field normalised values. RMS mean n=8 based on four trial locations. Applicant mean n=6 based on three trial locations. RMS rejected Applicant's approach to only use three out of the four trial locations to calculate the soil DegT <sub>50</sub> . See section 3CA B.8.1.1.4.
DT <sub>50</sub> water (days)	316.6	316.6	Croucher, A. & Ford, S. (2015) Napropamide-M: Kinetic evaluation of water sediment study.	Level P-I whole system DegT <sub>50</sub> used as is recommended for STEP 1. Level P-II assessment failed so the level P-I DegT <sub>50</sub> was used also for both compartments at STEP 2. Geometric mean, n=2. Derived from SFO kinetics.
DT <sub>50</sub> sediment (days)	316.6	316.6	Croucher, A. & Ford, S. (2015) Napropamide-M: Kinetic evaluation of water sediment study.	Level P-I whole system DegT <sub>50</sub> used as is recommended for STEP 1. Level P-II assessment failed so the level P-I DegT <sub>50</sub> was used also for both compartments at STEP 2. Geometric mean, n=2. Derived from SFO kinetics.

The actual and time-weighted average (TWA) PEC for surface water and sediment at FOCUS Steps 1 for both crop uses are reported in table B.8.5-2. The highest PEC<sub>SW</sub> at STEP 1 was 163.46 µg/L on day zero. FOCUS Step 2 actual and TWA PEC<sub>SW</sub> and PEC<sub>SED</sub> values for winter oilseed rape for northern and southern Europe, simulated for June to September and October to February emergence are reported in tables B.8.5-3 and -4 respectively. The highest PEC<sub>SW</sub> values for winter oilseed rape occurred in the October to February timeframe, 75.85 µg/L and 61.67 µg/L for northern and southern Europe respectively. Tables B.8.5-5, -6 and -7 report values for brassicas, simulated for March-May, June-September and October to February, to cover the broad range of transplanting times for brassicas in Europe. The October to February application window generated the highest PEC<sub>SW</sub> values, with the March to May and June to September timings resulting in lower values. All PEC values presented below have been calculated by the RMS. All PEC<sub>SW</sub> values for all scenarios at both STEPs 1 and 2 exceeded the lowest **regulatory acceptable concentration (RAC) for *Lemna* of 4.33 µg/L** (see Ecotoxicology sections CA and CP B9), therefore higher tier surface water modelling was performed at FOCUS STEP 3.

Table B.8.5-2 RMS FOCUS STEP 1 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for winter oilseed rape and leafy vegetable (brassicas)

Time (d)	PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA
0	<b>163.463</b>		739.293	
1	160.392	161.928	<b>758.028</b>	748.661
2	160.041	161.072	756.371	752.930
4	159.342	160.382	753.066	753.823
7	158.299	159.712	748.136	752.441
14	155.891	158.402	736.758	747.437
21	153.520	157.169	725.553	742.005
28	151.186	155.964	714.518	736.509
42	146.622	153.607	692.950	725.566
50	144.076	152.285	680.919	719.382
100	129.137	144.378	610.315	682.177

Values in bold represent the highest PEC<sub>SW</sub> or PEC<sub>SED</sub> values

Table B.8.5-3 RMS FOCUS STEP 2 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for winter oilseed rape

Time after max. peak(d)	WOSR Northern Europe (June-Sept)				WOSR Southern Europe (June-Sept)			
	PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)		PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	<b>33.288</b>	---	<b>153.992</b>	---	<b>47.476</b>	---	<b>220.901</b>	---
1	32.583	32.936	153.655	153.824	46.741	47.109	220.418	220.659
2	32.512	32.742	153.319	153.656	46.638	46.899	219.936	220.418
4	32.370	32.591	152.650	153.320	46.435	46.718	218.975	219.937
7	32.158	32.451	151.650	152.818	46.131	46.531	217.541	219.217
14	31.669	32.182	149.344	151.656	45.429	46.155	214.233	217.550
21	31.187	31.931	147.073	150.506	44.738	45.798	210.975	215.900
28	30.713	31.685	144.836	149.367	44.058	45.448	207.766	214.266
42	29.786	31.206	140.464	147.124	42.728	44.762	201.494	211.049
50	29.269	30.937	138.025	145.863	41.986	44.377	197.996	209.240
100	26.234	29.331	123.713	138.301	37.633	42.073	177.466	198.392

Values in bold represent the highest PEC<sub>SW</sub> or PEC<sub>SED</sub> values

Table B.8.5-4 RMS FOCUS STEP 2 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for winter oilseed rape

Time after max. peak(d)	WOSR Northern Europe (Oct- Feb)				WOSR Southern Europe (Oct-Feb)			
	PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)		PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	<b>75.853</b>	---	<b>354.718</b>	---	<b>61.665</b>	---	<b>287.809</b>	---
1	75.055	75.454	353.942	354.330	60.898	61.281	287.180	287.495
2	74.891	75.214	353.168	353.943	60.765	61.056	286.552	287.180
4	74.564	74.970	351.625	353.170	60.499	60.844	285.300	286.553
7	74.076	74.691	349.323	352.014	60.103	60.611	283.432	285.615
14	72.949	74.101	344.011	349.337	59.189	60.128	279.122	283.443
21	71.840	73.532	338.779	346.687	58.289	59.665	274.877	281.294
28	70.747	72.972	333.626	344.065	57.402	59.210	270.696	279.165
42	68.612	71.873	323.556	338.898	55.670	58.317	262.525	274.974
50	67.420	71.255	317.938	335.993	54.703	57.816	257.967	272.616
100	60.430	67.558	284.971	318.573	49.031	54.816	231.219	258.483

Values in bold represent the highest PEC<sub>SW</sub> or PEC<sub>SED</sub> valuesTable B.8.5-5 RMS FOCUS STEP 2 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for leafy vegetable (brassicas)

Time after max. peak(d)	Brassicas Northern Europe (Mar- May)				Brassicas Southern Europe (Mar- May)			
	PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)		PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	<b>33.288</b>	---	<b>153.992</b>	---	<b>61.665</b>	---	<b>287.809</b>	---
1	32.583	32.936	153.655	153.824	60.898	61.281	287.180	287.495
2	32.512	32.742	153.319	153.656	60.765	61.056	286.552	287.180
4	32.370	32.591	152.650	153.320	60.499	60.844	285.300	286.553
7	32.158	32.451	151.650	152.818	60.103	60.611	283.432	285.615
14	31.669	32.182	149.344	151.656	59.189	60.128	279.122	283.443
21	31.187	31.931	147.073	150.506	58.289	59.665	274.877	281.294
28	30.713	31.685	144.836	149.367	57.402	59.210	270.696	279.165
42	29.786	31.206	140.464	147.124	55.670	58.317	262.525	274.974
50	29.269	30.937	138.025	145.863	54.703	57.816	257.967	272.616
100	26.234	29.331	123.713	138.301	49.031	54.816	231.219	258.483

Values in bold represent the highest PEC<sub>SW</sub> or PEC<sub>SED</sub> values

Table B.8.5- 6 RMS FOCUS STEP 2 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for leafy vegetable (brassicas)

Time after max. peak(d)	Brassicas Northern Europe (June-Sept)				Brassicas Southern Europe (June-Sept)			
	PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)		PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	<b>33.288</b>	---	<b>153.992</b>	---	<b>47.476</b>	---	<b>220.901</b>	---
1	32.583	32.936	153.655	153.824	46.741	47.109	220.418	220.659
2	32.512	32.742	153.319	153.656	46.638	46.899	219.936	220.418
4	32.370	32.591	152.650	153.320	46.435	46.718	218.975	219.937
7	32.158	32.451	151.650	152.818	46.131	46.531	217.541	219.217
14	31.669	32.182	149.344	151.656	45.429	46.155	214.233	217.550
21	31.187	31.931	147.073	150.506	44.738	45.798	210.975	215.900
28	30.713	31.685	144.836	149.367	44.058	45.448	207.766	214.266
42	29.786	31.206	140.464	147.124	42.728	44.762	201.494	211.049
50	29.269	30.937	138.025	145.863	41.986	44.377	197.996	209.240
100	26.234	29.331	123.713	138.301	37.633	42.073	177.466	198.392

Values in bold represent the highest PEC<sub>SW</sub> or PEC<sub>SED</sub> valuesTable B.8.5-7 RMS FOCUS STEP 2 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for leafy vegetable (brassicas)

Time after max. peak(d)	Brassicas Northern Europe (Oct-Feb)				Brassicas Southern Europe (Oct-Feb)			
	PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)		PEC <sub>SW</sub> (µg/L)		PEC <sub>SED</sub> (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA	Actual	TWA	Actual	TWA
0	<b>75.853</b>	---	<b>354.718</b>	---	<b>61.665</b>	---	<b>287.809</b>	---
1	75.055	75.454	353.942	354.330	60.898	61.281	287.180	287.495
2	74.891	75.214	353.168	353.943	60.765	61.056	286.552	287.180
4	74.564	74.970	351.625	353.170	60.499	60.844	285.300	286.553
7	74.076	74.691	349.323	352.014	60.103	60.611	283.432	285.615
14	72.949	74.101	344.011	349.337	59.189	60.128	279.122	283.443
21	71.840	73.532	338.779	346.687	58.289	59.665	274.877	281.294
28	70.747	72.972	333.626	344.065	57.402	59.210	270.696	279.165
42	68.612	71.873	323.556	338.898	55.670	58.317	262.525	274.974
50	67.420	71.255	317.938	335.993	54.703	57.816	257.967	272.616
100	60.430	67.558	284.971	318.573	49.031	54.816	231.219	258.483

Values in bold represent the highest PEC<sub>SW</sub> or PEC<sub>SED</sub> values



*FOCUS STEP 3-parent*

FOCUS STEP 3 was performed for the parent compound napropamide-M. The Applicant used FOCUS MACRO v4.4.2 and PRZM v3.1.1 to simulate potential surface water exposure via drainage or runoff respectively. TOXSWA v3.3.1 was used to model the behaviour of the parent compound in the water body via dissipation processes and simulate additional loadings via spray drift. The RMS independently calculated PEC at STEP 3 via the user shell FOCUS SWASH v5.3, which incorporates MACRO 5.5.4, PRZM 4.3.1 and TOXSWA v4.4.3. The RMS notes that as the submission of the active substance for evaluation was after 1<sup>st</sup> May 2015, the latest version of MACRO (5.5.4) should be used in surface water modelling (see FOCUS website notice board).

Table B.8.5-8 reports the input values used by the RMS and Applicant at STEP 3. Kinetic assessment of the water sediment study failed to obtain level P-II compartment DegT<sub>50</sub> values with statistically acceptable criteria. The recommended approach of assigning one compartment the whole system DegT<sub>50</sub> and using a default value of 1000 days for the other compartment was followed. RMS notes that as the Koc for napropamide-M is between 100 and 2000 mL/g, the *FOCUS Surface Water Guidance* recommended 'rule of thumb' should be followed. The RMS ran simulations firstly with the whole system DegT<sub>50</sub> of 316.6 days assigned to the water phase and the default DT<sub>50</sub> value of 1000 days assigned to the sediment phase. Secondly they were run with the default 1000 day DT<sub>50</sub> assigned to the water phase and the whole system DegT<sub>50</sub> assigned to the sediment phase. The results from the two combinations that gave the highest concentrations were selected to provide a worst case scenario for the risk assessment.

Table B.8.5-8 Input parameters for surface water modelling at FOCUS STEP 3

Parameter	Values provided by Applicant	Values used by RMS	Study	Comments
<i>Chemical properties</i>				
Molecular mass (g/mol)	271	271.35	MCA Summary Section 1- Identity of the Active Substance.	
Aqueous solubility (mg/L)	39	39	Bates, G. (2014). Physical and chemical determinations on napropamide-M technical and purified material.	
Vapour pressure (Pa)	3.8 x 10 <sup>-6</sup>	0	Patel, A.H. (2013). Vapour Pressure of Napropamide-M Purified.	VP set to zero by RMS in consistency with approach used in groundwater modelling see section 3CP B.8.3. It was verified that in this case VP did not alter the water PEC values.
K <sub>FOM</sub> (mL/g)	272	272.25	Dubey, P. (2013). Determination of the adsorption coefficient (Koc) for [naphthyl-1- <sup>14</sup> C] napropamide-M.	Slight differences in calculation method and rounding. See section 3CA B.8.1.2. Geometric mean (n=5) (Note: The geometric mean K <sub>FOM</sub> of 272.25 was used directly from 3CA Table B.8.1.2-3. This differs slightly from geometric mean K <sub>FOC</sub> of 472.61/1.724 because values reported for OM in the adsorption study, that were used to calculate K <sub>FOM</sub> , had been rounded up so did not equate exactly to OC*1.724. As this does not make a significant difference to the results, it has not been corrected here).
K <sub>FOC</sub> (mL/g)	468	472.61	Dubey, P. (2013)	Slight differences in calculation method and rounding. See section 3CA

				B.8.1.2. Geometric mean (n=5)
1/n	0.865	0.865	Dubey, P. (2013)	Arithmetic mean (n=5)
<i>Environmental factors</i>				
Application rate (Kg/ha)	0.765	0.765		Based on proposed GAP maximum application rate per treatment.
Application method	Ground spray	Ground spray		In accordance with proposed GAP use as broadcast spray.
Number of applications per season	*	1		
Crop uptake factor	0	0		Based on proposed GAP use as a pre-emergence/ pre-sowing application to bare soil.
Soil DegT <sub>50</sub> (days, geomean)	22	28.41	Croucher, A. & Ford, S. (2015) Napropamide-M: Kinetic assessment of field dissipation studies.	Geometric mean of field normalised values. RMS mean n=8 based on four trial locations. Applicant mean n=6 based on three trial locations. RMS rejected Applicant's approach to only use three out of the four trial locations to calculate the soil DegT <sub>50</sub> . See section 3CA B.8.1.1.4.
DT <sub>50</sub> water (days)	316.6	316.6 <sup>+</sup>	Croucher, A. & Ford, S. (2015) Napropamide-M: Kinetic evaluation of water sediment study.	Level P-I whole system DegT <sub>50</sub> applied to the water compartment as the level P-II assessment failed. Geometric mean n=2. Derived from SFO kinetics.
DT <sub>50</sub> sediment (days)	1000	1000 <sup>+</sup>	Croucher, A. & Ford, S. (2015) Napropamide-M: Kinetic evaluation of water sediment study.	Default DegT <sub>50</sub> of 1000 days applied to the sediment compartment as the level P-II assessment failed. Geometric mean n=2

<sup>+</sup> RMS performed simulations with both combinations for water and sediment compartments following the *FOCUS Surface water guidance* 'rule of thumb' for Koc values between 100 and 2000 mL/g.

\* The RMS assumes that the Applicant used 1 application per season but cannot verify this.

Application timings for the winter oilseed rape simulations were set seven days prior to the emergence date. Application to brassicas was set to time of emergence. Tables B.8.5-9 and B.8.5-10 below present the date of emergence assumed in each FOCUS scenario for the respective crop types. The user inputted application window is presented alongside the PAT selected application date. According to FOCUS guidance, second brassica crops were simulated for certain scenarios to account for two possible growing seasons for some European locations.

Table B.8.5-9 FOCUS emergence dates and selected application dates for winter oilseed rape simulations at STEP 3

FOCUS scenario	Date of emergence assumed in FOCUS scenario	Application window input by RMS	Application date selected by PAT
D2 ditch	15 <sup>th</sup> Sept	8 <sup>th</sup> Sept (251) - 8 <sup>th</sup> Oct (281)	8 <sup>th</sup> Sept 1986
D2 stream	15 <sup>th</sup> Sept	8 <sup>th</sup> Sept (251) - 8 <sup>th</sup> Oct (281)	8 <sup>th</sup> Sept 1986
D3 ditch	2 <sup>nd</sup> Sept	26 <sup>th</sup> Aug (238) - 25 <sup>th</sup> Sept (268)	26 <sup>th</sup> Aug 1992
D4 pond	3 <sup>rd</sup> Sept	27 <sup>th</sup> Aug (239) - 26 <sup>th</sup> Sept (269)	27 <sup>th</sup> Aug 1985
D4 stream	3 <sup>rd</sup> Sept	27 <sup>th</sup> Aug (239) - 26 <sup>th</sup> Sept (269)	27 <sup>th</sup> Aug 1985
D5 pond	20 <sup>th</sup> Sept	13 <sup>th</sup> Sept (256) - 13 <sup>th</sup> Oct (286)	13 <sup>th</sup> Sept 1978
D5 stream	20 <sup>th</sup> Sept	13 <sup>th</sup> Sept (256) - 13 <sup>th</sup> Oct (286)	13 <sup>th</sup> Sept 1978
R1 pond	4 <sup>th</sup> Sept	28 <sup>th</sup> Aug (240) - 27 <sup>th</sup> Sept (270)	17 <sup>th</sup> Sept 1978
R1 stream	4 <sup>th</sup> Sept	28 <sup>th</sup> Aug (240) - 27 <sup>th</sup> Sept (270)	17 <sup>th</sup> Sept 1978
R3 stream	5 <sup>th</sup> Oct	28 <sup>th</sup> Sept (271) - 28 <sup>th</sup> Oct (301)	22 <sup>nd</sup> Oct 1975

Julian days reported in parenthesis

Table B.8.5-10 FOCUS emergence dates and selected application dates for brassica simulations at STEP 3, based on ‘veg., leafy’

FOCUS scenario	Date of emergence assumed in FOCUS scenario	Application window input by RMS	Application date selected by PAT
D3 ditch (1 <sup>st</sup> crop)	25 <sup>th</sup> Apr (115)	25 <sup>th</sup> Apr (115) - 25 <sup>th</sup> May (145)	4 <sup>th</sup> May 1992
D3 ditch (2 <sup>nd</sup> crop)	5 <sup>th</sup> Aug (217)	5 <sup>th</sup> Aug (217) - 4 <sup>th</sup> Sept (247)	18 <sup>th</sup> Aug 1992
D4 pond	10 <sup>th</sup> May (130)	10 <sup>th</sup> May (130) - 9 <sup>th</sup> June (160)	16 <sup>th</sup> May 1985
D4 stream	10 <sup>th</sup> May (130)	10 <sup>th</sup> May (130) - 9 <sup>th</sup> June (160)	16 <sup>th</sup> May 1985
D6 ditch	15 <sup>th</sup> Aug (227)	15 <sup>th</sup> Aug (227) - 14 <sup>th</sup> Sept (257)	19 <sup>th</sup> Aug 1986
R1 pond (1 <sup>st</sup> crop)	20 <sup>th</sup> Apr (110)	20 <sup>th</sup> Apr (110) - 20 <sup>th</sup> May (140)	26 <sup>th</sup> Apr 1984
R1 pond (2 <sup>nd</sup> crop)	31 <sup>st</sup> July (212)	31 <sup>st</sup> July (212) - 30 <sup>th</sup> Aug (242)	20 <sup>th</sup> Aug 1978
R1 stream (1 <sup>st</sup> crop)	20 <sup>th</sup> Apr (110)	20 <sup>th</sup> Apr (110) - 20 <sup>th</sup> May (140)	26 <sup>th</sup> Apr 1984
R1 stream (2 <sup>nd</sup> crop)	31 <sup>st</sup> July (212)	31 <sup>st</sup> July (212) - 30 <sup>th</sup> Aug (242)	20 <sup>th</sup> Aug 1978
R2 stream (1 <sup>st</sup> crop)	28 <sup>th</sup> Feb (59)	28 <sup>th</sup> Feb (59) - 30 <sup>th</sup> Mar (89)	6 <sup>th</sup> Mar 1978
R2 stream (2 <sup>nd</sup> crop)	31 <sup>st</sup> July (212)	31 <sup>st</sup> July (212) - 30 <sup>th</sup> Aug (242)	5 <sup>th</sup> Aug 1989
R3 stream (1 <sup>st</sup> crop)	1 <sup>st</sup> Mar (60)	1 <sup>st</sup> Mar (60) - 31 <sup>st</sup> Mar (90)	1 <sup>st</sup> Mar 1980
R3 stream (2 <sup>nd</sup> crop)	15 <sup>th</sup> June (166)	15 <sup>th</sup> June (166) - 15 <sup>th</sup> July (196)	15 <sup>th</sup> June 1975
R4 stream (1 <sup>st</sup> crop)	1 <sup>st</sup> Mar (60)	1 <sup>st</sup> Mar (60) - 31 <sup>st</sup> Mar (90)	5 <sup>th</sup> Mar 1984
R4 stream (2 <sup>nd</sup> crop)	15 <sup>th</sup> June (166)	15 <sup>th</sup> June (166) - 15 <sup>th</sup> July (196)	23 <sup>rd</sup> June 1985

Julian days reported in parenthesis

*FOCUS STEP 3- parent: winter oilseed rape simulations*

Detailed tables of STEP 3 PEC<sub>SW</sub>, PEC<sub>SED</sub> and TWA values for oilseed rape and brassica simulations are reported in appendices B.8.9.1.1 and B.8.9.1.2 respectively. Table B.8.5-11 summarises the maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values simulated for winter oilseed rape using the water DT<sub>50</sub> of 316.6 days. Table B.8.5-12 summarises the corresponding values simulated for winter oilseed rape using the water DT<sub>50</sub> of 1000 days. Both tables state the main route of entry of the parent substance into the water body. These routes included the options of drift or drainage for “D” scenarios and drift or runoff/erosion for “R” scenarios.

