

H1

Introduction



Welcome to the H1 Software

Version 2.7.8 - January 2017

If you find the screen fonts in the H1Tool too small to read you can use the Windows zoom feature at any time to magnify the screen by holding down the 'Windows' key and '+' key. To cancel the feature hold down the 'Windows' key and 'Esc' key.

This version of the tool accompanies the Horizontal Guidance Note H1 and the eleven supporting technical annexes.

Important Notes:

With the exception of Annex I (Landfill) and Annex J (Groundwater) this software tool can be used to complete risk assessments within the technical annexes which support H1. However, further information may need to be provided in the following areas:

- detailed assessment of fate and effects, where required
- decision-making trails for the comparison and ranking of options

This software provides a general structure for assessing costs and environmental impacts. You may need to decide the best way to apply this structure to fit the nature and pattern of your operation, in particular:

- where load is variable, such as seasonal or demand-led operations
- where a number of processes are conducted at the same time, such as integrated operations
- where a number of products are made, with possible differences in unit operations and release points employed
- where fugitive or potential emergency releases are of particular interest

Information in this database will be used to determine your EPR permit, therefore to get the most from this software tool, you should:

- read the H1 Overview document, to understand the basic principles, module structure and methods
- use the HELP boxes and refer to the H1 guidance as you progress to ensure that the data you input is representative and accurate
- use the comments boxes to clarify assumptions and data sources

This software will also output annual emissions data to an OPRA profile(s), which you can select on the Summary Tables page.



Welcome

[On line instructions on using this tool and on the H1 Methodology itself are available on Gov.UK \(click here\)](#)



ENVIRONMENT
AGENCY

In conjunction with:

www.ability-software.co.uk



Facility Reference Information

Please complete the following information:

Company Name:

Location:

Permit Number:

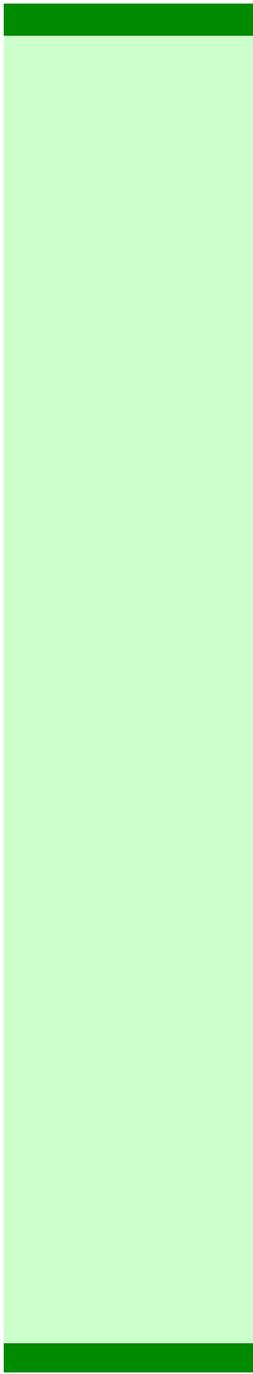
If you have data already stored in a previous version of the H1 software you may import it by pressing the button to the right.

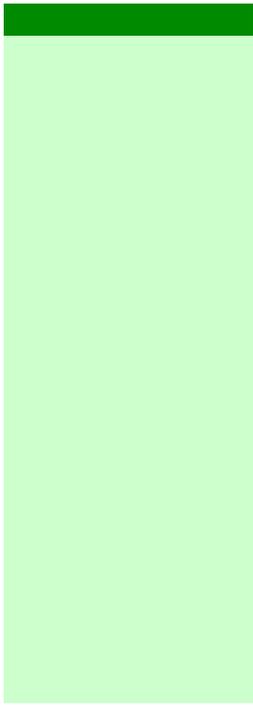
Import Utility

Please note that before the import can take place any data that already exists in this copy of the tool will be removed. Please also note that any 'Operating Mode' information you had entered in your Air and Water inventories will defer to the default of 100% on data import

NOTE ON MICROSOFT ACCESS SECURITY WARNING

Depending on your security settings, you may get a security notice appearing each time the import routine connects to a table in your source database. You need to click 'Open' on this message for the Import routine to be successful. There are 18 tables to connect to in total but if you place your cursor over the 'Open' button you will be able to repeatedly click your mouse to make this process execute quickly and without too much frustration. We apologise for this inconvenience but it is an aspect of Microsoft Security provisions that are beyond our control.