Table B.8.5-11 Summary of RMS FOCUS STEP 3 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days

FOCUS Scenario	Application date	Surface water		Sediment		Main route of entry into water body
		Max. PEC <sub>SW</sub> (µg/L)	on	Max. PEC <sub>SED</sub> (µg/kg)	on	
D2 ditch	8 <sup>th</sup> Sept 86	<b>23.400</b>	20 <sup>th</sup> Nov 86	57.580	7 <sup>th</sup> Apr 87	Drainage
D2 stream	8 <sup>th</sup> Sept 86	<b>14.670</b>	20 <sup>th</sup> Nov 86	34.240	8 <sup>th</sup> Apr 87	Drainage
D3 ditch	26 <sup>th</sup> Aug 92	<b>4.902</b>	26 <sup>th</sup> Aug 92	9.101	9 <sup>th</sup> Sept 92	Drift
D4 pond	27 <sup>th</sup> Aug 85	1.101	1 <sup>st</sup> Jan 86	7.446*	1 <sup>st</sup> May 86	Drainage
D4 stream	27 <sup>th</sup> Aug 85	4.190	27 <sup>th</sup> Aug 85	2.700	30 <sup>th</sup> Dec 85	Drift
D5 pond	13 <sup>th</sup> Sept 78	0.328	13 <sup>th</sup> Feb 79	2.884*	1 <sup>st</sup> May 79	Drainage
D5 stream	13 <sup>th</sup> Sept 78	<b>4.521</b>	13 <sup>th</sup> Sept 78	1.100	13 <sup>th</sup> Sept 78	Drift
R1 pond	17 <sup>th</sup> Sept 78	0.1996	31 <sup>st</sup> Dec 78	1.566	17 <sup>th</sup> Mar 79	Run-off/erosion
R1 stream	17 <sup>th</sup> Sept 78	3.896	25 <sup>th</sup> Oct 78	1.122	25 <sup>th</sup> Nov 78	Run-off/erosion
R3 stream	22 <sup>nd</sup> Oct 75	<b>7.424</b>	13 <sup>th</sup> Nov 75	3.563	17 <sup>th</sup> Nov 75	Run-off/erosion

\*PEC<sub>SED</sub> later than end of simulation period 30 April

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L

Table B.8.5-12 Summary of RMS FOCUS STEP 3 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default)

FOCUS Scenario	Application date	Surface water		Sediment		Main route of entry into water body
		Max. PEC <sub>SW</sub> (µg/L)	on	Max. PEC <sub>SED</sub> (µg/kg)	on	
D2 ditch	8 <sup>th</sup> Sept 86	<b>23.400</b>	20 <sup>th</sup> Nov 86	53.970	7 <sup>th</sup> Apr 87	Drainage
D2 stream	8 <sup>th</sup> Sept 86	<b>14.600</b>	20 <sup>th</sup> Nov 86	32.020	8 <sup>th</sup> Apr 87	Drainage
D3 ditch	26 <sup>th</sup> Aug 92	<b>4.902</b>	26 <sup>th</sup> Aug 92	9.120	9 <sup>th</sup> Sept 92	Drift
D4 pond	27 <sup>th</sup> Aug 85	1.108	1 <sup>st</sup> Jan 86	7.437*	1 <sup>st</sup> May 86	Drainage
D4 stream	27 <sup>th</sup> Aug 85	4.190	27 <sup>th</sup> Aug 85	2.689	30 <sup>th</sup> Dec 85	Drift
D5 pond	13 <sup>th</sup> Sept 78	0.332	13 <sup>th</sup> Feb 79	2.823*	1 <sup>st</sup> May 79	Drainage
D5 stream	13 <sup>th</sup> Sept 78	<b>4.521</b>	13 <sup>th</sup> Sept 78	1.093	13 <sup>th</sup> Sept 78	Drift
R1 pond	17 <sup>th</sup> Sept 78	0.202	31 <sup>st</sup> Dec 78	1.566	14 <sup>th</sup> Mar 79	Run-off/erosion
R1 stream	17 <sup>th</sup> Sept 78	3.896	25 <sup>th</sup> Oct 78	1.119	25 <sup>th</sup> Nov 78	Run-off/erosion
R3 stream	22 <sup>nd</sup> Oct 75	<b>7.424</b>	13 <sup>th</sup> Nov 75	3.557	17 <sup>th</sup> Nov 75	Run-off/erosion

\*PEC<sub>SED</sub> later than end of simulation period 30 April

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L

The summary tables B.8.5-11 and B.8.5-12 show that the difference between PEC values for winter oilseed rape simulations using either water DT<sub>50</sub> 316.6 or 1000 days was negligible. There was virtually no difference ( $\leq 0.007$  µg/L) in surface water values and very little difference ( $\leq 3.61$  µg/kg) for the sediment PEC. For most of the scenarios, the predicted concentrations were higher in the sediment fraction than the water. However, the reverse was true for all but one of the stream scenarios. Spray drift was the main route of entry to the water body for the D3 ditch, D4 stream and D5 stream scenarios. Drainage was the main route of entry for all other “D” scenarios and runoff was the main driver for all the “R” scenarios for the winter oilseed rape simulations. The highest maximum PEC<sub>SW</sub> at STEP 3 was 23.40 µg/L for the D2 ditch scenario, entering the water body via drainage. The same scenario resulted in the highest maximum PEC<sub>SED</sub> value for winter oilseed rape of 53.97 µg/Kg. Overall five out of ten scenarios exceeded the aquatic RAC (4.33 µg/L *Lemna*, see ecotoxicology section 3CP B9). These were the D2 ditch and stream scenarios driven by drainage, the D3 ditch driven by drift and the R3 stream driven by runoff.

*STEP 3- parent: brassicas simulations*

Tables B.8.5-13 and B.8.5-14 summarise the STEP 3 calculated maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> values simulated for application of napropamide-M to brassica crops using either 316.6 days or 1000 days for the water compartment DT<sub>50</sub> respectively.

Table B.8.5-13 Summary of RMS FOCUS STEP 3 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days

FOCUS Scenario	Application date	Surface water		Sediment		Main route of entry into water body
		Max. PEC <sub>SW</sub> (µg/L)	on	Max. PEC <sub>SED</sub> (µg/kg)	on	
D3 ditch 1 <sup>st</sup>	4 <sup>th</sup> May 92	<b>4.848</b>	4 <sup>th</sup> May 92	2.364	5 <sup>th</sup> May 92	Drift
D3 ditch 2 <sup>nd</sup>	18 <sup>th</sup> Aug 92	<b>4.853</b>	18 <sup>th</sup> Aug 92	2.529	19 <sup>th</sup> Aug 92	Drift
D4 pond	16 <sup>th</sup> May 85	0.271	31 Dec 85	1.391*	1 <sup>st</sup> May 86	Drainage
D4 stream	16 <sup>th</sup> May 85	3.803	16 <sup>th</sup> May 85	0.752	29 <sup>th</sup> Dec 85	Drift
D6 ditch	19 <sup>th</sup> Aug 86	<b>4.747</b>	19 <sup>th</sup> Aug 86	1.831	6 <sup>th</sup> Nov 86	Drift
R1 pond 1 <sup>st</sup>	26 <sup>th</sup> Apr 84	0.630	30 <sup>th</sup> May 84	3.675	4 <sup>th</sup> Sept 84	Runoff/ erosion
R1 pond 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	0.513	17 <sup>th</sup> Sept 78	4.284	4 <sup>th</sup> Mar 79	Runoff/ erosion
R1 stream 1 <sup>st</sup>	26 <sup>th</sup> Apr 84	<b>6.750</b>	20 <sup>th</sup> May 84	2.500	20 <sup>th</sup> May 84	Runoff/ erosion
R1 stream 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	<b>6.279</b>	17 <sup>th</sup> Sept 78	3.097	17 <sup>th</sup> Sept 78	Runoff/ erosion
R2 stream 1 <sup>st</sup>	6 <sup>th</sup> Mar 78	4.190	6 <sup>th</sup> Mar 78	1.734	4 <sup>th</sup> May 78	Drift
R2 stream 2 <sup>nd</sup>	5 <sup>th</sup> Aug 89	4.297	5 <sup>th</sup> Aug 89	2.084	24 <sup>th</sup> Oct 89	Drift
R3 stream 1 <sup>st</sup>	1 <sup>st</sup> Mar 80	<b>13.820</b>	8 <sup>th</sup> Mar 80	5.533	8 <sup>th</sup> Mar 80	Runoff/ erosion
R3 stream 2 <sup>nd</sup>	15 <sup>th</sup> June 75	<b>9.024</b>	23 <sup>rd</sup> June 75	6.321	23 <sup>rd</sup> June 75	Runoff/ erosion
R4 stream 1 <sup>st</sup>	5 <sup>th</sup> Mar 84	<b>4.474</b>	12 <sup>th</sup> Apr 84	2.116	12 <sup>th</sup> Apr 84	Runoff/ erosion
R4 stream 2 <sup>nd</sup>	23 <sup>rd</sup> June 85	<b>16.360</b>	28 <sup>th</sup> June 85	7.794	28 <sup>th</sup> June 85	Runoff/ erosion

\*PEC<sub>SED</sub> later than end of simulation period 30<sup>th</sup> April

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L

Table\_B.8.5-14 Summary of RMS FOCUS STEP 3 PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days (default)

FOCUS Scenario	Application date	Surface water		Sediment		Main route of entry into water body
		Max. PEC <sub>SW</sub> (µg/L)	on	Max. PEC <sub>SED</sub> (µg/kg)	on	
D3 ditch 1 <sup>st</sup>	4 <sup>th</sup> May 92	<b>4.848</b>	4 <sup>th</sup> May 92	2.363	5 <sup>th</sup> May 92	Drift
D3 ditch 2 <sup>nd</sup>	18 <sup>th</sup> Aug 92	<b>4.853</b>	18 <sup>th</sup> Aug 92	2.528	19 <sup>th</sup> Aug 92	Drift
D4 pond	16 <sup>th</sup> May 85	0.274	31 Dec 85	2.358	25 <sup>th</sup> Apr 86	Drainage
D4 stream	16 <sup>th</sup> May 85	3.803	16 <sup>th</sup> May 85	0.741	29 <sup>th</sup> Dec 85	Drift
D6 ditch	19 <sup>th</sup> Aug 86	<b>4.747</b>	19 <sup>th</sup> Aug 86	1.788	6 <sup>th</sup> Nov 86	Drift
R1 pond 1 <sup>st</sup>	26 <sup>th</sup> Apr 84	0.634	30 <sup>th</sup> May 84	3.653	4 <sup>th</sup> Sept 84	Runoff/ erosion
R1 pond 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	0.520	17 <sup>th</sup> Sept 78	4.256	28 <sup>th</sup> Feb 79	Runoff/ erosion
R1 stream 1 <sup>st</sup>	26 <sup>th</sup> Apr 84	<b>6.750</b>	20 <sup>th</sup> May 84	2.499	20 <sup>th</sup> May 84	Runoff/ erosion
R1 stream 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	<b>6.342</b>	17 <sup>th</sup> Sept 78	3.114	17 <sup>th</sup> Sept 78	Runoff/ erosion
R2 stream 1 <sup>st</sup>	6 <sup>th</sup> Mar 78	4.190	6 <sup>th</sup> Mar 78	1.714	4 <sup>th</sup> May 78	Drift
R2 stream 2 <sup>nd</sup>	5 <sup>th</sup> Aug 89	4.297	5 <sup>th</sup> Aug 89	2.029	24 <sup>th</sup> Oct 89	Drift
R3 stream 1 <sup>st</sup>	1 <sup>st</sup> Mar 80	<b>13.820</b>	8 <sup>th</sup> Mar 80	5.531	8 <sup>th</sup> Mar 80	Runoff/ erosion
R3 stream 2 <sup>nd</sup>	15 <sup>th</sup> June 75	<b>9.116</b>	23 <sup>rd</sup> June 75	6.334	23 <sup>rd</sup> June 75	Runoff/ erosion
R4 stream 1 <sup>st</sup>	5 <sup>th</sup> Mar 84	<b>4.474</b>	12 <sup>th</sup> Apr 84	2.114	12 <sup>th</sup> Apr 84	Runoff/ erosion
R4 stream 2 <sup>nd</sup>	23 <sup>rd</sup> June 85	<b>16.420</b>	28 <sup>th</sup> June 85	7.813	28 <sup>th</sup> June 85	Runoff/ erosion

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L

The summary tables B.8.5-13 and B.8.5-14 show that the difference between PEC values for brassica crop type simulations using either water DT<sub>50</sub> 316.6 or 1000 days was negligible. Virtually no difference between surface water PEC ( $\leq 0.063$  µg/L) or sediment PEC ( $\leq 0.967$  µg/kg) for the two DT<sub>50</sub> combinations was observed. For most of the scenarios, the predicted concentrations were higher in the water compartment than the sediment phase. The reverse was true for the pond scenarios. Spray drift was the main route of entry to the water body for all but one of the “D” scenarios (D4 pond). Only two out of ten “R” scenarios were driven by drift. The three “D” scenarios which failed the RAC of 4.33 µg/L (D3 ditch 1<sup>st</sup> crop, D3 ditch 2<sup>nd</sup> crop and D6 ditch) were all driven by drift. Six of the “R” scenarios failed the RAC and were all driven by runoff/erosion. The highest maximum PEC<sub>SW</sub> at STEP 3 was 13.82 µg/L for the R3 stream 1<sup>st</sup> crop scenario. The highest maximum PEC<sub>SED</sub> was 7.813 µg/Kg for the R4 stream 2<sup>nd</sup> crop.

*FOCUS STEP 4- parent*

Surface water modelling of the parent compound napropamide-M at STEP 3 resulted in several PEC values that exceeded the RAC for certain scenarios for both simulated GAP crop uses. These failing scenarios are summarised in table B.8.5-15. This triggered the need for higher tier surface water modelling to be undertaken at FOCUS STEP 4. The Applicant performed STEP 4 modelling using the SWAN v3.0 tool. The RMS has independently performed STEP 4 modelling in SWAN v4.0 (as v.3.0 was not compatible with the latest surface water models used by the RMS).

Table B.8.5-15 Summary RMS FOCUS STEP 3 PEC<sub>SW</sub> values that exceeded the RAC (4.33 µg/L)

Crop	FOCUS Scenario	Application date	Surface water		Sediment		Main route of entry into water body
			Max. PEC <sub>SW</sub> (µg/L)	on	Max. PEC <sub>SED</sub> (µg/kg)	on	
Winter oilseed rape	D2 ditch	8 <sup>th</sup> Sept 86	23.400	20 <sup>th</sup> Nov 86	57.58	7 <sup>th</sup> Apr 87	Drainage
	D2 stream	8 <sup>th</sup> Sept 86	14.670	20 <sup>th</sup> Nov 86	34.24	8 <sup>th</sup> Apr 87	Drainage
	D3 ditch	26 <sup>th</sup> Aug 92	4.902	26 <sup>th</sup> Aug 92	9.101	9 <sup>th</sup> Sept 92	Drift
	D5 stream	13 <sup>th</sup> Sept 78	4.521	13 <sup>th</sup> Sept 78	1.100	13 <sup>th</sup> Sept 78	Drift
	R3 stream	22 <sup>nd</sup> Oct 75	7.424	13 <sup>th</sup> Nov 75	3.563	17 <sup>th</sup> Nov 75	Run-off/erosion
Brassicas	D3 ditch 1 <sup>st</sup>	4 <sup>th</sup> May 92	4.848	4 <sup>th</sup> May 92	2.364	5 <sup>th</sup> May 92	Drift
	D3 ditch 2 <sup>nd</sup>	18 <sup>th</sup> Aug 92	4.853	18 <sup>th</sup> Aug 92	2.529	19 <sup>th</sup> Aug 92	Drift
	D6 ditch	19 <sup>th</sup> Aug 86	4.747	19 <sup>th</sup> Aug 86	1.831	6 <sup>th</sup> Nov 86	Drift
	R1 stream 1 <sup>st</sup>	26 <sup>th</sup> Apr 84	6.750	20 <sup>th</sup> May 84	2.500	20 <sup>th</sup> May 84	Runoff/ erosion
	R1 stream 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	6.279	17 <sup>th</sup> Sept 78	3.097	17 <sup>th</sup> Sept 78	Runoff/ erosion
	R3 stream 1 <sup>st</sup>	1 <sup>st</sup> Mar 80	13.820	8 <sup>th</sup> Mar 80	5.533	8 <sup>th</sup> Mar 80	Runoff/ erosion
	R3 stream 2 <sup>nd</sup>	15 <sup>th</sup> June 75	9.024	23 <sup>rd</sup> June 75	6.321	23 <sup>rd</sup> June 75	Runoff/ erosion
	R4 stream 1 <sup>st</sup>	5 <sup>th</sup> Mar 84	4.474	12 <sup>th</sup> Apr 84	2.116	12 <sup>th</sup> Apr 84	Runoff/ erosion
	R4 stream 2 <sup>nd</sup>	23 <sup>rd</sup> June 85	16.360	28 <sup>th</sup> June 85	7.794	28 <sup>th</sup> June 85	Runoff/ erosion

The *FOCUS Surface Water Guidance* recommended ‘rule of thumb’ for Koc values between 100 and 2000 mL/g proposed that the water/ sediment DT<sub>50</sub> combination which provides the worst case PEC values should be selected. However, as the difference this made between PEC values was proven negligible at STEP 3, RMS has accepted the Applicant’s values of 316.6 days for the water DT<sub>50</sub> and the 1000 day default for the sediment DT<sub>50</sub>.

The RMS did perform simulations using both combinations of water and sediment DT<sub>50</sub>s at STEP 4, but only the results of the simulations using water DT<sub>50</sub> 316.6 days are presented below. Detailed tables of STEP 4 PEC and TWA values for surface water and sediment compartments for all GAP uses and mitigation measures, using both water/ sediment DT<sub>50</sub> combinations can be found in Appendix B.8.9.2.

*FOCUS STEP 4-parent: 10 m buffer zone to mitigate spray drift*

Tables B.8.5-16 and B.8.5-17 summarise the maximum surface water and sediment PEC values performed at STEP 4 using 10 m spray drift buffer mitigation for winter oilseed rape and brassica simulations respectively. Scenarios in grey text represent those for which mitigation measures were not necessary (i.e. the RAC was not exceeded). The maximum PEC<sub>SW</sub> values D3 ditch and D5 stream scenarios for winter oilseed rape that were driven by drift were reduced from 4.902 and 4.521 µg/L at STEP 3 to 0.705 and 0.876 µg/L at STEP 4 with a 10 m buffer zone simulated. The three other failing PEC<sub>SW</sub> values for winter oilseed rape were not reduced by the inclusion of a spray drift buffer due to the main route of entry to the water body being either drainage or runoff.

Three of the failing scenarios for brassicas at STEP 3 were driven by drift. The D3 ditch 1<sup>st</sup> crop scenario maximum PEC<sub>SW</sub> value was reduced from 4.848 µg/L to 0.697 µg/L. The surface water loadings of the other two scenarios were not adequately reduced with a 10 m buffer zone. The remaining six brassica scenarios were driven by runoff and erosion and so the simulated buffer zone could not effectively reduce these PEC<sub>SW</sub> values.

Table B.8.5-16 Summary RMS FOCUS STEP 4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days and a 10 m spray drift buffer mitigation measure

FOCUS Scenario	Application date	Surface water		Sediment		Main route of entry into water body
		Max. PEC <sub>SW</sub> (µg/L)	on	Max. PEC <sub>SED</sub> (µg/kg)	on	
D2 ditch	8 <sup>th</sup> Sept 86	<b>23.400</b>	20 <sup>th</sup> Nov 86	56.930	7 <sup>th</sup> Apr 87	Drainage
D2 stream	8 <sup>th</sup> Sept 86	<b>14.670</b>	20 <sup>th</sup> Nov 86	33.790	8 <sup>th</sup> Apr 87	Drainage
D3 ditch	26 <sup>th</sup> Aug 92	0.705	26 <sup>th</sup> Aug 92	1.450	9 <sup>th</sup> Sept 92	Drift
D4 pond	27 <sup>th</sup> Aug 85	1.082	1 <sup>st</sup> Jan 86	6.209*	1 <sup>st</sup> May 86	Drainage
D4 stream	27 <sup>th</sup> Aug 85	1.722	27 <sup>th</sup> Aug 85	2.656	30 <sup>th</sup> Dec 85	Drift
D5 pond	13 <sup>th</sup> Sept 78	0.313	13 <sup>th</sup> Feb 79	1.618*	1 <sup>st</sup> May 79	Drainage
D5 stream	13 <sup>th</sup> Sept 78	0.876	13 <sup>th</sup> Sept 78	0.5164	13 <sup>th</sup> Sept 78	Drift
R1 pond	17 <sup>th</sup> Sept 78	0.178	31 <sup>st</sup> Dec 78	1.309	17 <sup>th</sup> Mar 79	Run-off/erosion
R1 stream	17 <sup>th</sup> Sept 78	3.896	25 <sup>th</sup> Oct 78	1.090	25 <sup>th</sup> Nov 78	Run-off/erosion
R3 stream	22 <sup>nd</sup> Oct 75	<b>7.424</b>	13 <sup>th</sup> Nov 75	3.514	17 <sup>th</sup> Nov 75	Run-off/erosion

\*PEC<sub>SED</sub> later than end of simulation period 30 April

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L

Table B.8.5-17 Summary RMS FOCUS STEP 4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 10 m spray drift buffer mitigation measure

FOCUS Scenario	Application date	Surface water		Sediment		Main route of entry into water body
		Max. PEC <sub>SW</sub> (µg/L)	on	Max. PEC <sub>SED</sub> (µg/kg)	on	
D3 ditch 1 <sup>st</sup>	4 <sup>th</sup> May 92	0.697	4 <sup>th</sup> May 92	0.370	5 <sup>th</sup> May 92	Drift
D3 ditch 2 <sup>nd</sup>	18 <sup>th</sup> Aug 92	<b>4.853</b>	18 <sup>th</sup> Aug 92	2.529	19 <sup>th</sup> Aug 92	Drift
D4 pond	16 <sup>th</sup> May 85	0.271	31 Dec 85	1.391*	1 <sup>st</sup> May 86	Drainage
D4 stream	16 <sup>th</sup> May 85	3.803	16 <sup>th</sup> May 85	0.752	29 <sup>th</sup> Dec 85	Drift
D6 ditch	19 <sup>th</sup> Aug 86	<b>4.747</b>	19 <sup>th</sup> Aug 86	1.831	6 <sup>th</sup> Nov 86	Drift
R1 pond 1 <sup>st</sup>	26 <sup>th</sup> Apr84	0.630	30 <sup>th</sup> May 84	3.675	4 <sup>th</sup> Sept 84	Runoff/ erosion
R1 pond 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	0.496	31 <sup>st</sup> Dec 78	4.055	7 <sup>th</sup> Mar 79	Runoff/ erosion
R1 stream 1 <sup>st</sup>	26 <sup>th</sup> Apr84	<b>6.750</b>	20 <sup>th</sup> May 84	2.500	20 <sup>th</sup> May 84	Runoff/ erosion
R1 stream 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	<b>6.279</b>	17 <sup>th</sup> Sept 78	3.045	17 <sup>th</sup> Sept 78	Runoff/ erosion
R2 stream 1 <sup>st</sup>	6 <sup>th</sup> Mar 78	4.190	6 <sup>th</sup> Mar 78	1.734	4 <sup>th</sup> May 78	Drift
R2 stream 2 <sup>nd</sup>	5 <sup>th</sup> Aug 89	0.833	5 <sup>th</sup> Aug 89	2.062	24 <sup>th</sup> Oct 89	Drift
R3 stream 1 <sup>st</sup>	1 <sup>st</sup> Mar 80	<b>13.820</b>	8 <sup>th</sup> Mar 80	5.533	8 <sup>th</sup> Mar 80	Runoff/ erosion
R3 stream 2 <sup>nd</sup>	15 <sup>th</sup> June 75	<b>9.024</b>	23 <sup>rd</sup> June 75	6.131	23 <sup>rd</sup> June 75	Runoff/ erosion
R4 stream 1 <sup>st</sup>	5 <sup>th</sup> Mar 84	<b>4.474</b>	12 <sup>th</sup> Apr84	2.116	12 <sup>th</sup> Apr84	Runoff/ erosion
R4 stream 2 <sup>nd</sup>	23 <sup>rd</sup> June 85	<b>16.360</b>	28 <sup>th</sup> June 85	7.708	28 <sup>th</sup> June 85	Runoff erosion

\*PEC<sub>SED</sub> later than end of simulation period 30<sup>th</sup> April

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L



*FOCUS STEP 4-parent: 20 m buffer zone to mitigate spray drift*

Tables B.8.5-18 and B.8.5-19 summarise the maximum surface water and sediment PEC values performed at STEP 4 using 20 m spray drift buffer mitigation for winter oilseed rape and brassica simulations respectively. As with the tables above, scenarios in grey represent those which passed at STEP 3 without mitigation. The PEC<sub>SW</sub> values for both crop types simulated using a 20 m buffer were very similar to those obtained using a 10 m buffer. The D2 ditch, D2 stream and R3 stream scenario PEC<sub>SW</sub> values calculated for winter oilseed rape were 23.40, 14.67 and 7.24 µg/L respectively. None of these were reduced by the spray drift mitigation measure and therefore still exceeded the RAC. The main route of entry for water body loading for these scenarios was either drainage or runoff.

Table B.8.5-18 Summary RMS FOCUS STEP 4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days and a 20 m spray drift buffer mitigation measure

FOCUS Scenario	Application date	Surface water		Sediment		Main route of entry into water body
		Max. PEC <sub>SW</sub> (µg/L)	on	Max. PEC <sub>SED</sub> (µg/kg)	on	
D2 ditch	8 <sup>th</sup> Sept 86	<b>23.400</b>	20 <sup>th</sup> Nov 86	56.880	7 <sup>th</sup> Apr 87	Drainage
D2 stream	8 <sup>th</sup> Sept 86	<b>14.670</b>	20 <sup>th</sup> Nov 86	33.740	8 <sup>th</sup> Apr 87	Drainage
D3 ditch	26 <sup>th</sup> Aug 92	0.366	26 <sup>th</sup> Aug 92	0.779	9 <sup>th</sup> Sept 92	Drift
D4 pond	27 <sup>th</sup> Aug 85	1.072	1 <sup>st</sup> Jan 86	6.078*	1 <sup>st</sup> May 86	Drainage
D4 stream	27 <sup>th</sup> Aug 85	1.722	7 <sup>th</sup> Dec 85	2.650	30 <sup>th</sup> Dec 85	Drainage
D5 pond	13 <sup>th</sup> Sept 78	0.305	13 <sup>th</sup> Feb 79	1.471	1 <sup>st</sup> May 79	Drainage
D5 stream	13 <sup>th</sup> Sept 78	0.858	24 <sup>th</sup> Jan 78	0.510	12 <sup>th</sup> Feb 78	Drainage
R1 pond	17 <sup>th</sup> Sept 78	0.167	31 <sup>st</sup> Dec 78	1.168	29 <sup>th</sup> Mar 79	Run-off/erosion
R1 stream	17 <sup>th</sup> Sept 78	3.896	25 <sup>th</sup> Oct 78	1.086	25 <sup>th</sup> Nov 78	Run-off/erosion
R3 stream	22 <sup>nd</sup> Oct 75	<b>7.424</b>	13 <sup>th</sup> Nov 75	3.508	17 <sup>th</sup> Nov 75	Run-off/erosion

\*PEC<sub>SED</sub> later than end of simulation period 30 April

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L

Table B.8.5-19 Summary RMS FOCUS STEP 4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 20 m buffer mitigation measure

FOCUS Scenario	Application date	Surface water		Sediment		Main route of entry into water body
		Max. PEC <sub>SW</sub> (µg/L)	on	Max. PEC <sub>SED</sub> (µg/kg)	on	
D3 ditch 1 <sup>st</sup>	4 <sup>th</sup> May 92	0.362	4 <sup>th</sup> May 92	0.197	5 <sup>th</sup> May 92	Drift
D3 ditch 2 <sup>nd</sup>	18 <sup>th</sup> Aug 92	0.362	18 <sup>th</sup> Aug 92	0.212	19 <sup>th</sup> Aug 92	Drift
D4 pond	16 <sup>th</sup> May 85	0.261	31 Dec 85	1.101*	1 <sup>st</sup> May 86	Drainage
D4 stream	16 <sup>th</sup> May 85	0.386	16 <sup>th</sup> May 85	0.746	29 <sup>th</sup> Dec 85	Drift
D6 ditch	19 <sup>th</sup> Aug 86	1.837	29 <sup>th</sup> Oct 86	1.765	6 <sup>th</sup> Nov 86	Drainage
R1 pond 1 <sup>st</sup>	26 <sup>th</sup> Apr84	0.568	30 <sup>th</sup> May 84	3.313	9 <sup>th</sup> Sept 84	Runoff/ erosion
R1 pond 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	0.487	31 <sup>st</sup> Dec 78	3.930	9 <sup>th</sup> Mar 79	Runoff/ erosion
R1 stream 1 <sup>st</sup>	26 <sup>th</sup> Apr84	<b>6.750</b>	20 <sup>th</sup> May 84	2.444	20 <sup>th</sup> May 84	Runoff/ erosion
R1 stream 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	<b>6.279</b>	17 <sup>th</sup> Sept 78	3.038	17 <sup>th</sup> Sept 78	Runoff/ erosion
R2 stream 1 <sup>st</sup>	6 <sup>th</sup> Mar 78	3.498	16 <sup>th</sup> Mar 78	1.717	4 <sup>th</sup> May 78	Runoff/ erosion
R2 stream 2 <sup>nd</sup>	5 <sup>th</sup> Aug 89	0.725	22 <sup>nd</sup> Oct 89	2.059	24 <sup>th</sup> Oct 89	Runoff/ erosion
R3 stream 1 <sup>st</sup>	1 <sup>st</sup> Mar 80	<b>13.820</b>	8 <sup>th</sup> Mar 80	5.328	8 <sup>th</sup> Mar 80	Runoff/ erosion
R3 stream 2 <sup>nd</sup>	15 <sup>th</sup> June 75	<b>9.024</b>	23 <sup>rd</sup> June 75	6.107	23 <sup>rd</sup> June 75	Runoff/ erosion
R4 stream 1 <sup>st</sup>	5 <sup>th</sup> Mar 84	<b>4.474</b>	12 <sup>th</sup> Apr84	2.070	12 <sup>th</sup> Apr84	Runoff/ erosion
R4 stream 2 <sup>nd</sup>	23 <sup>rd</sup> June 85	<b>16.360</b>	28 <sup>th</sup> June 85	7.697	28 <sup>th</sup> June 85	Runoff erosion

\*PEC<sub>SED</sub> later than end of simulation period 30<sup>th</sup> April

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L

The two scenarios driven by drift that failed with a 10 m buffer zone, were adequately reduced with a 20 m buffer. The D3 ditch 2<sup>nd</sup> crop PEC<sub>SW</sub> value was reduced from 4.853 to 0.362 µg/L. The D6 ditch PEC<sub>SW</sub> value was reduced from 4.747 to 1.837 µg/L. However, the six remaining failing scenarios that were driven by runoff and erosion were not reduced with a 20 m spray drift buffer zone.

*FOCUS STEP 4-parent: further measures to mitigate run-off and erosion*

The RMS investigated mitigation of surface water loadings other than spray drift. For instance vegetative filter strips (VFS) are a potential method to mitigate in situations where the main route of entry of a parent substance to the water body is via runoff. SANCO/10422/2005 EC *Landscape and mitigation factors in aquatic ecological risk assessment* v2.0 (2007) proposes three options for runoff mitigation measures: 1) a reduction in the application rate; 2) a restriction in the application window to avoid periods when runoff risk is greatest or 3) the application of a vegetative filter strip to intercept runoff water and eroded sediment. However, the *generic guidance for FOCUS surface water scenarios* v1.4 (2015) emphasises that mitigation options for runoff and drainage inputs are relatively unexplored and poorly developed in the EU. Furthermore, the RMS recognises that not all MS accept VFS as a viable, proven mitigation measure. MS will need to consider whether the assessment below incorporating VFS is appropriate for their own national authorisations.

Three scenarios for winter oilseed rape failed the RAC with a 20 m spray drift buffer simulated at STEP 4. One of these scenarios was driven by runoff and so could potentially be mitigated using a VFS. Table B.8.5-20 shows the maximum predicted concentrations for the R3 stream simulated with a single mitigation measure of 20 m buffer zone compared with the combined mitigation measures of a 20 m spray drift buffer and a 10-12 m VFS. The PEC<sub>SW</sub> value is reduced below the RAC.

Table B.8.5-20 RMS summary FOCUS STEP 4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days with mitigation measures 20 m spray drift buffer and 10-12 m VFS

FOCUS Scenario	STEP 4 20 m BZ		STEP 4 20 m BZ+ 10-12 m VFS		Main route of entry into water body
	Max. PEC <sub>SW</sub> (µg/L)	Max. PEC <sub>SED</sub> (µg/kg)	Max. PEC <sub>SW</sub> (µg/L)	Max. PEC <sub>SED</sub> (µg/kg)	
R3 stream	<b>7.424</b>	3.508	3.375	1.606	Run-off/erosion

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L

Table B.8.5-21 below reports the PEC values simulated for brassica crops using combined mitigation measures of 20 m spray drift buffer and 10-12m VFS for the six scenarios that failed with only the 20 m spray drift buffer. Four of the scenarios were adequately reduced by the combined mitigation measures. However, the R3 stream 1<sup>st</sup> crop and R4 stream 2<sup>nd</sup> crop scenarios still exceed the RAC with a 20 m spray drift buffer and 10-12 VFS. Simulations using a combined mitigation measure of 20 m spray drift buffer and 18-20 m VFS were run. By using the maximum VFS, the loadings via runoff for the R3 stream 1<sup>st</sup> crop and the R4 stream 2<sup>nd</sup> crop scenarios were sufficiently reduced below the RAC with PEC<sub>SW</sub> values of 3.264 and 3.890 µg/L respectively.

Table B.8.5-21 RMS summary FOCUS STEP 4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days with mitigation measures 20 m spray drift buffer and either 10-12 m VFS or 18-20 m VFS

FOCUS Scenario	STEP 4 20 m BZ		STEP 4 20 m BZ+ 10-12 m VFS		STEP 4 20 m BZ + 18-20 m VFS		Main route of entry into water body
	Max. PEC <sub>SW</sub> (µg/L)	Max. PEC <sub>SED</sub> (µg/kg)	Max. PEC <sub>SW</sub> (µg/L)	Max. PEC <sub>SED</sub> (µg/kg)	Max. PEC <sub>SW</sub> (µg/L)	Max. PEC <sub>SED</sub> (µg/kg)	
R1 stream 1 <sup>st</sup>	<b>6.750</b>	2.444	3.061	1.088	1.601	0.577	Runoff/ erosion
R1 stream 2 <sup>nd</sup>	<b>6.279</b>	3.038	2.856	1.375	1.496	0.734	Runoff/ erosion
R3 stream 1 <sup>st</sup>	<b>13.820</b>	5.328	<b>6.251</b>	2.424	3.264	1.299	Runoff/ erosion
R3 stream 2 <sup>nd</sup>	<b>9.024</b>	6.107	4.111	2.293	2.158	1.188	Runoff/ erosion
R4 stream 1 <sup>st</sup>	<b>4.474</b>	2.070	2.034	0.968	1.066	0.520	Runoff/ erosion
R4 stream 2 <sup>nd</sup>	<b>16.360</b>	7.697	<b>7.427</b>	3.403	3.890	1.807	Runoff/ erosion

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L

VFS are designed to reduce loadings from runoff and so would not be a viable mitigation method for the two winter oilseed rape scenarios driven by drainage. The landscape and mitigation report proposes only two mitigation measures for surface water loading via drainage: 1) a reduction in application rate and 2) a restriction in the application window. FOCUS generic surface water guidance also suggests drain ‘rinsers’ as a possible method of decreasing exposure through drains. Currently, drainflow mitigation options are limited and are the least developed across the EU. Clear guidance of how these measures could be implemented into FOCUS surface water modelling does not exist. Therefore the RMS has not explored these options within this assessment. The D2 ditch and D2 stream scenarios when simulated for winter oilseed rape application, resulted in  $PEC_{SW}$  values which exceed the RAC. The main route of entry of napropamide-M to the water body was via drainflow for these scenarios. Therefore the PEC values for these scenarios could not be reduced by applying established mitigation measures such as spray drift buffer zones. RMS recommends MS to assess these issues on a case by case basis, according to national addenda.

*Parent STEPs 3 and 4  $PEC_{SW}$  summary*

Table B.8.5-22 presents a summary of the maximum  $PEC_{SW}$  values calculated at STEP 3 and STEP 4 with mitigation measures for winter oilseed rape. Table B.8.5-23 corresponds to those calculated for brassicas. The only scenarios which could not be mitigated sufficiently were the winter oilseed rape D2 ditch and D2 stream scenarios, driven by drainage.

Table B.8.5-22 RMS Summary STEP 3 and STEP 4 maximum  $PEC_{SW}$  winter oilseed rape

FOCUS Scenario Winter oilseed rape	Application date	No mitigation	Spray drift mitigation		Spray drift and runoff mitigation
		STEP 3	STEP 4- 10 m BZ	STEP 4- 20 M BZ	STEP 4-20 m BZ + VFS 10-12m
D2 ditch	8 <sup>th</sup> Sept 86	<b>23.400</b>	<b>23.400</b>	<b>23.400</b>	<b>23.400</b>
D2 stream	8 <sup>th</sup> Sept 86	<b>14.670</b>	<b>14.670</b>	<b>14.670</b>	<b>14.67</b>
D3 ditch	26 <sup>th</sup> Aug 92	<b>4.902</b>	0.705	0.366	0.366
D4 pond	27 <sup>th</sup> Aug 85	1.101	1.082	1.072	1.072
D4 stream	27 <sup>th</sup> Aug 85	4.190	1.722	1.722	1.722
D5 pond	13 <sup>th</sup> Sept 78	0.328	0.313	0.305	0.305
D5 stream	13 <sup>th</sup> Sept 78	<b>4.521</b>	0.876	0.858	0.858
R1 pond	17 <sup>th</sup> Sept 78	0.1996	0.178	0.167	0.082
R1 stream	17 <sup>th</sup> Sept 78	3.896	3.896	3.896	1.708
R3 stream	22 <sup>nd</sup> Oct 75	<b>7.424</b>	<b>7.424</b>	<b>7.424</b>	3.375

BZ= buffer zone (spray drift mitigation); VFS= vegetative filter strip (runoff mitigation)

Values in bold indicate  $PEC_{SW}$  which exceed the RAC of 4.33 µg/L

Table B.8.5-23 RMS Summary STEP 3 and STEP 4 maximum PEC<sub>SW</sub> brassicas

FOCUS Scenario Brassicas	Application date	No mitigation	Spray drift mitigation		Spray drift and runoff mitigation	
		STEP 3	STEP 4-10 m BZ	STEP 4- 20 m BZ	STEP 4-20 m BZ + 10-12m VFS	STEP 4- 20 m BZ + 18-20 m VFS
D3 ditch 1 <sup>st</sup>	4 <sup>th</sup> May 92	<b>4.848</b>	0.697	0.362	0.362	0.362
D3 ditch 2 <sup>nd</sup>	18 <sup>th</sup> Aug 92	<b>4.853</b>	<b>4.853</b>	0.362	0.362	0.362
D4 pond	16 <sup>th</sup> May 85	0.271	0.271	0.261	0.261	0.261
D4 stream	16 <sup>th</sup> May 85	3.803	3.803	0.386	0.386	0.386
D6 ditch	19 <sup>th</sup> Aug 86	<b>4.747</b>	<b>4.747</b>	1.837	1.837	1.837
R1 pond 1 <sup>st</sup>	26 <sup>th</sup> Apr 84	0.630	0.630	0.568	0.255	0.15
R1 pond 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	0.513	0.496	0.487	0.218	0.127
R1 stream 1 <sup>st</sup>	26 <sup>th</sup> Apr 84	<b>6.750</b>	<b>6.750</b>	<b>6.750</b>	3.061	1.601
R1 stream 2 <sup>nd</sup>	20 <sup>th</sup> Aug 78	<b>6.279</b>	<b>6.279</b>	<b>6.279</b>	2.856	1.496
R2 stream 1 <sup>st</sup>	6 <sup>th</sup> Mar 78	4.190	4.190	3.498	1.555	0.807
R2 stream 2 <sup>nd</sup>	5 <sup>th</sup> Aug 89	4.297	0.833	0.725	0.433	0.433
R3 stream 1 <sup>st</sup>	1 <sup>st</sup> Mar 80	<b>13.820</b>	<b>13.820</b>	<b>13.820</b>	<b>6.251</b>	3.264
R3 stream 2 <sup>nd</sup>	15 <sup>th</sup> June 75	<b>9.024</b>	<b>9.024</b>	<b>9.024</b>	4.111	2.158
R4 stream 1 <sup>st</sup>	5 <sup>th</sup> Mar 84	<b>4.474</b>	4.474	<b>4.474</b>	2.034	1.066
R4 stream 2 <sup>nd</sup>	23 <sup>rd</sup> June 85	<b>16.360</b>	<b>16.360</b>	<b>16.360</b>	<b>7.427</b>	3.890

BZ= buffer zone (spray drift mitigation); VFS =vegetative filter strip (runoff mitigation)

Values in bold indicate PEC<sub>SW</sub> which exceed the RAC of 4.33 µg/L*Metabolite PEC<sub>SW</sub> and PEC<sub>SED</sub>*

The direct photolysis study of napropamide-M showed that the parent compound rapidly photolysed in a sterile buffer solution under laboratory conditions leading to the formation of several metabolites (see section 3CA B.8.2.1.2). Three major photolytic degradation products were found, napropamide isomer-I, napropamide isomer-II and 1-naphthol, all with concentrations over 10% AR. The Applicant calculated metabolite PEC<sub>SW</sub> values from the maximum percentage of each metabolite detected and an adjustment for the difference in molecular weight between parent napropamide-M and each compound. The RMS has accepted this approach as it provides a worst case assessment for surface water metabolites. RMS has independently performed the PEC calculations using the information in table B.8.5-24 and the calculation in figure B.8.5-1 below.

Table B.8.5-24 Calculation parameters for the aqueous photolysis metabolites of napropamide-M

Parameter	Aqueous photolysis metabolite		
	Isomer- I	Isomer-II	1-naphthol
Molecular weight (g/mol) <sup>1</sup>	271.4 (271)	271.4 (271)	144.7
Max. % formation (molecular yield)	37.03 (37.3)	57.1	23.31
Adjustment factor	0.37 (0.373)	0.571	0.124

Applicant's parameter values reported in parenthesis

<sup>1</sup>. parent molecular weight is 271.4 g/mol

Figure B.8.5-1 Calculation for metabolite  $PEC_{SW}$  and  $PEC_{SED}$ :

1.  $\frac{(\text{metabolite molecular weight} * \text{max. \% formation})}{\text{parent molecular weight}} = \text{adjustment factor}$
2. Parent PEC \* adjustment factor

Tables B.8.5-25 to B.8.5-26 report the maximum PEC values in surface water and sediment for the metabolites, Isomer-I, Isomer-II and 1-naphthol, calculated for winter oilseed rape and brassica crops respectively. RMS calculated PEC values based on STEP 3 parent values, presented below. Metabolite PEC values calculated using parent values from STEP 4 10 m or 20 m buffer can be found in the Appendices B.8.9-3 and B.8.9-4 respectively.

Maximum  $PEC_{SW}$  values for isomer-I, isomer-II and 1-naphthol were 8.658, 13.361 and 2.902  $\mu\text{g/L}$  respectively for winter oilseed rape simulations, all for the D2 ditch scenario. The maximum metabolite  $PEC_{SW}$  for brassicas were 6.053, 9.342 and 2.029  $\mu\text{g/L}$  respectively all for the R4 stream 2<sup>nd</sup> crop scenario. The metabolite RACs for *Lemna* for isomer-I and isomer-II were 501 and 32  $\mu\text{g/L}$ , therefore none of the PEC for either metabolite under either crop scenario exceeded the RAC. The risk to aquatic life from these compounds can be considered low. No RAC or ecotoxicological data has been provided for the metabolite 1-naphthol. However, the maximum  $PEC_{SW}$  for 1-naphthol is below the RAC for the parent compound (4.33  $\mu\text{g/L}$ ), which the RMS proposes as a conservative assessment for this metabolite in the absence of specific toxicity data.

Table B.8.5-25 RMS Summary FOCUS STEP3 maximum  $PEC_{SW}$  and  $PEC_{SED}$  for parent and metabolites simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days

FOCUS scenario	Max. $PEC_{SW}$				Max. $PEC_{SED}$			
	parent STEP 3	Isomer-I	Isomer-II	1-naphthol	parent STEP 3	Isomer-I	Isomer-II	1-naphthol
D2 ditch	23.400	8.658	13.361	2.902	57.580	21.305	32.878	7.140
D2 stream	14.670	5.428	8.377	1.819	34.240	12.669	19.551	4.246
D3 ditch	4.902	1.814	2.799	0.608	9.101	3.367	5.197	1.129
D4 pond	1.101	0.407	0.629	0.137	7.446	2.755	4.252	0.923
D4 stream	4.190	1.550	2.392	0.520	2.700	0.999	1.542	0.335
D5 pond	0.328	0.121	0.187	0.041	2.884	1.067	1.647	0.358
D5 stream	4.521	1.673	2.581	0.561	1.100	0.407	0.628	0.136
R1 pond	0.200	0.074	0.114	0.025	1.566	0.579	0.894	0.194
R1 stream	3.896	1.442	2.225	0.483	1.122	0.415	0.641	0.139
R3 stream	7.424	2.747	4.239	0.921	3.563	1.318	2.034	0.442

RAC values for isomer-I and isomer-II were 501 and 32  $\mu\text{g/L}$  respectively. No ecotoxicological data has been provided for the metabolite 1-naphthol.

Table B.8.5-26 RMS Summary FOCUS STEP 3 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> for parent and metabolites simulated for brassicas using water DT<sub>50</sub> 316.6 days

FOCUS scenario	Max PEC <sub>SW</sub>				Max PEC <sub>SED</sub>			
	parent STEP 3	Isomer-I	Isomer-II	1-naphthol	parent STEP 3	Isomer-I	Isomer-II	1-naphthol
D3 ditch 1st	4.848	1.794	2.768	0.601	2.364	0.875	1.350	0.293
D3 ditch 2nd	4.853	1.796	2.771	0.602	2.529	0.936	1.444	0.314
D4 pond	0.271	0.100	0.155	0.034	1.391	0.515	0.794	0.172
D4 stream	3.803	1.407	2.172	0.472	0.752	0.278	0.429	0.093
D6 ditch	4.747	1.756	2.711	0.589	1.831	0.677	1.046	0.227
R1 pond 1st	0.630	0.233	0.360	0.078	3.675	1.360	2.098	0.456
R1 pond 2nd	0.513	0.190	0.293	0.064	4.284	1.585	2.446	0.531
R1 stream 1st	6.750	2.498	3.854	0.837	2.500	0.925	1.428	0.310
R1 stream 2nd	6.279	2.323	3.585	0.779	3.097	1.146	1.768	0.384
R2 stream 1st	4.190	1.550	2.392	0.520	1.734	0.642	0.990	0.215
R2 stream 2nd	4.297	1.590	2.454	0.533	2.084	0.771	1.190	0.258
R3 stream 1st	13.820	5.113	7.891	1.714	5.533	2.047	3.159	0.686
R3 stream 2nd	9.024	3.339	5.153	1.119	6.321	2.339	3.609	0.784
R4 stream 1st	4.474	1.655	2.555	0.555	2.116	0.783	1.208	0.262
R4 stream 2nd	16.36	6.053	9.342	2.029	7.794	2.884	4.450	0.966

RAC values for isomer-I and isomer-II were 501 and 32 µg/L respectively. No ecotoxicological data has been provided for the metabolite 1-naphthol.