Introduction to Step 1

Step 1: Describe the Scope and Options

The aim of this step is to:

- state the OBJECTIVES of the assessment
- in the case of ENVIRONMENTAL ASSESSMENT of the whole facility, describe the scope of the activities to be included in the assessment;
- in the case of OPTIONS APPRAISALS, identify candidate options for BAT by considering all relevant techniques to prevent and minimise pollution and the scope of activities covered by the techniques.

Depending on the reason for the assessment, you will need to complete different modules of the guidance. The software will automatically select the required modules according to the responses you enter.

NOTE: If you are going to complete more than one assessment or appraisal, make sure that you create a copy of the H1 file for each new assessment BEFORE you begin to input data. This is because Microsoft Access automatically saves changes to the current file you are using, rather than allowing you to save your changes at the end of your work.

TO CONTINUE WITH STEP 1, PRESS "NEXT".





Describe the Objectives

Depending on the reason for the assessment you will need to complete different parts of the tool.

Select the type of assessment:

- a) to carry out an ENVIRONMENTAL ASSESSMENT of the releases resulting from the facility as a whole Do Steps 1, 2 and 3 only
- b) to conduct a costs/benefits OPTIONS APPRAISAL to determine BAT or support the case for derogation under the Industrial Emission Directive. Do Steps 1,2, 3 and 4 and continue with 5 and 6 if necessary

1.1 Briefly summarise the objectives and reason for the assessment in terms of the main environmental impacts or emissions to be controlled:

The H1 assessment has been used to assess the discharge of water to the Welsh Water Sewer from the new shredder/shear area. Source: run-off from slab, Treatment: Yes, applied before discharge.





Scope of Environmental Assessment

List the activities included in the assessment

Number Activity

Use the 'Add' button at the bottom left to create a new activity

1	Shredder/Shear Processing Area
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Comments:





Describe the Candidate Options

Identify all reasonably applicable options of techniques

You should include:

- a) a brief description of individual control measures or configurations of control measures selected for each option, and the activities with which they are associated (the existing base-case may conveniently be the first option).
- b) justification why any techniques generally applicable to the regulated facility have not been selected for assessment. (see relevant H1 annex) (This should be based on regulated facility-specific technical, not economic reasons).
- c) for new projects, whether any initial environmental assessment that was done at the project evaluation stage, or any screening of technology or process routes prior to this assessment, particularly where this has a bearing on environmental performance. (see H1)

In the case of b) or c)
please enter your Comments here:

Option Number	Title	Description
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1	Base-Case	
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Once a series of options have been generated for the proposed project, it is recommended that the Operator discuss these with the local Regulator to check both parties agree that the options are satisfactory. This may save the Operator from spending resources on assessment of options which are unlikely to meet the required environmental performance.

List the main activity or activities to which the release control options are applicable and any other activities that will be affected by the candidate control option on the main activity:





Introduction to Step 2

Step 2: Emissions Inventory

The aim of this Step is to produce an inventory of sources and releases of polluting substances from each option. This is used as the basis for the subsequent evaluation of environmental impacts.

For this Step you will require information on:

- release points and sources of emissions to air, water (inc. sewer) or land
- concentration and mass rate of released substances
- frequency and duration of releases and how these relate to long term and short term effects

IMPORTANT NOTES

- you may need to consider a suitable method for assessment of groups of pollutants, such as VOCs, heavy metals, uncharacterised liquid effluents, etc (see "Grouping air emissions" in Annex F).

TO CONTINUE WITH STEP 2, PRESS "NEXT".







Receiving Water Body(s)

Please define the Final Discharge Locations for Releases to Water

Are there any discharges to surface waters?

Yes

Use the 'Add' button below to list all final discharge points.

For discharges to sewer, this should be the point where the sewage works discharges to a surface water

N.B. For Riverine discharges (River, Upper Estuary) you only need enter the River description and flow once. Further details of individual releases can be entered on the next page. For discharges to TRaC waters, seperate Discharge Locations must be added for each release point that has a different mixing zone

Number	Description	Final Discharge Category	Freshwater Q95 flow rate
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1	Severn Estuary	T	Not Applicable
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Water Discharge/Release Details and Flow Data

Please define your Release Points for Releases to Water

Number	Description	Location or Grid Reference	Activity or Activities	Final Discharge Point	Discharge via Sewer?	Mean Effluent	Max Effluent
						Flow Rate*	Flow Rate*
						m3/s	m3/s
1	S5	Discharge from Shredder Slab	Waste Handling	1 Severn Estuary	Yes	0.0008	0.0060

Comments:

Assessed usingr a maximum of 6l/s to allow for extreme rainfall events (1 in 100 year + 40% Climate Change Allowance).
 J&N has calculated the mean effluent flow using the annual rainfall for Cardiff which gives an adjusted flow rate of 0.84l/s (0.00084m3/s)

* When operating





Release Concentrations of Substances Present in Discharges to Water

Please list all Substances released to Water for each Release Point identified in the previous page.

Which type of assessment method are you using? Continue with the method below.
 (See help box & H1 Annex D for information)

Method:

Reference:

Number	Substance	Meas'ment Method	Operating Mode (% of)	Average Concentration in the Effluent (AA)		Maximum Concentration in the Effluent (Max)		Annual Rate kg/yr	Sewage Treatment Factor	Significant Load (PHS Only) kg/year
				Conc. µg/l	Meas'ment Basis	Conc. µg/l	Meas'ment Basis			
1	Arsenic	Estimated	100.0%	50	Annual Avg	50		5.20344	0.89	
2	Cadmium and its compounds (100 - <200 mg/l CaCO3)	Estimated	100.0%	50	Annual Avg	50		5.20344	0.89	5
3	Chromium III (95%ile) (dissolved)	Estimated	100.0%	150	Annual Avg	150		15.61032	0.16	
4	Iron	Estimated	100.0%	200	Annual Avg	200		20.81376	0.77	
5	Copper	Estimated	100.0%	500	Annual Avg	500		52.0344	0.58	
6	Lead and it's compounds	Estimated	100.0%	200	Annual Avg	200		20.81376	0.67	
7	Nickel and its compounds	Estimated	100.0%	500	Annual Avg	500		52.0344	1	
8	Mercury and its compounds	Estimated	100.0%	5	Annual Avg	5		0.520344	1	1
9	Zinc	Estimated	100.0%	1000	Annual Avg	1000		104.0688	1	



Comments: As the discharge does not yet exist the assessment has been conducted using the proposed WW discharge consent conditions (worst case) that have been aligned to the BAT-AELs (indirect discharge to water).













Performance Indicators

Enter consumption data to determine your performance indicators

Which of the following parameters do you use for calculating your performance

Please describe and justify your choice:

Basic Consumption Data:

Specific Consumption per of :

Name	Annual Quantity	Units
Amount of Product:	<input type="text"/>	<input type="text"/>
Main Raw Material:	<input type="text"/>	<input type="text"/>
Potable Water:	<input type="text"/>	m3
Non Potable Water:	<input type="text"/>	m3
Energy:	<input type="text"/>	MWh
Waste: Inert:	<input type="text"/>	tonne
Hazardous:	<input type="text"/>	tonne
Stable Non-reactive Hazardous:	<input type="text"/>	tonne
Biodegradable Non-hazardous:	<input type="text"/>	tonne
Other Non-hazardous:	<input type="text"/>	tonne