#### Formulation PEC<sub>SW</sub> parent

Surface water PEC were calculated for the product D-Devrinol, which contains the active substance napropamide-M. The FOCUS SWASH v5.3 drift calculator was used to determine nominal concentrations in three different water body scenarios. The application rate was calculated based on the product, not the active substance as is shown in figure B.8.5-2. The calculator based the formulation PEC<sub>SW</sub> values on a single application, worst case scenario that only considered loadings via spray drift. Table B.8.5-27 reports nominal concentrations for ditch, stream and pond scenarios for D-Devrinol applied at a rate of 1853 g/ha. The values were the same for both proposed GAP uses, winter oilseed rape and brassicas. The highest concentration was 11.91 µg/L calculated for the ditch scenario which exceeded the RAC (9.6 µg/L) and so mitigation measures were simulated in the form of buffer strips. PEC values for the other two scenarios were below the RAC. The 5m buffer reduced all scenario nominal concentrations to acceptable levels. Calculations simulated with 10m and 20m buffer strips were conducted for comparison with the STEP 4 active substance PEC<sub>SW</sub> modelling. The results of these are reported for transparency.

Figure B.8.5-2 Calculation of application rate of D-Devrinol

Rate of product (L/ha) = 1700 mL

Formulation density = 1.09 (g/cm<sup>3</sup>)

Application rate = 1700 \* 1.09 = 1853 g/ha

Table B.8.5-27 RMS Formulation PEC<sub>SW</sub> for the product D-Devrinol

FOCUS water body	Nominal concentration (µg/L)			
	No buffer	5m buffer	10m buffer	20m buffer
Ditch	<b>11.905</b>	3.227	1.711	0.889
Pond	0.406	0.351	0.253	0.169
Stream	8.835	3.2269	1.711	0.889

Values in bold indicate PEC<sub>SW</sub> which exceed the formulation RAC of 9.6 µg/L

The majority of the ecotoxicity can be attributed to the active substance rather than the formulation (section 3CP B9 Ecotoxicology). Therefore the formulation PEC was not required for the overall surface water risk assessment.

## B.8.6. FATE AND BEHAVIOUR IN AIR

### B.8.6.1. Route and rate of degradation in air and transport via air

The AOPWIN programme estimated the atmospheric half-life of napropamide-M as 0.046 days (0.552 hours, at  $1.5 \times 10^6$  OH/cm<sup>3</sup>) under a diurnal cycle of 12 hours (section 3CA B.8.3.1). The DT<sub>50</sub> is less than two days and so napropamide-M is unlikely to be subjected to significant long-range transport.

### B.8.6.2. Predicted environmental concentrations from airborne transport (PEC<sub>AIR</sub>)

Volatilisation of napropamide-M from plant or soil surfaces is likely to be low (vapour pressure  $3.80 \times 10^{-6}$  Pa at 25 °C; HLC  $2.644 \times 10^{-5}$  Pa m<sup>3</sup> mol). Therefore the potential for short-range transport is low. The atmospheric half-life falls below the trigger value of DT<sub>50</sub> ≥ 2 days indicating that the potential for long-range transport is negligible. Therefore it was not necessary to calculate PEC<sub>AIR</sub> values.

## B.8.7. PREDICTED ENVIRONMENTAL CONCENTRATIONS FROM OTHER ROUTES OF EXPOSURE

Not applicable.

## B.8.8. REFERENCES RELIED ON

The literature review process undertaken for the new active substance, napropamide-M and the references relied upon for its evaluation can be found in Volume 3CA section B.8.5.





**B.8.9. APPENDIX****B.8.9.1. FOCUS STEP 3 parent  $PEC_{SW}$  and  $PEC_{SED}$** ***B.8.9.1.1. FOCUS STEP 3 parent  $PEC_{SW}$  and  $PEC_{SED}$  for winter oilseed rape simulations***Table B.8.9.1.1-1 RMS FOCUS STEP 3 actual  $PEC_{SW}$  simulated for winter oilseed rape using water  $DT_{50}$  316.6 days

Days after global maximum	Actual $PEC_{SW}$ ( $\mu\text{g/L}$ )									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	23.400	14.670	4.902	1.101	4.190	0.328	4.521	0.200	3.896	7.424
Including suspended solids	23.420	14.680	4.906	1.102	4.194	0.328	4.524	0.200	3.899	7.429
1	3.628	1.016	4.473	1.099	0.007	0.325	0.033	0.196	0.003	0.019
2	22.520	13.700	4.223	1.096	0.003	0.319	0.006	0.193	0.002	0.009
4	0.740	0.292	3.897	1.084	0.001	0.310	0.002	0.189	0.001	3.830
7	1.039	0.362	3.552	1.060	0.000	0.299	0.001	0.182	0.000	0.005
14	0.585	0.306	2.467	0.998	0.000	0.280	0.000	0.170	0.000	0.001
21	12.540	6.565	0.079	0.960	0.000	0.266	0.000	0.160	0.000	0.001
28	7.696	4.069	0.027	0.957	0.000	0.255	0.000	0.150	0.000	0.000
42	8.778	4.692	0.011	0.869	0.000	0.224	0.000	0.144	0.000	0.001
50	5.607	3.198	0.008	0.822	0.000	0.203	0.000	0.134	0.000	0.001
100	6.453	4.141	0.001	0.622	0.755	-	0.000	0.090	0.224	0.000

Table B.8.9.1.1-2 RMS FOCUS STEP 3 TWA PEC<sub>sw</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days

Days after global maximum	TWA PEC <sub>sw</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	12.770	7.334	4.664	1.100	1.204	0.327	1.717	0.198	1.440	4.164
2	10.510	6.291	4.501	1.100	1.099	0.326	0.865	0.196	0.722	2.126
4	9.646	5.857	4.275	1.099	0.923	0.321	0.434	0.194	0.362	1.556
7	9.336	5.622	4.035	1.095	0.778	0.315	0.249	0.190	0.207	1.210
14	8.532	5.142	3.595	1.081	0.707	0.304	0.125	0.183	0.103	0.606
21	7.794	4.652	2.666	1.062	0.638	0.294	0.083	0.177	0.071	0.537
28	7.626	4.373	2.010	1.043	0.619	0.286	0.062	0.172	0.054	0.427
42	6.743	3.981	1.346	1.014	0.461	0.272	0.042	0.164	0.067	0.285
50	6.368	3.745	1.132	0.998	0.419	0.263	0.035	0.160	0.057	0.289
100	5.612	3.097	0.568	0.884	0.248	0.210	0.018	0.139	0.040	0.151

Table B.8.9.1.1-3 RMS FOCUS STEP 3 PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days

Days after global maximum	Actual PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	57.580	34.240	9.101	7.446	2.700	2.884	1.100	1.566	1.122	3.563
1	57.550	34.170	9.006	< 1e-5	2.690	< 1e-5	0.781	1.566	0.804	2.769
2	57.420	34.120	8.692	-	2.665	-	0.604	1.566	0.648	2.342
4	57.180	33.990	7.629	-	2.582	-	0.448	1.566	0.510	1.922
7	56.790	33.760	6.394	-	2.390	-	0.353	1.565	0.423	1.618
14	55.990	33.310	5.042	-	1.960	-	0.267	1.562	0.364	1.281
21	55.220	32.980	4.349	-	1.844	-	0.227	1.557	0.314	1.108
28	-	-	3.905	-	2.169	-	0.203	1.551	0.279	2.192
42	-	-	3.337	-	1.866	-	0.174	1.535	0.425	1.223
50	-	-	3.110	-	1.718	-	0.163	1.523	0.352	1.093
100	-	-	2.302	-	1.216	-	0.125	-	0.249	0.890

Table B.8.9.1.1-4 RMS FOCUS STEP 3 TWA PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days

Days after global maximum	TWA PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	57.580	34.220	9.094	7.444	2.699	2.884	0.999	1.566	0.993	3.295
2	57.560	34.210	9.074	7.443	2.696	2.883	0.872	1.566	0.877	3.018
4	57.490	34.170	8.999	7.439	2.687	2.883	0.710	1.566	0.735	2.729
7	57.420	34.100	8.816	7.434	2.661	2.882	0.581	1.566	0.622	2.509
14	57.150	33.960	8.193	7.419	2.567	2.881	0.445	1.566	0.501	2.113
21	57.020	33.800	7.504	7.402	2.461	2.881	0.383	1.565	0.445	1.848
28	56.860	33.710	6.905	7.382	2.332	2.881	0.358	1.565	0.408	1.668
42	56.640	33.470	6.010	7.331	2.236	2.875	0.323	1.562	0.411	1.625
50	56.540	33.400	5.631	7.296	2.200	2.865	0.310	1.561	0.407	1.563
100	55.160	32.500	4.254	6.907	1.885	2.585	0.254	1.546	0.353	1.277

Table B.8.9.1.1-5 RMS FOCUS STEP 3 PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	23.400	14.670	4.902	1.108	4.190	0.332	4.521	0.202	3.896	7.424
Including suspended solids	23.420	14.680	4.906	1.109	4.194	0.333	4.524	0.203	3.899	7.429
1	3.628	1.016	4.479	1.106	0.007	0.330	0.033	0.199	0.003	0.019
2	22.520	13.700	4.234	1.103	0.003	0.324	0.006	0.196	0.002	0.009
4	0.739	0.292	3.916	1.092	0.001	0.315	0.002	0.191	0.001	3.830
7	1.038	0.362	3.579	1.068	0.000	0.304	0.001	0.185	0.000	0.005
14	0.583	0.306	2.497	1.008	0.000	0.285	0.000	0.173	0.000	0.001
21	12.540	6.565	0.080	0.971	0.000	0.272	0.000	0.163	0.000	0.001
28	7.697	4.069	0.026	0.968	0.000	0.261	0.000	0.154	0.000	0.000
42	8.779	4.693	0.011	0.882	0.000	0.230	0.000	0.147	0.000	0.001
50	5.607	3.198	0.008	0.836	0.000	0.210	0.000	0.137	0.000	0.001
100	6.453	4.141	0.001	0.639	0.755	-	0.000	0.093	0.224	0.000

Table B.8.9.1.1-6 RMS FOCUS STEP 3 TWA PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days

Days after global maximum	TWA PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	12.770	7.334	4.667	1.108	1.204	0.332	1.718	0.201	1.440	4.164
2	10.520	6.291	4.507	1.107	1.099	0.330	0.865	0.199	0.722	2.127
4	9.647	5.857	4.285	1.106	0.923	0.326	0.434	0.196	0.362	1.556
7	9.337	5.623	4.051	1.103	0.778	0.320	0.249	0.193	0.207	1.210
14	8.533	5.142	3.619	1.089	0.707	0.309	0.125	0.186	0.104	0.606
21	7.795	4.652	2.685	1.070	0.638	0.300	0.083	0.180	0.071	0.537
28	7.627	4.373	2.024	1.051	0.619	0.292	0.062	0.175	0.054	0.427
42	6.743	3.981	1.355	1.023	0.461	0.278	0.042	0.167	0.067	0.285
50	6.368	3.745	1.140	1.007	0.419	0.269	0.035	0.163	0.057	0.289
100	5.613	3.097	0.572	0.895	0.248	0.216	0.018	0.142	0.040	0.151

Table B.8.9.1.1-7 RMS FOCUS STEP 3 PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days

Days after global maximum	Actual PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	53.970	32.020	9.120	7.437	2.689	2.823	1.093	1.566	1.119	3.557
1	53.930	31.950	9.031	< 1e-5	2.679	2.822	0.774	1.566	0.801	2.762
2	53.790	31.890	8.720	-	2.654	2.822	0.596	1.566	0.645	2.334
4	53.510	31.740	7.645	-	2.569	2.820	0.439	1.566	0.506	1.914
7	53.070	31.490	6.378	-	2.376	2.818	0.344	1.565	0.419	1.608
14	52.150	30.970	4.988	-	1.944	2.814	0.257	1.561	0.360	1.269
21	51.270	30.570	4.272	-	1.826	2.812	0.216	1.555	0.310	1.095
28	-	-	3.820	-	2.149	< 1e-5	0.192	1.548	0.274	2.177
42	-	-	3.241	-	1.842	-	0.162	1.530	0.419	1.205
50	-	-	3.010	-	1.692	-	0.150	1.516	0.345	1.074
100	-	-	2.182	-	1.179	-	0.112	-	0.240	0.862

Table B.8.9.1.1-8 RMS FOCUS STEP 3 TWA PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days

Days after global maximum	TWA PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	53.960	32.010	9.114	7.435	2.688	2.823	0.991	1.566	0.990	3.289
2	53.940	32.000	9.094	7.434	2.686	2.823	0.865	1.566	0.874	3.012
4	53.860	31.950	9.018	7.431	2.676	2.823	0.702	1.566	0.731	2.722
7	53.800	31.890	8.833	7.426	2.650	2.822	0.572	1.566	0.618	2.504
14	53.520	31.730	8.203	7.413	2.557	2.821	0.436	1.566	0.497	2.105
21	53.440	31.600	7.504	7.397	2.450	2.820	0.370	1.565	0.441	1.839
28	53.270	31.500	6.892	7.378	2.320	2.818	0.344	1.564	0.403	1.658
42	53.140	31.270	5.975	7.330	2.221	2.815	0.309	1.562	0.407	1.614
50	53.060	31.230	5.588	7.296	2.185	2.806	0.295	1.560	0.402	1.55
100	51.750	30.410	4.179	6.912	1.865	2.537	0.239	1.542	0.348	1.259



**B.8.9.1.2. FOCUS STEP 3 parent  $PEC_{SW}$  and  $PEC_{SED}$  for brassica simulations**Table B.8.9.1.2-1 RMS FOCUS STEP 3 actual  $PEC_{SW}$  simulated for brassicas using water  $DT_{50}$  316.6 days

Days after global maximum	Actual $PEC_{SW}$ ( $\mu\text{g/L}$ )														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	4.848	4.853	0.271	3.803	4.747	0.630	0.513	6.750	6.279	4.190	4.297	13.820	9.024	4.474	16.360
Including suspended solids	4.852	4.857	0.272	3.806	4.751	0.631	0.514	6.755	6.284	4.193	4.300	13.820	9.031	4.477	16.370
1	2.598	2.933	0.271	0.003	0.018	0.619	0.501	0.012	0.094	0.000	0.001	0.268	0.078	0.049	0.073
2	0.475	0.674	0.270	0.003	0.009	0.610	0.491	0.005	0.011	0.000	0.000	0.036	0.030	0.008	0.020
4	0.034	0.043	0.268	0.003	0.005	0.596	0.476	0.133	0.003	0.000	0.000	0.011	0.011	0.002	0.007
7	0.009	0.010	0.262	0.002	0.004	0.575	0.458	0.006	0.001	0.000	0.000	0.004	0.005	0.001	7.251
14	0.003	0.003	0.247	0.002	0.003	0.532	0.426	0.091	0.002	0.000	0.000	7.426	0.005	0.001	0.007
21	0.001	0.001	0.235	0.003	0.003	0.495	0.399	0.001	0.001	0.000	0.000	0.003	0.004	0.001	0.004
28	0.001	0.001	0.235	0.003	0.002	0.533	0.374	0.000	0.000	0.000	0.000	0.001	0.003	0.410	0.001
42	0.000	0.000	0.214	0.002	0.002	0.464	0.378	0.000	0.001	0.000	0.000	0.001	0.001	0.034	0.001
50	0.000	0.000	0.203	0.002	0.002	0.431	0.352	0.000	0.000	0.017	0.000	0.002	0.001	0.000	0.039
100	0.000	0.000	0.154	0.004	0.007	0.307	0.387	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.001

Table B.8.9.1.2-2 RMS FOCUS STEP 3 TWA PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days

Days after global maximum	TWA PEC <sub>SW</sub> (µg/L) for each FOCUS scenario														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
1	3.872	3.999	0.271	0.228	1.585	0.625	0.509	3.589	4.945	1.497	0.650	8.859	7.491	3.488	12.31
2	2.590	2.814	0.271	0.221	1.305	0.620	0.506	1.798	2.490	0.750	0.537	4.481	3.930	1.754	6.177
4	1.364	1.506	0.271	0.197	0.946	0.611	0.501	0.901	1.248	0.375	0.353	2.251	1.978	0.8794	3.094
7	0.787	0.869	0.270	0.177	0.778	0.601	0.494	0.796	0.714	0.340	0.202	1.289	1.134	0.5031	1.839
14	0.396	0.437	0.267	0.161	0.547	0.577	0.479	0.532	0.402	0.227	0.103	0.738	0.805	0.3733	1.475
21	0.265	0.292	0.263	0.158	0.372	0.556	0.466	0.372	0.292	0.169	0.073	0.632	0.608	0.2868	1.039
28	0.199	0.219	0.258	0.150	0.281	0.553	0.453	0.286	0.219	0.127	0.070	0.521	0.504	0.2151	0.7993
42	0.133	0.146	0.250	0.111	0.190	0.535	0.436	0.213	0.176	0.117	0.065	0.348	0.357	0.1571	0.5504
50	0.112	0.123	0.246	0.100	0.160	0.521	0.431	0.183	0.148	0.128	0.056	0.317	0.303	0.1325	0.4655
100	0.056	0.062	0.219	0.060	0.109	0.459	0.400	0.102	0.090	0.067	0.035	0.183	0.153	0.07216	0.2334

Table B.8.9.1.2-3 RMS FOCUS STEP 3 PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days

Days after global maximum	Actual PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	2.364	2.529	1.391	0.752	1.831	3.675	4.284	2.500	3.097	1.734	2.084	5.533	6.321	2.116	7.794
1	1.965	2.146	< 1e-5	0.750	1.792	3.675	4.284	1.678	2.106	1.534	1.871	3.782	4.914	1.422	5.160
2	1.562	1.715	-	0.743	1.721	3.675	4.283	1.313	1.647	1.415	1.745	2.928	4.170	1.097	4.014
4	1.160	1.272	-	0.723	1.552	3.675	4.283	1.211	1.252	1.283	1.607	2.213	3.503	0.815	3.069
7	0.904	0.990	-	0.677	1.328	3.668	4.279	1.558	1.007	1.175	1.494	1.769	3.050	0.642	5.764
14	0.663	0.724	-	0.568	1.032	3.650	4.269	1.590	0.965	1.037	1.396	3.806	3.450	0.810	3.595
21	0.551	0.601	-	0.521	0.897	3.633	4.254	1.088	0.853	0.953	1.452	1.817	3.292	0.797	3.019
28	0.483	0.527	-	0.612	0.816	3.613	4.235	0.925	0.725	0.892	1.983	1.502	3.021	0.820	2.575
42	0.402	0.439	-	0.544	0.732	3.572	4.191	0.919	0.855	0.803	1.645	1.211	2.598	0.601	2.097
50	0.371	0.406	-	0.505	1.061	3.547	4.160	0.817	0.715	0.764	1.639	1.545	2.414	0.527	1.939
100	0.266	0.297	-	0.378	0.724	3.344	-	0.619	0.709	0.609	1.347	1.038	1.768	0.3542	1.356

Table B.8.9.1.2-4 RMS FOCUS STEP 3 TWA PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days

Days after global maximum	TWA PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
1	2.300	2.469	2.391	0.752	1.827	3.675	4.284	2.174	2.760	1.673	2.018	4.955	5.942	1.880	6.815
2	2.153	2.326	2.391	0.751	1.814	3.675	4.284	1.968	2.410	1.634	1.957	4.306	5.403	1.636	5.897
4	1.845	2.008	2.391	0.749	1.771	3.675	4.284	1.744	1.973	1.539	1.924	3.503	4.695	1.328	4.806
7	1.532	1.674	2.390	0.742	1.682	3.675	4.283	1.644	1.628	1.479	1.906	2.879	4.118	1.083	4.137
14	1.169	1.280	2.390	0.724	1.556	3.672	4.283	1.530	1.305	1.358	1.829	2.223	4.056	1.031	4.064
21	0.987	1.080	2.388	0.696	1.425	3.669	4.281	1.450	1.200	1.261	1.763	2.300	3.880	0.985	3.794
28	0.872	0.954	2.386	0.665	1.310	3.665	4.278	1.339	1.098	1.199	1.725	2.142	3.726	0.918	3.558
42	0.730	0.798	2.378	0.635	1.149	3.656	4.272	1.241	1.013	1.119	1.695	1.878	3.433	0.840	3.153
50	0.676	0.739	2.373	0.626	1.083	3.650	4.267	1.182	0.976	1.079	1.670	1.868	3.288	0.796	2.973
100	0.494	0.542	2.295	0.550	0.987	3.602	4.221	0.952	0.846	0.924	1.566	1.567	2.671	0.611	2.286

Table B.8.9.1.2-5 RMS FOCUS STEP 3 actual PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days (default)

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	251.700	251.900	76.340	221.500	246.200	76.320	76.320	186.200	186.900	244.200	250.500	261.600	262.600	186.000	185.100
Including suspended solids	251.800	252.000	76.380	221.600	246.300	76.350	76.360	186.300	187.000	244.300	250.600	261.800	262.700	186.100	185.200
1	136.900	154.500	74.300	0.013	0.879	74.230	74.220	0.088	0.110	0.022	0.048	0.581	0.989	0.081	0.061
2	25.400	36.080	73.040	0.007	0.245	72.920	72.900	0.033	0.040	0.009	0.019	0.164	0.219	0.030	0.023
4	1.391	1.825	71.140	0.004	0.052	70.920	70.880	0.010	0.012	0.003	0.006	0.048	0.062	0.009	0.007
7	0.349	0.393	68.880	0.003	0.026	68.390	68.380	0.003	0.005	0.001	0.002	13.510	0.024	0.004	0.019
14	0.105	0.104	64.710	0.003	0.012	63.490	63.600	0.001	0.002	0.001	0.001	0.010	0.014	0.001	0.011
21	0.056	0.036	60.860	0.003	0.008	59.340	59.580	0.001	0.001	0.000	0.000	7.291	0.011	0.001	0.003
28	0.036	0.022	56.950	0.003	0.005	55.470	55.830	0.576	6.273	0.000	0.000	0.005	0.009	0.000	0.002
42	0.018	0.014	50.210	0.002	0.004	48.670	49.550	0.001	0.002	0.000	0.000	0.002	0.004	0.002	0.001
50	0.013	0.012	47.040	0.002	0.004	45.620	46.510	0.001	0.001	0.017	0.000	2.516	0.002	0.002	0.001
100	0.005	0.003	28.500	0.004	0.010	28.230	31.760	0.000	0.001	0.000	0.006	0.001	0.001	0.000	0.000