Production Efficiency:	<input type="text"/>	/
Potable Water:	<input type="text"/>	m3
Non Potable Water:	<input type="text"/>	m3
Energy:	<input type="text"/>	MWh
Waste: Inert:	<input type="text"/>	tonne
Hazardous:	<input type="text"/>	tonne
Stable Non-reactive Hazardous:	<input type="text"/>	tonne
Biodegradable Non-hazardous:	<input type="text"/>	tonne
Other Non-hazardous:	<input type="text"/>	tonne





Introduction to Step 3

Step 3: Quantify Impacts

The aim of this Step is to quantify the effects on the environment of the releases listed in the inventory in Step 2. The guidance provides methods for assessing the eight main environmental considerations of most relevance to the EPR regime. Your releases may not result in effects to all eight of these considerations, and this tool allows you to screen out any that are not relevant.

The emissions you entered in Step 2 are automatically brought forward for assessment into each environmental consideration that is relevant for that type of release (e.g. a release may have more than one type of effect).

This part of the tool allows you to screen out any releases that are insignificant, and to identify those releases where further, detailed assessment of the potential environmental impact may be required.

IMPORTANT NOTE

This software tool only completes part of the requirements for Step 3, as described above. Depending upon the degree of risk to the environment presented by the releases, the operator may need to do further, detailed assessment of the potential effects using methodologies that are not provided here. This information should be submitted separately, as indicated within this part of the tool.

TO CONTINUE WITH STEP 3, PRESS "NEXT".





Identify Relevant Impacts

Identify any environmental impacts that are not relevant to this assessment by deselecting from the list below:

Releases in
Part 2?

No

Air

Justification for omission

Separate detailed air dispersion modelling submitted

No

Deposition from Air to Land

Separate detailed air dispersion modelling submitted

Yes

Water

No

Waste

Details included within main installation report

No

Visual

Not applicable

No

Ozone Creation

Not applicable

No

Global Warming

Details included within main installation report

If you have deselected an environmental impact as not relevant to this assessment,
no further assessment of this impact will be carried out





Local Environmental Quality

Describe the Quality of the Environment:

Provide a brief description of the main local factors that may influence the importance of the impact of emissions in the surrounding environment

Air Quality

Are there any Environmental Quality Standards relating to substances released from the activities, which may be at risk due to additional contribution from the activity ?
(Environmental Quality Standards for air and water are described in EPR Technical Guidance Notes)

No

Are there any Local Air Quality Management Plans applicable to releases from the activity?

No

Water Quality & Resources

Are there any Environmental Quality Standards relating to substances released from the activities, which may be at risk due to additional contribution from the activity?

No

Are proposals to abstract water satisfactory in order to obtain an abstraction licence?

N/A

Is the activity located in a groundwater vulnerable zone (for activities with direct releases to land only)?

No

Proximity to Sensitive Receptors

Is public annoyance likely to be an issue for noise, odour or plume visibility ?

No

Are there any wildlife habitats, eg Special Areas of Conservation, or Special Protection Areas, likely to be affected by releases from the activity? (Description of requirements of Habitats Directive is provided in EPR Technical Guidance Notes)

Protected areas exist, but are very unlikely to be subject to impact from the installation.











Water Impacts - TRaC Water Releases

Apply Test 1 (See Guidance) and Calculate Process Contributions of Emissions to Water

This table applies Test 1 and also estimates the Process Contribution for releases in to saline waters, this is calculated after dilution into the relevant surface water type for each emission to water listed in the inventory, according to the release point parameters input earlier. If you have more accurate data obtained through dilution modelling, this may be entered as indicated and will be used instead of the estimated PC. Any releases which 'Pass' Test 1 are screened out at this point.