Table B.8.9.1.2-6 RMS FOCUS STEP 3 TWA PEC<sub>sw</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days (default)

Days after global maximum	TWA PEC <sub>sw</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
1	202.000	208.700	75.200	12.740	67.600	75.150	75.150	35.390	39.220	18.390	26.830	75.880	86.530	34.140	29.810
2	135.700	147.600	74.410	6.377	34.010	74.350	74.340	17.720	19.650	9.203	13.430	38.090	43.480	17.090	14.920
4	71.380	78.900	73.230	3.191	17.080	73.110	73.090	8.871	9.834	4.604	6.721	19.090	21.800	8.555	7.467
7	41.070	45.430	71.830	1.825	9.770	71.620	71.590	5.071	5.622	2.632	3.842	11.560	12.470	4.891	6.034
14	20.630	22.810	69.270	0.914	4.894	68.740	68.740	2.551	2.813	1.421	1.922	6.105	6.809	2.447	3.418
21	13.780	15.230	67.100	0.611	3.266	66.280	66.340	1.701	1.876	0.948	1.281	4.187	4.700	1.631	2.407
28	10.340	11.430	65.040	0.459	2.451	64.050	64.200	1.414	1.484	0.728	0.961	3.205	3.573	1.224	1.847
42	6.905	7.625	61.160	0.308	1.636	59.990	60.310	1.036	1.072	0.505	0.641	2.138	2.404	0.900	1.250
50	5.803	6.407	59.160	0.260	1.375	57.930	58.340	0.870	0.911	0.447	0.538	1.814	2.023	0.790	1.053
100	2.906	3.207	48.470	0.134	0.767	47.570	48.520	0.451	0.475	0.247	0.287	0.935	1.013	0.410	0.527

Table B.8.9.1.2-7 RMS FOCUS STEP 3 PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days (default)

Days after global maximum	Actual PEC <sub>SED</sub> (µg/L) for each FOCUS scenario														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	100.500	106.800	249.700	9.336	39.200	246.200	260.800	23.020	25.100	13.140	18.500	44.360	49.040	22.350	19.860
1	81.300	87.820	249.700	5.207	23.270	245.700	260.800	12.980	14.070	7.245	10.170	25.770	28.880	12.530	10.980
2	62.610	68.240	249.700	3.772	17.040	244.800	260.700	9.363	10.190	5.193	7.290	18.760	21.050	9.050	7.948
4	45.760	49.960	249.600	2.690	12.310	243.500	260.600	6.695	7.308	3.675	5.166	13.550	15.200	6.473	5.677
7	35.510	38.750	249.600	2.074	9.466	242.300	260.300	5.148	5.621	2.813	3.945	15.610	11.710	4.983	8.212
14	25.810	28.120	248.600	1.514	6.786	240.000	259.300	3.772	4.055	2.690	2.819	9.007	11.200	3.609	6.767
21	21.400	23.290	246.100	1.258	5.572	237.800	258.000	3.103	3.348	2.177	2.306	9.766	10.000	2.990	5.430
28	18.700	20.360	244.000	1.104	4.831	234.600	253.900	3.789	5.638	2.029	1.996	7.022	8.866	2.617	4.681
42	15.330	16.750	241.500	0.917	3.918	228.700	249.300	3.297	3.264	1.772	1.626	5.631	7.110	2.921	3.693
50	14.020	15.440	240.100	0.844	3.587	224.600	246.900	2.869	2.929	1.967	1.483	6.327	6.418	2.858	3.346
100	100.500	106.800	249.700	9.336	39.200	246.200	260.800	23.020	25.100	13.140	18.500	44.360	49.040	22.350	19.860

Table B.8.9.1.2-8 RMS FOCUS STEP 3 TWA PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days (default)

Days after global maximum	TWA PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
1	97.220	103.900	249.700	7.174	33.320	246.200	260.800	18.340	20.130	10.050	14.280	37.000	41.460	17.750	15.700
2	89.880	96.880	249.700	5.845	27.500	246.200	260.800	14.950	16.410	8.150	11.590	30.330	34.130	14.460	12.750
4	75.400	82.090	249.700	4.518	21.320	246.200	260.800	11.510	12.630	6.258	8.887	23.430	26.390	11.130	9.809
7	61.780	67.520	249.700	3.595	16.920	246.100	260.800	9.115	10.000	4.954	7.017	18.700	20.920	8.817	9.498
14	46.590	50.970	249.600	2.676	12.490	245.900	260.700	6.756	7.382	3.932	5.166	15.030	17.150	6.520	8.291
21	39.090	42.760	249.500	2.243	10.390	245.500	260.500	5.644	6.152	3.424	4.294	12.760	15.150	5.442	7.601
28	34.420	37.630	249.200	1.977	9.094	245.000	260.300	5.173	5.411	3.107	3.757	11.570	13.740	4.783	6.988
42	28.660	31.330	248.200	1.652	7.516	243.900	259.800	4.716	4.886	2.745	3.104	9.805	11.830	4.105	6.061
50	26.450	28.920	247.600	1.529	6.915	243.200	259.400	4.453	4.610	2.630	2.856	9.103	11.020	3.913	5.657
100	18.950	20.940	243.900	1.114		237.700	255.100	3.430	3.550	2.258	2.342	6.851	8.057	3.061	4.151



**B.8.9.2. FOCUS STEP 4 parent PEC<sub>SW</sub> and PEC<sub>SED</sub>*****B.8.9.2.1. FOCUS STEP 4 parent PEC<sub>SW</sub> and PEC<sub>SED</sub> using 10 m spray drift buffer mitigation***Table B.8.9.2.1-1 RMS FOCUS STEP 4 actual PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days and a 10 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	23.400	14.670	0.705	1.082	1.722	0.313	0.876	0.178	3.896	7.424
Including suspended solids	23.420	14.680	0.706	1.083	1.723	0.313	0.877	0.179	3.899	7.429
1	3.627	1.016	0.640	1.081	0.491	0.311	0.006	0.175	0.003	0.019
2	22.520	13.700	0.600	1.078	1.568	0.305	0.001	0.172	0.002	0.009
4	0.739	0.292	0.548	1.066	0.351	0.296	0.000	0.168	0.001	3.830
7	1.037	0.362	0.496	1.042	0.293	0.285	0.000	0.162	0.000	0.005
14	0.582	0.306	0.342	0.981	0.954	0.267	0.000	0.151	0.000	0.001
21	12.540	6.565	0.013	0.944	0.683	0.253	0.000	0.141	0.000	0.001
28	7.695	4.069	0.004	0.942	0.274	0.243	0.000	0.133	0.000	0.000
42	8.778	4.692	0.002	0.856	0.077	0.212	0.000	0.128	0.000	0.001
50	5.605	3.198	0.001	0.810	0.283	0.193	0.000	0.119	0.000	0.001
100	6.452	4.141	0.000	0.611	0.012	-	0.000	0.079	0.224	0.000

Table B.8.9.2.1-2 RMS FOCUS STEP 4 TWA PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days and a 10 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	12.770	7.334	0.669	1.082	1.196	0.312	0.339	0.177	1.440	4.164
2	10.510	6.291	0.644	1.082	1.099	0.311	0.280	0.175	0.722	2.126
4	9.646	5.857	0.608	1.081	0.923	0.307	0.217	0.173	0.362	1.556
7	9.336	5.622	0.570	1.077	0.778	0.301	0.149	0.169	0.207	1.210
14	8.532	5.142	0.504	1.063	0.707	0.290	0.095	0.163	0.103	0.606
21	7.793	4.652	0.374	1.044	0.638	0.281	0.068	0.157	0.071	0.537
28	7.625	4.373	0.282	1.025	0.619	0.273	0.052	0.152	0.054	0.407
42	6.742	3.981	0.189	0.998	0.461	0.259	0.036	0.146	0.067	0.277
50	6.366	3.745	0.159	0.982	0.419	0.251	0.033	0.142	0.057	0.289
100	5.611	3.097	0.080	0.869	0.248	0.196	0.018	0.120	0.040	0.150

Table B.8.9.2.1-3 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days and a 10 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	56.930	33.790	1.450	6.209	2.656	1.618	0.516	1.309	1.090	3.514
1	56.910	33.720	1.436	< 1e-5	2.647	< 1e-5	0.473	1.309	0.772	2.720
2	56.780	33.680	1.388	-	2.622	-	0.428	1.309	0.616	2.294
4	56.540	33.550	1.225	-	2.538	-	0.364	1.309	0.478	1.877
7	56.150	33.330	1.031	-	2.347	-	0.316	1.308	0.392	1.574
14	55.360	32.880	0.812	-	1.919	-	0.261	1.306	0.335	1.242
21	54.600	32.550	0.700	-	1.804	-	0.229	1.302	0.286	1.072
28	-		0.628	-	2.131	-	0.207	1.297	0.252	2.158
42	-		0.536	-	1.830	-	0.188	1.283	0.400	1.194
50	-		0.500	-	1.683	-	0.181	1.273	0.328	1.065
100	-		0.371	-	1.186	-	-	-	0.229	0.869

Table B.8.9.2.1-4 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days and a 10 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	56.930	33.780	1.449	7.207	2.655	2.617	0.507	1.309	0.961	3.246
2	56.910	33.760	1.446	7.205	2.652	2.617	0.490	1.309	0.845	2.969
4	56.840	33.720	1.434	7.201	2.643	2.616	0.464	1.309	0.703	2.680
7	56.770	33.660	1.406	7.195	2.617	2.615	0.422	1.309	0.591	2.459
14	56.510	33.520	1.309	7.180	2.523	2.612	0.363	1.309	0.470	2.065
21	56.370	33.360	1.201	7.162	2.417	2.610	0.328	1.308	0.415	1.803
28	56.210	33.270	1.107	7.141	2.289	2.608	0.303	1.308	0.378	1.625
42	55.970	33.030	0.964	7.088	2.194	2.598	0.269	1.306	0.383	1.586
50	55.880	32.940	0.903	7.052	2.159	2.586	0.256	1.305	0.380	1.525
100	54.450	32.010	0.683	6.653	1.845	2.286	0.202	1.292	0.326	1.245

Table B.8.9.2.1-5 RMS FOCUS STEP 4 actual PEC<sub>sw</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) and a 10 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>sw</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	23.400	14.670	0.705	1.089	1.722	0.317	0.876	0.180	3.896	7.424
Including suspended solids	23.420	14.680	0.706	1.090	1.723	0.317	0.877	0.180	3.899	7.429
1	3.627	1.016	0.641	1.087	0.491	0.315	0.006	0.177	0.003	0.019
2	22.520	13.700	0.601	1.084	1.568	0.309	0.001	0.174	0.002	0.009
4	0.738	0.292	0.551	1.073	0.351	0.300	0.000	0.170	0.001	3.830
7	1.037	0.362	0.499	1.050	0.293	0.289	0.000	0.164	0.000	0.005
14	0.580	0.306	0.346	0.990	0.954	0.272	0.000	0.153	0.000	0.001
21	12.540	6.565	0.013	0.954	0.683	0.258	0.000	0.144	0.000	0.001
28	7.696	4.069	0.004	0.953	0.274	0.248	0.000	0.135	0.000	0.000
42	8.778	4.693	0.002	0.868	0.077	0.218	0.000	0.131	0.000	0.001
50	5.606	3.198	0.001	0.823	0.283	0.199	0.000	0.121	0.000	0.001
100	6.453	4.141	0.000	0.628	0.012	-	0.000	0.082	0.224	0.000

Table B.8.9.2.1-6 RMS FOCUS STEP 4 TWA PEC<sub>sw</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) and a 10 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>sw</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	12.770	7.334	0.670	1.088	1.196	0.316	0.339	0.178	1.440	4.164
2	10.520	6.291	0.645	1.088	1.099	0.315	0.280	0.177	0.722	2.126
4	9.647	5.857	0.609	1.087	0.923	0.311	0.217	0.175	0.362	1.556
7	9.337	5.623	0.573	1.084	0.778	0.305	0.149	0.171	0.207	1.210
14	8.533	5.142	0.508	1.070	0.707	0.294	0.095	0.165	0.103	0.606
21	7.794	4.652	0.377	1.051	0.638	0.285	0.068	0.160	0.071	0.537
28	7.626	4.373	0.284	1.032	0.619	0.278	0.052	0.155	0.054	0.407
42	6.742	3.981	0.190	1.006	0.461	0.264	0.036	0.148	0.067	0.277
50	6.367	3.745	0.160	0.990	0.419	0.256	0.033	0.145	0.057	0.289
100	5.611	3.097	0.080	0.880	0.248	0.201	0.018	0.123	0.040	0.150

Table B.8.9.2.1-7 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) and a 10 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	53.370	31.610	1.452	6.201	2.648	1.548	0.508	1.308	1.088	3.509
1	53.330	31.540	1.438	< 1e-5	2.638	< 1e-5	0.464	1.308	0.770	2.714
2	53.190	31.480	1.389	-	2.613	-	0.419	1.308	0.614	2.288
4	52.920	31.330	1.224	-	2.529	-	0.354	1.308	0.476	1.869
7	52.480	31.080	1.026	-	2.337	-	0.307	1.307	0.390	1.565
14	51.580	30.570	0.803	-	1.906	-	0.252	1.304	0.332	1.231
21	50.710	30.180	0.687	-	1.789	-	0.219	1.299	0.283	1.059
28			0.613	-	2.114	-	0.197	1.293	0.248	2.144
42			0.520	-	1.808	-	0.177	1.277	0.395	1.177
50			0.483	-	1.660	-	0.170	1.263	0.323	1.047
100			0.352	-	1.151	-	-	-	0.221	0.842

Table B.8.9.2.1-8 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) and a 10 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	53.360	31.600	1.451	7.199	2.647	2.548	0.498	1.308	0.959	3.240
2	53.340	31.590	1.448	7.198	2.644	2.548	0.481	1.308	0.843	2.964
4	53.270	31.540	1.437	7.194	2.635	2.547	0.455	1.308	0.700	2.674
7	53.210	31.480	1.408	7.189	2.609	2.546	0.413	1.308	0.588	2.454
14	52.930	31.320	1.310	7.175	2.515	2.545	0.354	1.308	0.468	2.059
21	52.840	31.190	1.201	7.158	2.409	2.545	0.318	1.307	0.412	1.795
28	52.670	31.090	1.104	7.138	2.279	2.544	0.293	1.306	0.375	1.616
42	52.520	30.850	0.958	7.088	2.182	2.538	0.260	1.304	0.380	1.575
50	52.430	30.810	0.896	7.053	2.146	2.527	0.246	1.303	0.376	1.513
100	51.090	29.960	0.671	6.658	1.829	2.236	0.191	1.288	0.321	1.228



Table B.8.9.2.1-9 RMS FOCUS STEP 4 actual PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 10 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)														
	D3 1 <sup>st</sup> ditch	D3 2 <sup>nd</sup> ditch	D4 pond	D4 stream	D6 ditch	R1 1 <sup>st</sup> pond	R1 2 <sup>nd</sup> pond	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.697	4.853	0.271	3.803	4.747	0.630	0.496	6.750	6.279	4.190	0.833	13.820	9.024	4.474	16.360
Including suspended solids	0.698	4.857	0.272	3.806	4.751	0.631	0.496	6.755	6.284	4.193	0.833	13.820	9.031	4.477	16.370
1	0.371	2.933	0.271	0.003	0.018	0.619	0.490	0.012	0.094	0.000	0.000	0.268	0.077	0.049	0.073
2	0.067	0.674	0.270	0.003	0.009	0.610	0.484	0.005	0.011	0.000	0.000	0.036	0.029	0.008	0.020
4	0.005	0.043	0.268	0.003	0.005	0.596	0.474	0.133	0.003	0.000	0.000	0.011	0.010	0.002	0.007
7	0.002	0.010	0.262	0.002	0.004	0.575	0.461	0.006	0.001	0.000	0.000	0.004	0.005	0.001	7.251
14	0.000	0.003	0.247	0.002	0.003	0.532	0.433	0.091	0.002	0.000	0.000	7.426	0.005	0.001	0.007
21	0.000	0.001	0.235	0.003	0.003	0.495	0.408	0.001	0.001	0.000	0.000	0.003	0.004	0.001	0.004
28	0.000	0.001	0.235	0.003	0.002	0.533	0.386	0.000	0.000	0.000	0.000	0.001	0.003	0.410	0.001
42	0.000	0.000	0.214	0.002	0.002	0.464	0.359	0.000	0.001	0.000	< 1e-6	0.001	0.001	0.034	0.001
50	0.000	0.000	0.203	0.002	0.002	0.431	0.336	0.000	0.000	0.017	< 1e-6	0.002	0.001	0.000	0.039
100	0.000	0.000	0.154	0.004	0.007	0.307	0.228	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.001

Table B.8.9.2.1-10 RMS FOCUS STEP 4 TWA PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 10 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>sw</sub> (µg/L)															
	D3 1 <sup>st</sup> ditch	D3 2 <sup>nd</sup> ditch	D4 pond	D4 stream	D6 ditch	R1 1 <sup>st</sup> pond	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd	
1	0.556	3.999	0.271	0.228	1.585	0.625	0.493	3.589	4.945	1.497	0.650	8.859	7.491	3.488	12.310	
2	0.371	2.814	0.271	0.221	1.305	0.620	0.490	1.798	2.490	0.750	0.537	4.481	3.930	1.754	6.177	
4	0.195	1.506	0.271	0.197	0.946	0.611	0.485	0.901	1.248	0.375	0.353	2.251	1.978	0.879	3.094	
7	0.113	0.869	0.270	0.177	0.778	0.601	0.478	0.796	0.714	0.340	0.202	1.289	1.134	0.503	1.780	
14	0.057	0.437	0.267	0.161	0.547	0.577	0.463	0.532	0.402	0.227	0.103	0.738	0.805	0.373	1.475	
21	0.038	0.292	0.263	0.158	0.372	0.556	0.450	0.372	0.292	0.169	0.073	0.632	0.600	0.287	1.039	
28	0.029	0.219	0.258	0.150	0.281	0.553	0.438	0.286	0.219	0.127	0.070	0.521	0.473	0.215	0.799	
42	0.019	0.146	0.250	0.111	0.190	0.535	0.419	0.213	0.176	0.117	0.065	0.348	0.329	0.157	0.541	
50	0.016	0.123	0.246	0.100	0.160	0.521	0.414	0.183	0.148	0.128	0.056	0.317	0.279	0.133	0.457	
100	0.008	0.062	0.219	0.060	0.109	0.459	0.384	0.102	0.090	0.067	0.035	0.183	0.141	0.072	0.229	

Table B.8.9.2.1-11 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 10 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.370	2.529	1.391	0.752	1.831	3.675	4.055	2.500	3.045	1.734	2.062	5.533	6.131	2.116	7.708
1	0.317	2.146	< 1e-5	0.750	1.792	3.675	4.055	1.678	2.055	1.534	1.849	3.782	4.739	1.422	5.085
2	0.257	1.715	-	0.743	1.721	3.675	4.055	1.313	1.597	1.415	1.723	2.928	4.006	1.097	3.946
4	0.192	1.272	-	0.723	1.552	3.675	4.053	1.211	1.205	1.283	1.586	2.213	3.355	0.815	3.010
7	0.149	0.990	-	0.677	1.328	3.668	4.050	1.558	0.962	1.175	1.474	1.769	2.920	0.642	5.715
14	0.109	0.724	-	0.568	1.032	3.650	4.040	1.590	0.925	1.037	1.377	3.806	3.345	0.810	3.557
21	0.091	0.601	-	0.521	0.897	3.633	4.027	1.088	0.817	0.953	1.434	1.817	3.202	0.797	2.987
28	0.080	0.527	-	0.612	0.816	3.613	4.009	0.925	0.691	0.892	1.966	1.502	2.941	0.820	2.547
42	0.066	0.439	-	0.544	0.732	3.572	3.968	0.919	0.825	0.803	1.629	1.211	2.531	0.601	2.073
50	0.061	0.406	-	0.505	1.061	3.547	3.934	0.817	0.687	0.764	1.624	1.545	2.352	0.527	1.917
100	0.044	0.297	-	0.378	0.724	3.344	-	0.619	0.687	0.609	1.335	1.038	1.724	0.354	1.340

Table B.8.9.2.1-12 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 10 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
1	0.361	2.469	2.391	0.752	1.827	3.675	4.055	2.174	2.708	1.673	1.996	4.955	5.754	1.880	6.731
2	0.341	2.326	2.391	0.751	1.814	3.675	4.055	1.968	2.359	1.634	1.940	4.306	5.220	1.636	5.818
4	0.296	2.008	2.391	0.749	1.771	3.675	4.055	1.744	1.923	1.539	1.907	3.503	4.522	1.328	4.733
7	0.248	1.674	2.390	0.742	1.682	3.675	4.055	1.644	1.579	1.479	1.889	2.879	3.958	1.083	4.094
14	0.191	1.280	2.390	0.724	1.556	3.672	4.054	1.530	1.260	1.358	1.812	2.223	3.917	1.031	4.010
21	0.161	1.080	2.388	0.696	1.425	3.669	4.052	1.450	1.156	1.261	1.746	2.300	3.755	0.985	3.745
28	0.143	0.954	2.386	0.665	1.310	3.665	4.050	1.339	1.057	1.199	1.709	2.142	3.611	0.918	3.514
42	0.120	0.798	2.378	0.635	1.149	3.656	4.044	1.241	0.975	1.119	1.679	1.878	3.331	0.840	3.115
50	0.111	0.739	2.373	0.626	1.083	3.650	4.040	1.182	0.940	1.079	1.655	1.868	3.192	0.796	2.938
100	0.081	0.542	2.295	0.550	0.987	3.602	3.996	0.952	0.815	0.924	1.550	1.567	2.597	0.611	2.259

Table B.8.9.2.1-13 RMS FOCUS STEP 4 actual PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days (default) and a 10 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)														
	D3 1 <sup>st</sup> ditch	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 1 <sup>st</sup> pond	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.697	0.698	0.267	0.739	1.837	0.591	0.504	6.699	6.279	3.418	0.833	13.700	9.025	4.481	16.360
Including suspended solids	0.698	0.699	0.267	0.740	1.839	0.592	0.505	6.704	6.284	3.421	0.833	13.710	9.031	4.485	16.370
1	0.372	0.420	0.267	0.003	1.204	0.581	0.498	0.012	0.094	0.003	0.000	0.265	0.077	0.049	0.073
2	0.067	0.095	0.266	0.003	0.689	0.572	0.492	0.005	0.011	0.001	0.000	0.035	0.029	0.008	0.020
4	0.005	0.007	0.263	0.003	0.496	0.560	0.483	0.132	0.003	0.001	0.000	0.010	0.010	0.002	0.007
7	0.002	0.002	0.258	0.002	0.781	0.541	0.470	0.006	0.001	0.000	0.000	0.004	0.005	0.001	7.251
14	0.000	0.000	0.243	0.002	0.058	0.503	0.442	0.091	0.002	1.274	0.000	7.383	0.005	0.001	0.007
21	0.000	0.000	0.232	0.003	0.007	0.471	0.417	0.001	0.001	0.001	0.000	0.003	0.004	0.001	0.004
28	0.000	0.000	0.232	0.003	0.006	0.513	0.396	0.000	0.000	0.000	0.000	0.001	0.002	0.419	0.001
42	0.000	0.000	0.213	0.002	0.006	0.452	0.368	0.000	0.001	0.000	< 1e-6	0.001	0.001	0.038	0.001
50	0.000	0.000	0.202	0.002	0.085	0.423	0.345	0.000	0.000	0.002	< 1e-6	0.002	0.001	0.000	0.039
100	0.000	0.000	0.153	0.004	0.005	0.317	0.236	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.001

Table B.8.9.2.1-14 RMS FOCUS STEP 4 TWA PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days (default) and a 10 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SW</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
1	0.556	0.574	0.267	0.228	1.585	0.586	0.501	3.562	4.945	1.462	0.650	8.788	7.492	3.494	12.310
2	0.371	0.403	0.267	0.221	1.306	0.581	0.498	1.785	2.490	0.732	0.537	4.445	3.930	1.757	6.177
4	0.195	0.216	0.267	0.197	0.946	0.574	0.493	0.894	1.248	0.367	0.353	2.233	1.978	0.881	3.094
7	0.113	0.125	0.266	0.177	0.778	0.564	0.486	0.791	0.714	0.337	0.202	1.279	1.134	0.504	1.780
14	0.057	0.063	0.262	0.161	0.547	0.543	0.472	0.529	0.402	0.224	0.103	0.658	0.805	0.374	1.475
21	0.038	0.042	0.258	0.158	0.372	0.525	0.459	0.371	0.292	0.167	0.073	0.628	0.600	0.288	1.039
28	0.029	0.031	0.254	0.150	0.281	0.524	0.447	0.285	0.219	0.126	0.070	0.480	0.473	0.216	0.799
42	0.019	0.021	0.246	0.111	0.189	0.510	0.428	0.212	0.176	0.115	0.065	0.320	0.329	0.158	0.541
50	0.016	0.018	0.243	0.100	0.160	0.499	0.423	0.182	0.148	0.126	0.056	0.315	0.279	0.134	0.457
100	0.008	0.009	0.216	0.060	0.109	0.444	0.393	0.097	0.090	0.064	0.035	0.171	0.141	0.068	0.229

Table B.8.9.2.1-15 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days (default) and a 10 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.370	0.397	1.178	0.736	1.734	3.429	4.058	2.443	3.043	1.734	2.058	5.312	6.126	2.079	7.704
1	0.317	0.343	< 1e-5	0.734	1.695	3.426	4.058	1.627	2.053	1.534	1.843	3.591	4.728	1.384	5.076
2	0.257	0.279	-	0.727	1.625	3.423	4.058	1.265	1.594	1.414	1.716	2.754	3.991	1.059	3.934
4	0.192	0.209	-	0.707	1.455	3.420	4.057	1.165	1.200	1.281	1.575	2.059	3.332	0.777	2.990
7	0.148	0.162	-	0.661	1.232	3.413	4.055	1.514	0.956	1.171	1.457	1.633	2.887	0.604	5.682
14	0.108	0.117	-	0.551	0.935	3.400	4.044	1.553	0.916	1.028	1.354	3.681	3.270	0.776	3.493
21	0.089	0.097	-	0.504	0.800	3.381	4.029	1.049	0.806	0.939	1.406	1.712	3.091	0.763	2.900
28	0.077	0.084	-	0.595	0.720	3.363	4.010	0.884	0.680	0.874	1.931	1.403	2.799	0.790	2.439
42	0.063	0.069	-	0.526	0.638	3.326	3.961	0.876	0.810	0.775	1.582	1.119	2.340	0.569	1.938
50	0.058	0.063	-	0.486	0.968	3.300	3.930	0.770	0.672	0.731	1.571	1.456	2.140	0.492	1.770
100	0.039	0.045	-	0.356	0.629	3.109	-	0.558	0.667	0.546	1.259	0.930	1.436	0.304	1.149

Table B.8.9.2.1.16 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days (default) and a 10 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
1	0.361	0.389	2.178	0.736	1.730	3.428	4.058	2.119	2.706	1.672	1.992	4.742	5.748	1.842	6.726
2	0.341	0.368	2.178	0.735	1.717	3.428	4.058	1.931	2.357	1.633	1.927	4.103	5.212	1.598	5.811
4	0.296	0.322	2.178	0.733	1.674	3.428	4.058	1.707	1.920	1.538	1.872	3.317	4.510	1.290	4.723
7	0.248	0.271	2.178	0.726	1.586	3.427	4.058	1.604	1.575	1.477	1.853	2.709	3.940	1.045	4.047
14	0.190	0.208	2.176	0.708	1.459	3.424	4.057	1.487	1.254	1.355	1.773	2.076	3.882	0.995	3.978
21	0.160	0.175	2.175	0.681	1.328	3.420	4.055	1.408	1.149	1.256	1.704	2.165	3.702	0.950	3.700
28	0.141	0.154	2.172	0.649	1.213	3.417	4.053	1.298	1.049	1.191	1.664	2.014	3.540	0.883	3.456
42	0.118	0.129	2.164	0.618	1.052	3.409	4.046	1.201	0.965	1.109	1.629	1.761	3.229	0.806	3.036
50	0.109	0.119	2.158	0.610	0.987	3.403	4.040	1.141	0.929	1.067	1.602	1.756	3.074	0.762	2.849
100	0.078	0.086	2.075	0.533	0.893	3.360	3.991	0.904	0.801	0.902	1.502	1.463	2.410	0.573	2.129



**B.8.9.2.2. FOCUS STEP 4 parent  $PEC_{SW}$  and  $PEC_{SED}$  using 20 m spray drift buffer mitigation**Table B.8.9.2.2-1 RMS FOCUS STEP 4 actual  $PEC_{SW}$  simulated for winter oilseed rape using water  $DT_{50}$  316.6 days and a 20 m buffer mitigation measure

Days after global maximum	Actual $PEC_{SW}$ ( $\mu\text{g/L}$ )									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	23.400	14.670	0.366	1.072	1.722	0.305	0.858	0.167	3.896	7.424
Including suspended solids	23.420	14.680	0.366	1.073	1.723	0.305	0.859	0.167	3.899	7.429
1	3.627	1.016	0.332	1.071	0.491	0.303	0.313	0.163	0.003	0.019
2	22.520	13.700	0.310	1.068	1.568	0.298	0.007	0.161	0.002	0.009
4	0.739	0.292	0.282	1.056	0.351	0.288	0.259	0.156	0.001	3.830
7	1.037	0.362	0.255	1.033	0.293	0.278	0.002	0.151	0.000	0.005
14	0.582	0.306	0.175	0.972	0.954	0.260	0.002	0.140	0.000	0.001
21	12.540	6.565	0.007	0.936	0.683	0.246	0.001	0.131	0.000	0.001
28	7.695	4.069	0.002	0.935	0.274	0.236	0.006	0.123	0.000	0.000
42	8.778	4.692	0.001	0.849	0.077	0.206	0.001	0.119	0.000	0.001
50	5.605	3.198	0.001	0.803	0.283	0.187	0.000	0.111	0.000	0.001
100	6.452	4.141	0.000	0.606	0.012	-	0.000	0.074	0.224	0.000

Table B.8.9.2.2-2 RMS FOCUS STEP 4 TWA PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days and a 20 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	12.770	7.334	0.347	1.072	1.196	0.304	0.339	0.165	1.440	4.164
2	10.510	6.291	0.334	1.072	1.099	0.303	0.280	0.164	0.722	2.126
4	9.646	5.857	0.314	1.071	0.923	0.299	0.217	0.161	0.362	1.556
7	9.336	5.622	0.294	1.067	0.778	0.293	0.149	0.158	0.207	1.210
14	8.532	5.142	0.260	1.053	0.707	0.282	0.095	0.152	0.103	0.606
21	7.793	4.652	0.193	1.035	0.638	0.273	0.068	0.147	0.071	0.537
28	7.625	4.373	0.145	1.015	0.619	0.266	0.052	0.142	0.054	0.405
42	6.741	3.981	0.097	0.988	0.461	0.252	0.036	0.136	0.067	0.277
50	6.366	3.745	0.082	0.972	0.419	0.244	0.033	0.132	0.057	0.289
100	5.611	3.097	0.041	0.861	0.248	0.189	0.018	0.112	0.040	0.150

Table B.8.9.2.2-3 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days and a 20 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	56.880	33.740	0.779	6.078	2.650	1.471	0.510	1.168	1.086	3.508
1	56.860	33.670	0.771	< 1e-5	2.641	< 1e-5	0.466	1.168	0.768	2.714
2	56.730	33.630	0.745	-	2.617	-	0.421	1.168	0.613	2.289
4	56.490	33.500	0.659	-	2.533	-	0.357	1.168	0.475	1.871
7	56.100	33.270	0.556	-	2.342	-	0.310	1.167	0.389	1.569
14	55.310	32.830	0.438	-	1.914	-	0.255	1.165	0.331	1.237
21	54.550	32.500	0.377	-	1.799	-	0.223	1.162	0.283	1.067
28			0.338	-	2.126	-	0.201	1.157	0.249	2.154
42			0.289	-	1.825	-	0.182	1.144	0.397	1.190
50			0.269	-	1.679	-	0.175	1.135	0.325	1.062
100			0.200	-	1.183	-	-	-	0.226	0.866

Table B.8.9.2.2-4 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days and a 20 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	56.880	33.730	0.778	7.076	2.649	2.470	0.500	1.168	0.957	3.240
2	56.860	33.710	0.777	7.074	2.647	2.470	0.483	1.168	0.841	2.963
4	56.790	33.670	0.770	7.070	2.637	2.468	0.457	1.168	0.699	2.674
7	56.720	33.610	0.755	7.064	2.611	2.467	0.415	1.168	0.587	2.453
14	56.450	33.460	0.704	7.048	2.518	2.463	0.356	1.168	0.467	2.060
21	56.320	33.300	0.647	7.030	2.412	2.460	0.321	1.167	0.411	1.797
28	56.150	33.210	0.596	7.008	2.283	2.457	0.296	1.167	0.375	1.620
42	55.910	32.970	0.519	6.954	2.189	2.446	0.263	1.165	0.380	1.581
50	55.820	32.890	0.487	6.917	2.154	2.432	0.250	1.164	0.376	1.521
100	54.390	31.960	0.368	6.513	1.841	2.121	0.195	1.153	0.323	1.241

Table B.8.9.2.2-5 RMS FOCUS STEP 4 actual PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days and a 20 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	23.400	14.670	0.366	1.078	1.722	0.308	0.858	0.168	3.896	7.424
Including suspended solids	23.420	14.680	0.366	1.079	1.723	0.309	0.859	0.168	3.899	7.429
1	3.627	1.016	0.332	1.077	0.491	0.307	0.313	0.165	0.003	0.019
2	22.520	13.700	0.311	1.074	1.568	0.301	0.007	0.162	0.002	0.009
4	0.738	0.292	0.284	1.063	0.351	0.292	0.259	0.158	0.001	3.830
7	1.037	0.362	0.257	1.040	0.293	0.282	0.002	0.153	0.000	0.005
14	0.580	0.306	0.177	0.980	0.954	0.264	0.002	0.142	0.000	0.001
21	12.540	6.565	0.007	0.945	0.683	0.251	0.001	0.133	0.000	0.001
28	7.696	4.069	0.002	0.945	0.274	0.241	0.006	0.125	0.000	0.000
42	8.778	4.693	0.001	0.860	0.077	0.211	0.001	0.122	0.000	0.001
50	5.606	3.198	0.001	0.815	0.283	0.192	0.000	0.113	0.000	0.001
100	6.453	4.141	0.000	0.622	0.012	-	0.000	0.076	0.224	0.000

Table B.8.9.2.2-6 RMS FOCUS STEP 4 TWA PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days and a 20 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	12.770	7.334	0.348	1.078	1.196	0.308	0.339	0.166	1.440	4.164
2	10.520	6.291	0.334	1.078	1.099	0.307	0.280	0.165	0.722	2.126
4	9.647	5.857	0.315	1.076	0.923	0.303	0.217	0.163	0.362	1.556
7	9.337	5.623	0.296	1.073	0.778	0.297	0.149	0.159	0.207	1.210
14	8.533	5.142	0.261	1.059	0.707	0.286	0.095	0.153	0.103	0.606
21	7.794	4.652	0.194	1.041	0.638	0.277	0.068	0.148	0.071	0.537
28	7.626	4.373	0.146	1.022	0.619	0.270	0.052	0.144	0.054	0.405
42	6.742	3.981	0.098	0.996	0.461	0.257	0.036	0.137	0.067	0.277
50	6.367	3.745	0.082	0.981	0.419	0.248	0.033	0.134	0.057	0.289
100	5.611	3.097	0.041	0.871	0.248	0.194	0.018	0.114	0.040	0.150

Table B.8.9.2.2-7 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days and a 20 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	53.320	31.570	0.780	6.071	2.643	1.402	0.501	1.166	1.084	3.503
1	53.290	31.490	0.773	< 1e-5	2.633	< 1e-5	0.458	1.166	0.766	2.709
2	53.140	31.440	0.747	-	2.608		0.412	1.166	0.610	2.282
4	52.870	31.290	0.660	-	2.524		0.348	1.166	0.472	1.864
7	52.430	31.040	0.554	-	2.332		0.301	1.165	0.386	1.560
14	51.530	30.530	0.433	-	1.901		0.245	1.162	0.328	1.226
21	50.670	30.140	0.371	-	1.785		0.213	1.159	0.280	1.055
28		-	0.331	-	2.109		0.191	1.154	0.245	2.140
42		-	0.280	-	1.804		0.171	1.137	0.392	1.173
50		-	0.260	-	1.656		0.165	1.125	0.320	1.043
100		-	0.190	-	1.148		-	-	0.219	0.839

Table B.8.9.2.2-8 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days and a 20 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	53.310	31.550	0.780	7.069	2.642	2.402	0.491	1.166	0.955	3.235
2	53.290	31.540	0.778	7.068	2.639	2.402	0.475	1.166	0.839	2.958
4	53.220	31.490	0.772	7.064	2.630	2.401	0.449	1.166	0.697	2.669
7	53.160	31.430	0.757	7.058	2.604	2.400	0.406	1.166	0.585	2.448
14	52.880	31.280	0.705	7.044	2.510	2.398	0.348	1.166	0.464	2.053
21	52.790	31.140	0.646	7.027	2.404	2.396	0.312	1.165	0.409	1.789
28	52.620	31.040	0.595	7.006	2.274	2.394	0.287	1.165	0.372	1.611
42	52.470	30.800	0.516	6.955	2.177	2.386	0.254	1.163	0.376	1.571
50	52.380	30.760	0.483	6.918	2.142	2.373	0.241	1.162	0.373	1.509
100	51.030	29.910	0.361	6.518	1.824	2.070	0.186	1.148	0.318	1.225



Table B.8.9.2.2-9 RMS FOCUS STEP 4 actual PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 20 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.362	0.362	0.261	0.386	1.837	0.568	0.487	6.750	6.279	3.498	0.725	13.820	9.024	4.474	16.360
Including suspended solids	0.362	0.363	0.261	0.386	1.839	0.569	0.488	6.755	6.284	3.501	0.725	13.820	9.031	4.477	16.370
1	0.192	0.217	0.260	0.003	1.204	0.558	0.481	0.012	0.094	0.003	0.716	0.267	0.077	0.049	0.073
2	0.034	0.049	0.260	0.003	0.689	0.549	0.475	0.005	0.011	0.002	0.626	0.036	0.029	0.008	0.020
4	0.003	0.004	0.257	0.003	0.496	0.536	0.466	0.133	0.003	0.001	0.002	0.010	0.010	0.002	0.007
7	0.001	0.001	0.251	0.002	0.781	0.517	0.452	0.006	0.001	0.000	0.001	0.004	0.005	0.001	7.251
14	0.000	0.000	0.237	0.002	0.058	0.477	0.425	0.091	0.002	1.301	0.000	7.426	0.005	0.001	0.007
21	0.000	0.000	0.226	0.003	0.007	0.444	0.401	0.001	0.001	0.001	0.338	0.003	0.004	0.001	0.004
28	0.000	0.000	0.226	0.003	0.006	0.485	0.379	0.000	0.000	0.000	0.259	0.001	0.003	0.410	0.001
42	0.000	0.000	0.206	0.002	0.006	0.421	0.353	0.000	0.001	0.000	0.000	0.001	0.001	0.034	0.001
50	0.000	0.000	0.195	0.002	0.085	0.391	0.330	0.000	0.000	0.002	0.000	0.002	0.001	0.000	0.039
100	0.000	0.000	0.147	0.004	0.005	0.284	0.223	0.000	0.000	0.000	0.023	0.000	0.000	0.000	0.001

Table B.8.9.2.2-10 RMS FOCUS STEP 4 TWA PEC<sub>sw</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 20 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>sw</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
1	0.288	0.298	0.261	0.228	1.585	0.563	0.484	3.589	4.945	1.497	0.650	8.859	7.491	3.488	12.310
2	0.192	0.209	0.261	0.221	1.305	0.558	0.481	1.798	2.490	0.750	0.537	4.481	3.930	1.754	6.177
4	0.101	0.112	0.260	0.197	0.946	0.550	0.476	0.901	1.248	0.375	0.353	2.251	1.978	0.879	3.094
7	0.058	0.065	0.260	0.177	0.778	0.540	0.469	0.796	0.714	0.340	0.202	1.289	1.134	0.503	1.773
14	0.029	0.033	0.256	0.161	0.547	0.519	0.455	0.532	0.402	0.227	0.103	0.654	0.805	0.373	1.475
21	0.020	0.022	0.252	0.158	0.372	0.500	0.442	0.372	0.292	0.169	0.073	0.632	0.600	0.287	1.039
28	0.015	0.016	0.247	0.150	0.281	0.498	0.430	0.286	0.219	0.127	0.070	0.479	0.473	0.215	0.799
42	0.010	0.011	0.240	0.111	0.189	0.483	0.411	0.213	0.176	0.117	0.065	0.320	0.325	0.157	0.540
50	0.008	0.009	0.236	0.100	0.160	0.471	0.405	0.183	0.148	0.128	0.056	0.317	0.276	0.133	0.456
100	0.004	0.005	0.210	0.060	0.109	0.414	0.376	0.096	0.090	0.064	0.035	0.171	0.139	0.067	0.229

Table B.8.9.2.2-11 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 20 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.197	0.212	1.101	0.746	1.765	3.313	3.930	2.444	3.038	1.717	2.059	5.328	6.107	2.070	7.697
1	0.170	0.184	< 1e-5	0.743	1.727	3.311	3.930	1.623	2.049	1.518	1.846	3.596	4.717	1.378	5.076
2	0.139	0.151	-	0.737	1.657	3.309	3.929	1.260	1.591	1.399	1.721	2.755	3.986	1.054	3.938
4	0.105	0.114	-	0.716	1.489	3.307	3.928	1.160	1.199	1.267	1.583	2.058	3.337	0.773	3.003
7	0.081	0.089	-	0.670	1.266	3.301	3.925	1.511	0.957	1.159	1.471	1.634	2.904	0.601	5.709
14	0.059	0.065	-	0.561	0.973	3.289	3.916	1.549	0.921	1.022	1.374	3.698	3.333	0.774	3.552
21	0.049	0.054	-	0.515	0.840	3.274	3.903	1.050	0.812	0.939	1.432	1.724	3.191	0.763	2.984
28	0.043	0.047	-	0.606	0.761	3.257	3.885	0.890	0.687	0.879	1.964	1.418	2.932	0.789	2.543
42	0.036	0.039	-	0.538	0.681	3.223	3.846	0.888	0.821	0.791	1.627	1.140	2.523	0.572	2.070
50	0.033	0.036	-	0.500	1.011	3.200	3.812	0.788	0.684	0.752	1.622	1.479	2.345	0.500	1.914
100	0.024	0.026	-	0.373	0.683	3.017	-	0.598	0.685	0.599	1.334	0.990	1.718	0.333	1.338

Table B.8.9.2.2-12 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and a 20 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
1	0.193	0.208	2.101	0.745	1.761	3.313	3.930	2.118	2.701	1.656	1.993	4.754	5.730	1.834	6.721
2	0.182	0.197	2.101	0.745	1.748	3.313	3.930	1.924	2.352	1.617	1.938	4.111	5.198	1.591	5.808
4	0.159	0.173	2.100	0.742	1.706	3.312	3.930	1.700	1.917	1.522	1.905	3.321	4.501	1.284	4.724
7	0.134	0.147	2.099	0.736	1.618	3.312	3.929	1.599	1.573	1.462	1.887	2.711	3.938	1.040	4.088
14	0.103	0.113	2.097	0.717	1.490	3.309	3.928	1.482	1.254	1.342	1.810	2.078	3.900	0.991	4.003
21	0.087	0.096	2.094	0.690	1.361	3.306	3.927	1.404	1.151	1.245	1.744	2.170	3.740	0.946	3.740
28	0.077	0.085	2.091	0.658	1.247	3.303	3.925	1.296	1.052	1.182	1.707	2.021	3.597	0.881	3.509
42	0.065	0.071	2.081	0.628	1.088	3.295	3.919	1.202	0.970	1.103	1.678	1.772	3.319	0.805	3.111
50	0.060	0.066	2.073	0.620	1.024	3.290	3.915	1.144	0.935	1.063	1.653	1.768	3.181	0.762	2.934
100	0.044	0.048	1.984	0.544	0.935	3.250	3.873	0.920	0.812	0.908	1.548	1.489	2.588	0.582	2.256

Table B.8.9.2.2-13 RMS FOCUS STEP 4 actual PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days and a 20 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)														
	D3 1 <sup>st</sup> ditch	D3 2 <sup>nd</sup> ditch	D4 pond	D4 stream	D6 ditch	R1 1 <sup>st</sup> pond	R1 2 <sup>nd</sup> pond	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 1 <sup>st</sup> stream	R4 stream 2 <sup>nd</sup>
Global maximum	0.362	0.362	0.263	0.386	1.837	0.569	0.495	6.699	6.279	3.418	0.725	13.700	9.025	4.481	16.360
Including suspended solids	0.362	0.363	0.263	0.386	1.839	0.569	0.495	6.704	6.284	3.421	0.725	13.710	9.031	4.485	16.370
1	0.193	0.218	0.263	0.003	1.204	0.559	0.489	0.012	0.094	0.003	0.716	0.265	0.077	0.049	0.073
2	0.034	0.049	0.262	0.003	0.689	0.550	0.483	0.005	0.011	0.001	0.626	0.035	0.029	0.008	0.020
4	0.003	0.004	0.259	0.003	0.496	0.538	0.474	0.132	0.003	0.001	0.002	0.010	0.010	0.002	0.007
7	0.001	0.001	0.254	0.002	0.781	0.520	0.461	0.006	0.001	0.000	0.001	0.004	0.005	0.001	7.251
14	0.000	0.000	0.239	0.002	0.058	0.483	0.434	0.091	0.002	1.274	0.000	7.383	0.005	0.001	0.007
21	0.000	0.000	0.229	0.003	0.007	0.452	0.409	0.001	0.001	0.001	0.338	0.003	0.004	0.001	0.004
28	0.000	0.000	0.229	0.003	0.006	0.495	0.388	0.000	0.000	0.000	0.259	0.001	0.002	0.419	0.001
42	0.000	0.000	0.209	0.002	0.006	0.436	0.362	0.000	0.001	0.000	0.000	0.001	0.001	0.038	0.001
50	0.000	0.000	0.199	0.002	0.085	0.408	0.338	0.000	0.000	0.002	0.000	0.002	0.001	0.000	0.039
100	0.000	0.000	0.151	0.004	0.005	0.308	0.232	0.000	0.000	0.000	0.023	0.000	0.000	0.000	0.001

Table B.8.9.2.2-14 RMS FOCUS STEP 4 TWA PEC<sub>sw</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days and a 20 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>sw</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
1	0.289	0.298	0.263	0.228	1.585	0.564	0.492	3.562	4.945	1.462	0.650	8.788	7.492	3.494	12.310
2	0.192	0.209	0.263	0.221	1.306	0.559	0.489	1.785	2.490	0.732	0.537	4.445	3.930	1.757	6.177
4	0.101	0.112	0.262	0.197	0.946	0.552	0.484	0.894	1.248	0.367	0.353	2.233	1.978	0.881	3.094
7	0.059	0.065	0.262	0.177	0.778	0.542	0.477	0.791	0.714	0.337	0.202	1.279	1.134	0.504	1.773
14	0.029	0.033	0.258	0.161	0.547	0.522	0.463	0.529	0.402	0.224	0.103	0.649	0.805	0.374	1.475
21	0.020	0.022	0.254	0.158	0.372	0.504	0.450	0.371	0.292	0.167	0.073	0.628	0.600	0.288	1.039
28	0.015	0.016	0.250	0.150	0.281	0.504	0.438	0.285	0.219	0.126	0.070	0.476	0.473	0.216	0.799
42	0.010	0.011	0.243	0.111	0.189	0.491	0.419	0.212	0.176	0.115	0.065	0.318	0.325	0.158	0.540
50	0.008	0.009	0.239	0.100	0.160	0.480	0.413	0.182	0.148	0.126	0.056	0.315	0.276	0.134	0.456
100	0.004	0.005	0.213	0.060	0.109	0.428	0.384	0.096	0.090	0.063	0.035	0.170	0.139	0.067	0.229

Table B.8.9.2.2-15 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days and a 20 m buffer mitigation measure

Days after global maximum	Actual PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.197	0.212	1.079	0.736	1.730	3.303	3.932	2.437	3.037	1.732	2.056	5.290	6.102	2.074	7.693
1	0.170	0.184	< 1e-5	0.733	1.691	3.300	3.932	1.621	2.046	1.532	1.840	3.570	4.707	1.379	5.067
2	0.139	0.151	-	0.727	1.620	3.298	3.932	1.260	1.588	1.413	1.713	2.735	3.971	1.054	3.926
4	0.104	0.113	-	0.706	1.451	3.296	3.931	1.160	1.194	1.280	1.572	2.042	3.315	0.773	2.983
7	0.081	0.088	-	0.660	1.227	3.290	3.928	1.509	0.951	1.169	1.455	1.619	2.872	0.600	5.677
14	0.059	0.064	-	0.550	0.931	3.278	3.917	1.549	0.912	1.026	1.352	3.670	3.258	0.772	3.489
21	0.048	0.053	-	0.503	0.797	3.261	3.903	1.045	0.802	0.938	1.404	1.703	3.081	0.759	2.896
28	0.042	0.046	-	0.594	0.717	3.245	3.883	0.881	0.676	0.873	1.930	1.395	2.790	0.787	2.435
42	0.034	0.037	-	0.525	0.635	3.210	3.837	0.873	0.807	0.774	1.580	1.112	2.333	0.566	1.935
50	0.031	0.034	-	0.486	0.965	3.186	3.804	0.767	0.668	0.729	1.569	1.450	2.133	0.489	1.768
100	0.021	0.025	-	0.356	0.626	3.004	-	0.556	0.665	0.545	1.258	0.925	1.431	0.302	1.147

Table B.8.9.2.2-16 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 1000 days and a 20 m buffer mitigation measure

Days after global maximum	TWA PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
1	0.193	0.208	2.079	0.736	1.725	3.303	3.932	2.113	2.700	1.671	1.989	4.720	5.725	1.837	6.7
2	0.182	0.197	2.079	0.735	1.713	3.302	3.932	1.926	2.350	1.632	1.924	4.082	5.190	1.593	5.8
4	0.159	0.173	2.078	0.732	1.670	3.302	3.932	1.703	1.914	1.536	1.870	3.297	4.489	1.285	4.7
7	0.134	0.146	2.078	0.726	1.581	3.300	3.932	1.599	1.570	1.475	1.851	2.691	3.921	1.041	4.0
14	0.103	0.112	2.076	0.708	1.455	3.298	3.931	1.482	1.249	1.353	1.771	2.061	3.866	0.991	3.9
21	0.087	0.095	2.074	0.680	1.324	3.294	3.929	1.403	1.144	1.255	1.702	2.151	3.687	0.945	3.6
28	0.077	0.084	2.071	0.648	1.209	3.291	3.926	1.294	1.044	1.189	1.662	2.002	3.527	0.879	3.4
42	0.064	0.070	2.062	0.617	1.048	3.283	3.920	1.197	0.961	1.107	1.628	1.750	3.217	0.802	3.0
50	0.059	0.064	2.055	0.609	0.983	3.278	3.915	1.137	0.925	1.065	1.600	1.745	3.063	0.759	2.8
100	0.042	0.047	1.967	0.532	0.889	3.238	3.866	0.901	0.798	0.901	1.500	1.455	2.402	0.570	2.1



**B.8.9.2.3. FOCUS STEP 4 parent  $PEC_{SW}$  and  $PEC_{SED}$  using 20 m spray drift buffer and 10-12 m VFS mitigation**Table B.8.9.2.3-1 RMS FOCUS STEP 4 actual  $PEC_{SW}$  simulated for winter oilseed rape using water  $DT_{50}$  316.6 days with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	Actual $PEC_{SW}$ ( $\mu\text{g/L}$ )									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	23.400	14.670	0.366	1.072	1.722	0.305	0.858	0.082	1.708	3.375
Including suspended solids	23.420	14.680	0.366	1.073	1.723	0.305	0.859	0.082	1.710	3.377
1	3.627	1.016	0.332	1.071	0.491	0.303	0.313	0.080	0.001	0.013
2	22.520	13.700	0.310	1.068	1.568	0.298	0.007	0.079	0.001	0.005
4	0.739	0.292	0.282	1.056	0.351	0.288	0.259	0.077	0.000	2.082
7	1.037	0.362	0.255	1.033	0.293	0.278	0.002	0.074	0.000	0.003
14	0.582	0.306	0.175	0.972	0.954	0.260	0.002	0.069	0.000	0.001
21	12.540	6.565	0.007	0.936	0.683	0.246	0.001	0.065	0.000	0.000
28	7.695	4.069	0.002	0.935	0.274	0.236	0.006	0.061	0.000	0.000
42	8.778	4.692	0.001	0.849	0.077	0.206	0.001	0.059	0.000	0.000
50	5.605	3.198	0.001	0.803	0.283	0.187	0.000	0.055	0.000	0.000
100	6.452	4.141	0.000	0.606	0.012	-	0.000	0.037	0.102	0.000

Table B.8.9.2.3-2 RMS FOCUS STEP 4 TWA PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	TWA PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	12.770	7.334	0.347	1.072	1.196	0.304	0.339	0.081	0.643	1.899
2	10.510	6.291	0.334	1.072	1.099	0.303	0.280	0.080	0.322	0.954
4	9.646	5.857	0.314	1.071	0.923	0.299	0.217	0.079	0.161	0.700
7	9.336	5.622	0.294	1.067	0.778	0.293	0.149	0.078	0.092	0.544
14	8.532	5.142	0.260	1.053	0.707	0.282	0.095	0.075	0.046	0.273
21	7.793	4.652	0.193	1.035	0.638	0.273	0.068	0.072	0.032	0.238
28	7.625	4.373	0.145	1.015	0.619	0.266	0.052	0.070	0.024	0.180
42	6.741	3.981	0.097	0.988	0.461	0.252	0.036	0.067	0.029	0.125
50	6.366	3.745	0.082	0.972	0.419	0.244	0.033	0.065	0.025	0.128
100	5.611	3.097	0.041	0.861	0.248	0.189	0.018	0.056	0.018	0.067

Table B.8.9.2.3-3 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	Actual PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	56.880	33.740	0.779	6.078	2.650	2.471	0.510	0.679	0.495	1.606
1	56.860	33.670	0.771	< 1e-5	2.641	< 1e-6	0.466	0.679	0.361	1.257
2	56.730	33.630	0.745	-	2.617	-	0.421	0.679	0.290	1.059
4	56.490	33.500	0.659	-	2.533	-	0.357	0.678	0.225	0.860
7	56.100	33.270	0.556	-	2.342	-	0.310	0.678	0.183	0.716
14	55.310	32.830	0.438	-	1.914	-	0.255	0.677	0.154	0.560
21	54.550	32.500	0.377	-	1.799	-	0.223	0.675	0.132	0.480
28	-	-	0.338	-	2.126	-	0.201	0.672	0.116	0.980
42	-	-	0.289	-	1.825	-	0.182	0.666	0.187	0.540
50	-	-	0.269	-	1.679	-	0.175	0.661	0.152	0.480
100	-	-	0.200	-	1.183	-	-	-	0.106	0.393

Table B.8.9.2.3-4 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	TWA PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	56.880	33.730	0.778	7.076	2.649	2.470	0.500	0.679	0.441	1.488
2	56.860	33.710	0.777	7.074	2.647	2.470	0.483	0.679	0.390	1.362
4	56.790	33.670	0.770	7.070	2.637	2.468	0.457	0.679	0.327	1.229
7	56.720	33.610	0.755	7.064	2.611	2.467	0.415	0.679	0.275	1.128
14	56.450	33.460	0.704	7.048	2.518	2.463	0.356	0.678	0.219	0.945
21	56.320	33.300	0.647	7.030	2.412	2.460	0.321	0.678	0.193	0.822
28	56.150	33.210	0.596	7.008	2.283	2.457	0.296	0.678	0.176	0.739
42	55.910	32.970	0.519	6.954	2.189	2.446	0.263	0.677	0.178	0.721
50	55.820	32.890	0.487	6.917	2.154	2.432	0.250	0.676	0.177	0.693
100	54.390	31.960	0.368	6.513	1.841	2.121	0.195	0.670	0.151	0.564

Table B.8.9.2.3-5 RMS FOCUS STEP 4 actual PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	23.400	14.670	0.366	1.078	1.722	0.308	0.858	0.083	1.708	3.375
Including suspended solids	23.420	14.680	0.366	1.079	1.723	0.309	0.859	0.083	1.710	3.377
1	3.627	1.016	0.332	1.077	0.491	0.307	0.313	0.081	0.001	0.013
2	22.520	13.700	0.311	1.074	1.568	0.301	0.007	0.080	0.001	0.005
4	0.738	0.292	0.284	1.063	0.351	0.292	0.259	0.078	0.000	2.082
7	1.037	0.362	0.257	1.040	0.293	0.282	0.002	0.075	0.000	0.003
14	0.580	0.306	0.177	0.980	0.954	0.264	0.002	0.070	0.000	0.001
21	12.540	6.565	0.007	0.945	0.683	0.251	0.001	0.066	0.000	0.000
28	7.696	4.069	0.002	0.945	0.274	0.241	0.006	0.062	0.000	0.000
42	8.778	4.693	0.001	0.860	0.077	0.211	0.001	0.060	0.000	0.000
50	5.606	3.198	0.001	0.815	0.283	0.192	0.000	0.056	0.000	0.000
100	6.453	4.141	0.000	0.622	0.012	-	0.000	0.038	0.102	0.000

Table B.8.9.2.3-6 RMS FOCUS STEP 4 TWA PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	TWA PEC <sub>SW</sub> (µg/L)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	12.770	7.334	0.348	1.078	1.196	0.308	0.339	0.082	0.643	1.899
2	10.520	6.291	0.334	1.078	1.099	0.307	0.280	0.081	0.322	0.954
4	9.647	5.857	0.315	1.076	0.923	0.303	0.217	0.080	0.161	0.700
7	9.337	5.623	0.296	1.073	0.778	0.297	0.149	0.079	0.092	0.544
14	8.533	5.142	0.261	1.059	0.707	0.286	0.095	0.076	0.046	0.273
21	7.794	4.652	0.194	1.041	0.638	0.277	0.068	0.073	0.032	0.238
28	7.626	4.373	0.146	1.022	0.619	0.270	0.052	0.071	0.024	0.180
42	6.742	3.981	0.098	0.996	0.461	0.257	0.036	0.068	0.029	0.125
50	6.367	3.745	0.082	0.981	0.419	0.248	0.033	0.067	0.025	0.128
100	5.611	3.097	0.041	0.871	0.248	0.194	0.018	0.058	0.018	0.067

Table B.8.9.2.3-7 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	Actual PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
Global maximum	53.320	31.570	0.780	7.071	2.643	2.402	0.501	0.678	0.494	1.604
1	53.290	31.490	0.773	< 1e-6	2.633	< 1e-6	0.458	0.678	0.360	1.255
2	53.140	31.440	0.747	-	2.608	-	0.412	0.678	0.289	1.056
4	52.870	31.290	0.660	-	2.524	-	0.348	0.678	0.224	0.856
7	52.430	31.040	0.554	-	2.332	-	0.301	0.678	0.182	0.712
14	51.530	30.530	0.433	-	1.901	-	0.245	0.676	0.153	0.555
21	50.670	30.140	0.371	-	1.785	-	0.213	0.674	0.131	0.475
28	-	-	0.331	-	2.109	-	0.191	0.671	0.115	0.974
42	-	-	0.280	-	1.804	-	0.171	0.663	0.185	0.533
50	-	-	0.260	-	1.656	-	0.165	0.657	0.150	0.472
100	-	-	0.190	-	1.148	-	-	-	0.103	0.381

Table B.8.9.2.3-8 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	TWA PEC <sub>SED</sub> (µg/Kg)									
	D2 ditch	D2 stream	D3 ditch	D4 pond	D4 stream	D5 pond	D5 stream	R1 pond	R1 stream	R3 stream
1	53.310	31.550	0.780	7.069	2.642	2.402	0.491	0.678	0.440	1.486
2	53.290	31.540	0.778	7.068	2.639	2.402	0.475	0.678	0.389	1.359
4	53.220	31.490	0.772	7.064	2.630	2.401	0.449	0.678	0.326	1.227
7	53.160	31.430	0.757	7.058	2.604	2.400	0.406	0.678	0.274	1.126
14	52.880	31.280	0.705	7.044	2.510	2.398	0.348	0.678	0.218	0.942
21	52.790	31.140	0.646	7.027	2.404	2.396	0.312	0.678	0.192	0.818
28	52.620	31.040	0.595	7.006	2.274	2.394	0.287	0.678	0.174	0.735
42	52.470	30.800	0.516	6.955	2.177	2.386	0.254	0.677	0.176	0.717
50	52.380	30.760	0.483	6.918	2.142	2.373	0.241	0.676	0.175	0.688
100	51.030	29.910	0.361	6.518	1.824	2.070	0.186	0.668	0.149	0.557



Table B.8.9.2.3-9 RMS FOCUS STEP 4 actual PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.362	0.362	0.261	0.386	1.837	0.255	0.218	3.061	2.856	1.555	0.433	6.251	4.111	2.034	7.427
Including suspended solids	0.362	0.363	0.261	0.386	1.839	0.256	0.218	3.064	2.858	1.557	0.433	6.256	4.114	2.036	7.432
1	0.192	0.217	0.260	0.003	1.204	0.251	0.215	0.005	0.042	0.001	0.000	0.120	0.034	0.022	0.032
2	0.034	0.049	0.260	0.003	0.689	0.247	0.212	0.002	0.005	0.001	0.000	0.017	0.013	0.004	0.010
4	0.003	0.004	0.257	0.003	0.496	0.241	0.208	0.049	0.002	0.000	0.000	0.005	0.005	0.001	0.003
7	0.001	0.001	0.251	0.002	0.781	0.232	0.202	0.002	0.001	0.000	0.000	0.002	0.002	0.000	3.295
14	0.000	0.000	0.237	0.002	0.058	0.215	0.190	0.031	0.001	0.536	0.000	3.349	0.002	0.001	0.003
21	0.000	0.000	0.226	0.003	0.007	0.200	0.179	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.002
28	0.000	0.000	0.226	0.003	0.006	0.216	0.169	0.000	0.000	0.000	< 1e-6	0.001	0.001	0.186	0.001
42	0.000	0.000	0.206	0.002	0.006	0.187	0.162	0.000	0.000	0.000	< 1e-6	0.000	0.000	0.015	0.000
50	0.000	0.000	0.195	0.002	0.085	0.174	0.151	0.000	0.000	0.001	< 1e-6	0.001	0.000	0.000	0.018
100	0.000	0.000	0.147	0.004	0.005	0.134	0.103	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000

Table B.8.9.2.3-10 RMS FOCUS STEP 4 TWA PEC<sub>sw</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days with mitigation measures 20 m buffer and 10-12 m VFS

Days after global maximum	TWA PEC <sub>sw</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
1	0.288	0.298	0.261	0.228	1.585	0.253	0.216	1.626	2.249	0.662	0.297	4.015	3.431	1.586	5.588
2	0.192	0.209	0.261	0.221	1.305	0.251	0.215	0.815	1.133	0.332	0.243	2.031	1.801	0.798	2.803
4	0.101	0.112	0.260	0.197	0.946	0.247	0.213	0.408	0.568	0.166	0.160	1.020	0.906	0.400	1.404
7	0.058	0.065	0.260	0.177	0.778	0.243	0.210	0.357	0.325	0.154	0.092	0.584	0.519	0.229	0.809
14	0.029	0.033	0.256	0.161	0.547	0.233	0.203	0.240	0.181	0.103	0.046	0.302	0.369	0.170	0.670
21	0.020	0.022	0.252	0.158	0.372	0.225	0.197	0.167	0.131	0.077	0.033	0.287	0.275	0.130	0.472
28	0.015	0.016	0.247	0.150	0.281	0.223	0.192	0.128	0.098	0.058	0.032	0.220	0.217	0.098	0.363
42	0.010	0.011	0.240	0.111	0.189	0.216	0.184	0.096	0.079	0.052	0.029	0.147	0.151	0.071	0.246
50	0.008	0.009	0.236	0.100	0.160	0.211	0.180	0.082	0.066	0.057	0.025	0.144	0.128	0.060	0.208
100	0.004	0.005	0.210	0.060	0.109	0.187	0.168	0.044	0.040	0.029	0.016	0.078	0.065	0.031	0.104

Table B.8.9.2.3-11 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	Actual PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.197	0.212	2.101	0.746	1.765	1.626	1.905	1.088	1.375	0.651	0.529	2.424	2.293	0.968	3.403
1	0.170	0.184	< 1e-6	0.743	1.727	1.626	1.905	0.734	0.942	0.563	0.446	1.670	1.697	0.664	2.224
2	0.139	0.151	-	0.737	1.657	1.626	1.905	0.565	0.727	0.508	0.396	1.274	1.362	0.512	1.705
4	0.105	0.114	-	0.716	1.489	1.626	1.905	0.504	0.538	0.447	0.344	0.937	1.064	0.375	1.266
7	0.081	0.089	-	0.670	1.266	1.625	1.903	0.675	0.421	0.399	0.307	0.732	0.875	0.291	2.506
14	0.059	0.065	-	0.561	0.973	1.621	1.899	0.680	0.398	0.340	0.286	1.681	1.011	0.374	1.519
21	0.049	0.054	-	0.515	0.840	1.616	1.893	0.455	0.347	0.307	0.312	0.775	0.972	0.368	1.258
28	0.043	0.047	-	0.606	0.761	1.610	1.885	0.381	0.291	0.283	0.458	0.630	0.878	0.376	1.057
42	0.036	0.039	-	0.538	0.681	1.594	1.867	0.384	0.357	0.251	0.343	0.500	0.735	0.274	0.845
50	0.033	0.036	-	0.500	1.011	1.585	1.853	0.337	0.292	0.237	0.354	0.665	0.675	0.240	0.778
100	0.024	0.026	-	0.373	0.683	1.503	-	0.253	0.293	0.186	0.288	0.438	0.480	0.160	0.534

Table B.8.9.2.3-12 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days with mitigation measures 10-12 m VFS 20 m buffer

Days after global maximum	TWA PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
1	0.193	0.208	2.101	0.745	1.761	1.626	1.905	0.947	1.226	0.623	0.504	2.173	2.127	0.862	2.974
2	0.182	0.197	2.101	0.745	1.748	1.626	1.905	0.863	1.071	0.605	0.480	1.887	1.899	0.754	2.569
4	0.159	0.173	2.100	0.742	1.706	1.626	1.905	0.761	0.872	0.563	0.437	1.525	1.591	0.613	2.073
7	0.134	0.147	2.099	0.736	1.618	1.626	1.905	0.713	0.711	0.536	0.429	1.239	1.339	0.499	1.767
14	0.103	0.113	2.097	0.717	1.490	1.626	1.905	0.660	0.559	0.481	0.403	0.940	1.293	0.475	1.732
21	0.087	0.096	2.094	0.690	1.361	1.625	1.904	0.622	0.508	0.438	0.382	0.984	1.216	0.454	1.609
28	0.077	0.085	2.091	0.658	1.247	1.624	1.903	0.571	0.462	0.415	0.372	0.914	1.156	0.423	1.503
42	0.065	0.071	2.081	0.628	1.088	1.622	1.901	0.528	0.423	0.380	0.367	0.796	1.044	0.386	1.320
50	0.060	0.066	2.073	0.620	1.024	1.620	1.899	0.501	0.407	0.363	0.361	0.796	0.992	0.366	1.239
100	0.044	0.048	1.984	0.544	0.935	1.605	1.880	0.399	0.351	0.302	0.336	0.667	0.778	0.279	0.937

Table B.8.9.2.3-13 RMS FOCUS STEP 4 actual PEC<sub>SW</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	Actual PEC <sub>SW</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
Global maximum	0.362	0.362	0.263	0.386	1.837	0.256	0.222	3.038	2.856	1.519	0.433	6.199	4.111	2.038	7.427
Including suspended solids	0.362	0.363	0.263	0.386	1.839	0.256	0.222	3.040	2.858	1.521	0.433	6.204	4.114	2.039	7.432
1	0.193	0.218	0.263	0.003	1.204	0.252	0.219	0.005	0.042	0.001	0.000	0.119	0.034	0.022	0.032
2	0.034	0.049	0.262	0.003	0.689	0.248	0.216	0.002	0.005	0.001	0.000	0.016	0.013	0.004	0.009
4	0.003	0.004	0.259	0.003	0.496	0.242	0.212	0.049	0.002	0.000	0.000	0.005	0.005	0.001	0.003
7	0.001	0.001	0.254	0.002	0.781	0.234	0.206	0.002	0.001	0.000	0.000	0.002	0.002	0.000	3.295
14	0.000	0.000	0.239	0.002	0.058	0.218	0.194	0.031	0.001	0.525	0.000	3.329	0.002	0.001	0.003
21	0.000	0.000	0.229	0.003	0.007	0.204	0.183	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.002
28	0.000	0.000	0.229	0.003	0.006	0.221	0.173	0.000	0.000	0.000	< 1e-6	0.001	0.001	0.190	0.001
42	0.000	0.000	0.209	0.002	0.006	0.194	0.166	0.000	0.000	0.000	< 1e-6	0.000	0.000	0.017	0.000
50	0.000	0.000	0.199	0.002	0.085	0.182	0.155	0.000	0.000	0.001	< 1e-6	0.001	0.000	0.000	0.018
100	0.000	0.000	0.151	0.004	0.005	0.146	0.107	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000

Table B.8.9.2.3.14 RMS FOCUS STEP 4 TWA PEC<sub>sw</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) with mitigation measures 20 m buffer and 10-12 m VFS

Days after global maximum	TWA PEC <sub>sw</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
1	0.289	0.298	0.263	0.228	1.585	0.254	0.220	1.614	2.249	0.647	0.297	3.982	3.431	1.589	5.588
2	0.192	0.209	0.263	0.221	1.306	0.252	0.219	0.809	1.133	0.324	0.243	2.014	1.801	0.799	2.803
4	0.101	0.112	0.262	0.197	0.946	0.248	0.217	0.405	0.568	0.163	0.160	1.012	0.906	0.401	1.405
7	0.059	0.065	0.262	0.177	0.778	0.244	0.214	0.355	0.325	0.153	0.092	0.580	0.519	0.229	0.809
14	0.029	0.033	0.258	0.161	0.547	0.235	0.207	0.238	0.181	0.102	0.046	0.299	0.369	0.170	0.670
21	0.020	0.022	0.254	0.158	0.372	0.227	0.201	0.166	0.131	0.076	0.033	0.284	0.275	0.131	0.472
28	0.015	0.016	0.250	0.150	0.281	0.226	0.196	0.128	0.098	0.057	0.032	0.218	0.217	0.098	0.363
42	0.010	0.011	0.243	0.111	0.189	0.220	0.188	0.095	0.079	0.052	0.029	0.146	0.151	0.072	0.246
50	0.008	0.009	0.239	0.100	0.160	0.215	0.184	0.082	0.066	0.056	0.025	0.143	0.128	0.061	0.208
100	0.004	0.005	0.213	0.060	0.109	0.194	0.172	0.044	0.040	0.029	0.016	0.078	0.065	0.031	0.104

Table B.8.9.2.3-15 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) with mitigation measures 10-12 m VFS and 20 m buffer

Days after global maximum	Actual PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.197	0.212	2.079	0.736	1.730	1.621	1.907	1.082	1.375	0.646	0.527	2.405	2.291	0.969	3.401
1	0.170	0.184	< 1e-6	0.733	1.691	1.621	1.907	0.730	0.941	0.558	0.444	1.657	1.693	0.664	2.220
2	0.139	0.151	-	0.727	1.620	1.621	1.907	0.562	0.726	0.504	0.394	1.264	1.357	0.512	1.700
4	0.104	0.113	-	0.706	1.451	1.621	1.907	0.501	0.536	0.443	0.342	0.928	1.057	0.375	1.257
7	0.081	0.088	-	0.660	1.227	1.619	1.906	0.672	0.418	0.394	0.303	0.724	0.866	0.290	2.493
14	0.059	0.064	-	0.550	0.931	1.616	1.902	0.676	0.394	0.334	0.281	1.667	0.989	0.372	1.493
21	0.048	0.053	-	0.503	0.797	1.612	1.896	0.449	0.343	0.300	0.306	0.764	0.941	0.366	1.222
28	0.042	0.046	-	0.594	0.717	1.606	1.887	0.373	0.286	0.275	0.451	0.618	0.838	0.374	1.013
42	0.034	0.037	-	0.525	0.635	1.589	1.866	0.374	0.351	0.240	0.333	0.487	0.682	0.271	0.791
50	0.031	0.034	-	0.486	0.965	1.581	1.851	0.326	0.286	0.225	0.343	0.651	0.616	0.234	0.719
100	0.021	0.025	-	0.356	0.626	1.498	-	0.232	0.285	0.166	0.272	0.408	0.401	0.144	0.458

Table B.8.9.2.3-16 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for winter oilseed rape using water DT<sub>50</sub> 1000 days (default) with mitigation measures 10-12 m VFS 20 m buffer

Days after global maximum	TWA PEC <sub>SED</sub> (µg/L)														
	D3 1 <sup>st</sup> ditch	D3 2 <sup>nd</sup> ditch	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
1	0.193	0.208	2.079	0.736	1.725	1.621	1.907	0.941	1.225	0.619	0.503	2.156	2.124	0.863	2.972
2	0.182	0.197	2.079	0.735	1.713	1.621	1.907	0.860	1.070	0.601	0.479	1.872	1.896	0.755	2.566
4	0.159	0.173	2.078	0.732	1.670	1.621	1.907	0.758	0.871	0.559	0.435	1.513	1.587	0.614	2.069
7	0.134	0.146	2.078	0.726	1.581	1.621	1.907	0.710	0.710	0.531	0.422	1.229	1.333	0.499	1.748
14	0.103	0.112	2.076	0.708	1.455	1.621	1.907	0.656	0.557	0.477	0.395	0.931	1.283	0.475	1.719
21	0.087	0.095	2.074	0.680	1.324	1.620	1.906	0.618	0.505	0.434	0.373	0.974	1.201	0.453	1.590
28	0.077	0.084	2.071	0.648	1.209	1.619	1.905	0.566	0.458	0.410	0.363	0.904	1.135	0.422	1.479
42	0.064	0.070	2.062	0.617	1.048	1.617	1.902	0.522	0.419	0.374	0.357	0.786	1.015	0.385	1.288
50	0.059	0.064	2.055	0.609	0.983	1.615	1.900	0.495	0.403	0.356	0.351	0.785	0.958	0.364	1.204
100	0.042	0.047	1.967	0.532	0.889	1.600	1.877	0.387	0.345	0.294	0.326	0.651	0.726	0.273	0.885



**B.8.9.2.4. FOCUS STEP 4 parent  $PEC_{SW}$  and  $PEC_{SED}$  using 20 m spray drift buffer and 18-20 m VFS mitigation**Table B.8.9.2.4-1 RMS FOCUS STEP 4 actual  $PEC_{SW}$  simulated for brassicas using water  $DT_{50}$  316.6 days and 20m spray drift buffer and 20m runoff VFS

Days after global maximum	Actual $PEC_{SW}$ ( $\mu\text{g/L}$ )														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.362	0.362	0.261	0.386	1.837	0.15	0.127	1.601	1.496	0.807	0.433	3.264	2.158	1.066	3.89
Including suspended solids	0.3624	0.3627	0.261	0.3859	1.839	0.15	0.127	1.602	1.498	0.808	0.433	3.267	2.159	1.067	3.893
1	0.1924	0.2173	0.2604	0.0028	1.204	0.147	0.124	0.003	0.022	7E-04	6E-05	0.062	0.336	0.011	0.016
2	0.0344	0.04894	0.2597	0.0027	0.689	0.145	0.122	0.001	0.003	3E-04	4E-05	0.009	0.011	0.002	0.005
4	0.002816	0.003529	0.257	0.0026	0.496	0.142	0.118	0.024	9E-04	1E-04	2E-05	0.003	0.003	6E-04	0.002
7	0.00087	0.000977	0.2514	0.0024	0.781	0.137	0.114	0.001	3E-04	5E-05	7E-06	0.001	0.001	2E-04	1.726
14	0.000251	0.000249	0.2366	0.0022	0.058	0.126	0.106	0.015	4E-04	0.271	2E-06	1.746	0.001	3E-04	0.002
21	0.000135	0.000089	0.2257	0.0025	0.007	0.118	0.099	2E-04	1E-04	3E-04	1E-06	7E-04	0.001	1E-04	9E-04
28	0.000088	0.000053	0.2261	0.0025	0.006	0.125	0.093	8E-05	6E-05	4E-05	< 1e-6	4E-04	6E-04	0.097	3E-04
42	0.000044	0.000034	0.2062	0.0021	0.006	0.109	0.092	8E-05	2E-04	6E-05	< 1e-6	2E-04	2E-04	0.008	1E-04
50	0.000032	0.000028	0.1951	0.0022	0.085	0.101	0.086	5E-05	5E-05	5E-04	< 1e-6	6E-04	1E-04	2E-05	0.009
100	0.000013	0.000006	0.1468	0.0041	0.005	0.078	0.089	3E-05	4E-05	1E-05	0.001	7E-05	4E-05	8E-06	2E-04

Table B.8.9.2.4-2 RMS FOCUS STEP 4 TWA PEC<sub>SW</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and 20m spray drift buffer and 20m runoff VFS

Days after global maximum	TWA PEC <sub>SW</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
1	0.2884	0.2979	0.2607	0.2281	1.585	0.149	0.126	0.85	1.178	0.343	0.156	2.099	1.803	0.831	2.926
2	0.1922	0.2089	0.2606	0.2205	1.305	0.147	0.125	0.426	0.593	0.172	0.127	1.061	0.946	0.418	1.468
4	0.1012	0.1117	0.2603	0.1967	0.946	0.145	0.122	0.213	0.297	0.086	0.084	0.533	0.476	0.21	0.735
7	0.05849	0.06459	0.2595	0.177	0.778	0.143	0.12	0.186	0.17	0.081	0.048	0.306	0.273	0.12	0.427
14	0.02947	0.03254	0.2562	0.1612	0.547	0.137	0.115	0.125	0.095	0.054	0.024	0.162	0.194	0.089	0.351
21	0.01971	0.02174	0.2521	0.1582	0.372	0.132	0.111	0.087	0.068	0.04	0.017	0.15	0.145	0.068	0.247
28	0.01481	0.01632	0.2474	0.1498	0.281	0.131	0.107	0.067	0.051	0.03	0.016	0.117	0.114	0.051	0.19
42	0.009894	0.0109	0.2401	0.1109	0.189	0.126	0.102	0.05	0.041	0.027	0.015	0.078	0.081	0.037	0.129
50	0.008317	0.009158	0.2362	0.1003	0.16	0.123	0.1	0.043	0.034	0.03	0.013	0.075	0.069	0.032	0.109
100	0.004168	0.004586	0.2097	0.06041	0.109	0.11	0.094	0.023	0.021	0.015	0.008	0.042	0.035	0.016	0.055

Table B.8.9.2.4-3 RMS FOCUS STEP 4 actual PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and 20m spray drift buffer and 20m runoff VFS

Days after global maximum	Actual PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1 <sup>st</sup>	R3 stream 2 <sup>nd</sup>	R4 stream 1 <sup>st</sup>	R4 stream 2 <sup>nd</sup>
Global maximum	0.1973	0.212	2.101	0.7456	1.765	1.004	1.15	0.577	0.734	0.338	0.244	1.299	1.188	0.52	1.807
1	0.1699	0.184	< 1e-6	0.7432	1.727	1.004	1.15	0.399	0.515	0.292	0.201	0.906	0.876	0.366	1.206
2	0.1389	0.1512	-	0.7368	1.657	1.004	1.15	0.31	0.4	0.263	0.176	0.699	0.701	0.285	0.926
4	0.1045	0.114	-	0.7161	1.489	1.004	1.15	0.273	0.295	0.23	0.149	0.516	0.54	0.209	0.683
7	0.08126	0.08871	-	0.6704	1.266	1.003	1.15	0.366	0.23	0.204	0.13	0.402	0.437	0.162	1.337
14	0.05942	0.06484	-	0.5613	0.973	1.001	1.148	0.367	0.216	0.172	0.12	0.899	0.503	0.207	0.818
21	0.0494	0.05381	-	0.5148	0.84	0.998	1.144	0.246	0.188	0.154	0.134	0.424	0.484	0.204	0.675
28	0.04326	0.04708	-	0.6063	0.761	0.994	1.14	0.205	0.157	0.142	0.204	0.344	0.434	0.206	0.565
42	0.03583	0.03904	-	0.5382	0.681	0.984	1.129	0.207	0.193	0.125	0.145	0.272	0.36	0.152	0.449
50	0.03303	0.0361	-	0.4997	1.011	0.979	1.122	0.182	0.158	0.118	0.152	0.363	0.329	0.133	0.413
100	0.02373	0.0264	-	0.3725	0.683	0.93	-	0.136	0.158	0.092	0.123	0.238	0.231	0.089	0.283

Table B.8.9.2.4-4 RMS FOCUS STEP 4 TWA PEC<sub>SED</sub> simulated for brassicas using water DT<sub>50</sub> 316.6 days and 20m spray drift buffer and 20m runoff VFS

Days after global maximum	TWA PEC <sub>SED</sub> (µg/L)														
	D3 ditch 1 <sup>st</sup>	D3 ditch 2 <sup>nd</sup>	D4 pond	D4 stream	D6 ditch	R1 pond 1 <sup>st</sup>	R1 pond 2 <sup>nd</sup>	R1 stream 1 <sup>st</sup>	R1 stream 2 <sup>nd</sup>	R2 stream 1 <sup>st</sup>	R2 stream 2 <sup>nd</sup>	R3 stream 1st	R3 stream 2nd	R4 stream 1 <sup>st</sup>	R4 stream 2nd
1	0.192	0.2077	2.101	0.7454	1.761	1.004	1.15	0.506	0.658	0.324	0.232	1.172	1.103	0.466	1.588
2	0.182	0.1974	2.101	0.7447	1.748	1.004	1.15	0.466	0.578	0.314	0.22	1.025	0.987	0.41	1.378
4	0.159	0.1734	2.1	0.7422	1.706	1.004	1.15	0.412	0.474	0.292	0.198	0.834	0.825	0.336	1.116
7	0.134	0.1465	2.099	0.7356	1.618	1.004	1.15	0.386	0.387	0.277	0.188	0.68	0.689	0.275	0.95
14	0.103	0.113	2.097	0.7173	1.49	1.004	1.15	0.357	0.304	0.248	0.175	0.516	0.66	0.262	0.932
21	0.087	0.0956	2.094	0.6899	1.361	1.003	1.149	0.337	0.276	0.225	0.165	0.539	0.617	0.251	0.865
28	0.077	0.0846	2.091	0.6581	1.247	1.003	1.149	0.309	0.25	0.212	0.16	0.501	0.584	0.234	0.807
42	0.064	0.0709	2.081	0.6283	1.088	1.001	1.147	0.285	0.229	0.193	0.158	0.436	0.525	0.213	0.708
50	0.060	0.0656	2.073	0.6202	1.024	1	1.146	0.271	0.22	0.184	0.156	0.435	0.497	0.202	0.664
100	0.044	0.0482	1.984	0.5444	0.935	0.992	1.135	0.215	0.19	0.152	0.144	0.364	0.385	0.155	0.5

**B.8.9.3. FOCUS STEP 4 metabolite PEC<sub>SW</sub> and PEC<sub>SED</sub> using 10 m buffer mitigation**Table B.8.9.3-1 RMS Summary FOCUS STEP4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> for parent and metabolites simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days with 10 m buffer mitigation

FOCUS scenario	Max. PEC <sub>SW</sub> (µg/L)				Max. PEC <sub>SED</sub> (µg/Kg)			
	parent STEP4 10 m buffer	isomer 1	isomer 2	1-naphthol	parent STEP4 10 m buffer	isomer 1	isomer 2	1-naphthol
D2 ditch	23.400	8.658	13.361	2.902	56.930	21.064	32.507	7.059
D2 stream	14.670	5.428	8.377	1.819	33.790	12.502	19.294	4.190
D3 ditch	0.705	0.261	0.402	0.087	1.450	0.537	0.828	0.180
D4 pond	1.082	0.400	0.618	0.134	6.209	2.297	3.545	0.770
D4 stream	1.722	0.637	0.983	0.214	2.656	0.983	1.517	0.329
D5 pond	0.313	0.116	0.179	0.039	1.618	0.599	0.924	0.201
D5 stream	0.876	0.324	0.500	0.109	0.516	0.191	0.295	0.064
R1 pond	0.178	0.066	0.102	0.022	1.309	0.484	0.747	0.162
R1 stream	3.896	1.442	2.225	0.483	1.090	0.403	0.622	0.135
R3 stream	7.424	2.747	4.239	0.921	3.514	1.300	2.006	0.436

Table B.8.9.3-2 RMS Summary FOCUS STEP4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> for parent and metabolites simulated for brassicas using water DT<sub>50</sub> 316.6 days with 10 m buffer mitigation

FOCUS scenario	Max PEC <sub>SW</sub> (µg/L)				Max PEC <sub>SED</sub> (µg/Kg)			
	parent STEP4 10 m buffer	isomer 1	isomer 2	1-naphthol	parent STEP4 10 m buffer	isomer 1	isomer 2	1- naphthol
D3 ditch 1st	0.697	0.258	0.398	0.086	0.370	0.137	0.211	0.046
D3 ditch 2nd	4.853	1.796	2.771	0.602	2.529	0.936	1.444	0.314
D4 pond	0.271	0.100	0.155	0.034	1.391	0.515	0.794	0.172
D4 stream	3.803	1.407	2.172	0.472	0.752	0.278	0.429	0.093
D6 ditch	4.747	1.756	2.711	0.589	1.831	0.677	1.046	0.227
R1 pond 1st	0.630	0.233	0.360	0.078	3.675	1.360	2.098	0.456
R1 pond 2nd	0.496	0.183	0.283	0.061	4.055	1.500	2.315	0.503
R1 stream 1st	6.750	2.498	3.854	0.837	2.500	0.925	1.428	0.310
R1 stream 2nd	6.279	2.323	3.585	0.779	3.045	1.127	1.739	0.378
R2 stream 1st	4.190	1.550	2.392	0.520	1.734	0.642	0.990	0.215
R2 stream 2nd	0.833	0.308	0.475	0.103	2.062	0.763	1.177	0.256
R3 stream 1st	13.820	5.113	7.891	1.714	5.533	2.047	3.159	0.686
R3 stream 2nd	9.024	3.339	5.153	1.119	6.131	2.268	3.501	0.760
R4 stream 1st	4.474	1.655	2.555	0.555	2.116	0.783	1.208	0.262
R4 stream 2nd	16.360	6.053	9.342	2.029	7.708	2.852	4.401	0.956

**B.8.9.4. FOCUS STEP 4 metabolite PEC<sub>SW</sub> and PEC<sub>SED</sub> using 20 m buffer mitigation**Table B.8.9.4-1 RMS Summary FOCUS STEP4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> for parent and metabolites simulated for winter oilseed rape using water DT<sub>50</sub> 316.6 days with 20 m buffer mitigation

FOCUS scenario	Max. PEC <sub>SW</sub> (µg/L)				Max. PEC <sub>SED</sub> (µg/Kg)			
	parent STEP4 20m buffer	isomer 1	isomer 2	1-naphthol	parent STEP4 20m buffer	isomer 1	isomer 2	1-naphthol
D2 ditch	23.400	8.658	13.361	2.902	56.880	21.046	32.478	7.053
D2 stream	14.670	5.428	8.377	1.819	33.740	12.484	19.266	4.184
D3 ditch	0.366	0.1354	0.209	0.045	0.779	0.288	0.445	0.097
D4 pond	1.072	0.397	0.612	0.133	6.078	2.249	3.471	0.754
D4 stream	1.722	0.637	0.983	0.214	2.650	0.981	1.513	0.329
D5 pond	0.305	0.113	0.174	0.038	1.471	0.544	0.840	0.182
D5 stream	0.858	0.318	0.490	0.106	0.510	0.189	0.291	0.063
R1 pond	0.167	0.062	0.095	0.021	1.168	0.432	0.667	0.145
R1 stream	3.896	1.441	2.225	0.483	1.086	0.402	0.620	0.135
R3 stream	7.424	2.747	4.239	0.921	3.508	1.298	2.003	0.435

Table B.8.9.4-2 RMS Summary FOCUS STEP4 maximum PEC<sub>SW</sub> and PEC<sub>SED</sub> for parent and metabolites simulated for brassicas using water DT<sub>50</sub> 316.6 days with 20 m buffer mitigation

FOCUS scenario	Max PEC <sub>SW</sub> (µg/L)				Max PEC <sub>SED</sub> (µg/Kg)			
	parent STEP4 20m buffer	isomer 1	isomer 2	1-naphthol	parent STEP4 20m buffer	isomer 1	isomer 2	1-naphthol
D3 ditch 1st	0.362	0.134	0.207	0.045	0.197	0.073	0.113	0.0245
D3 ditch 2nd	0.362	0.1340	0.207	0.045	0.212	0.078	0.121	0.026
D4 pond	0.261	0.0965	0.149	0.032	1.101	0.407	0.629	0.137
D4 stream	0.386	0.143	0.220	0.048	0.746	0.276	0.426	0.092
D6 ditch	1.837	0.680	1.049	0.228	1.765	0.653	1.008	0.219
R1 pond 1st	0.568	0.210	0.325	0.070	3.313	1.226	1.892	0.411
R1 pond 2nd	0.487	0.180	0.278	0.0604	3.930	1.454	2.244	0.487
R1 stream 1st	6.750	2.500	3.854	0.837	2.444	0.904	1.396	0.303
R1 stream 2nd	6.279	2.323	3.585	0.779	3.038	1.124	1.735	0.377
R2 stream 1st	3.498	1.294	1.997	0.434	1.717	0.635	0.980	0.213
R2 stream 2nd	0.725	0.268	0.414	0.090	2.059	0.762	1.176	0.255
R3 stream 1st	13.820	5.113	7.891	1.713	5.328	1.971	3.042	0.661
R3 stream 2nd	9.0240	3.339	5.15	1.119	6.107	2.260	3.487	0.757
R4 stream 1st	4.474	1.655	2.555	0.555	2.070	0.766	1.182	0.257
R4 stream 2nd	16.360	6.053	9.342	2.029	7.697	2.848	4.395	0.954