Substance	Annual Avg EQS			MAC EQS		
	Release µg/l	EQS	Release conc < 100% EQS Test 1	Release µg/l	EQS	Release conc < 100% EQS Test 1
[S5] Arsenic (Severn Estuary)	50	25	Fail	50		N/A
[S5] Cadmium and its compounds (100 - <200 mg/l CaCO3) (Severn Estuary)	50	0.2	Fail	50	0.9	Fail
[S5] Chromium III (95%ile) (dissolved) (Severn Estuary)	150		N/A	150		N/A
[S5] Copper (Severn Estuary)	500	3.6	Fail	500		N/A
[S5] Iron (Severn Estuary)	200	1000	Pass	200		N/A
[S5] Lead and it's compounds (Severn Estuary)	200	1.3	Fail	200	14	Fail
[S5] Mercury and its compounds (Severn Estuary)	5		N/A	5	0.07	Fail
[S5] Nickel and its compounds (Severn Estuary)	500	8.6	Fail	500	34	Fail
[S5] Zinc (Severn Estuary)	1000	6.8	Fail	1000		N/A

Note that the Process Contribution shown for each substance is the sum of the individual process contributions of each point from which the substance is emitted. Process Contributions obtained from modelling data should incorporate all relevant release points and flow conditions.

* If you have valid dispersion modelling data available - please enter it here

Comments:









Water Impact Screening - TRaC Releases

TRaC Tests 3 - 5

This page applies Tests 3 to 5 of the methodology for assessing TRaC Waters

Description

S5

Is the discharge to a location with restricted dilution /dispersion characteristics

No

Is the discharge to a location less than 50m offshore or to a location where the sea bed is less than 1m below

No

Is the discharge negatively buoyant

No

Comments:





Effective Volume Flux - TRaC Water Releases

Apply Test 5 (See Guidance) and compare the Effective Volume Flux of your discharge with the Allowable Effective Volume Flux

This table applies Test 5 and enables you to enter the depth of the TRaC water discharge. From this data the Allowable Volume Flux for your location can be calculated and compared with the Effective Volume Flux of your discharge.

Description:	Location:	TRaC Water Release Depth Below Chart Datum (m):
S5	Discharge from Shredder Slab	1

Release Point and Substance	Background Conc	Release Conc	Effluent Flow	Annual Avg EQS		MAC EQS				Allow EVF
				EQS AA	EVF (AA)	Release Conc	Effluent Flow	EQS MAC	EVF (MAC)	
[S5] Arsenic	1.93	50.00	0.00	25.00	0.00	50.00	0.01			
[S5] Cadmium and its compounds (100 - <200 mg/l CaCO3)	0.07	50.00	0.00	0.20	0.32	50.00	0.01	0.90	0.36	
[S5] Chromium III (95%ile) (dissolved)	2.35	150.00	0.00	4.70	0.05	150.00	0.01	32.00	0.03	
[S5] Copper	2.04	500.00	0.00	1.00	-0.40	500.00	0.01			
[S5] Iron	0.50	200.00	0.00	1,000.00	0.00	200.00	0.01			
[S5] Lead and it's compounds	0.06	200.00	0.00	1.20	0.15	200.00	0.01	14.00	0.09	
[S5] Mercury and its compounds	0.01	5.00	0.00			5.00	0.01	0.07	0.50	
[S5] Nickel and its compounds	0.94	500.00	0.00	4.00	0.14	500.00	0.01	34.00	0.09	



vale	Test 5
1.00	Pass



TRaC Water EVF Base Option

[S5] Zinc	3.60	1,000.00	0.00	10.90	0.12	1,000.00	0.01			
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1.00

Pass



Water Impact - Significant Loads

Identify any releases which constitute a Significant Load.

This page displays any priority substances and calculates whether or not the total annual release constitutes a Significant Load. The annual mass release is calculated by multiplying the mean flow by the mean release concentration. The calculation takes into account your 'Operating Mode' (percentage of the year that the substance/effluent is discharged), if not continuous and also includes your sewage treatment reduction factor for any discharges via sewer. To see the detail, look at the 'Annual Rate(s)' shown on the Water Inventory screen for each each Release Point but note that the figure(s) shown there is before any relevant Sewage Treatment Reduction factor has been applied

Discharge Proportion:	Substance:	Annual Load: Kg	Significant Load for Substance: Kg	Part B Significant Load Test:
Severn Estuary	Cadmium and its compounds (100 - <200 mg/l CaCO3)	4.6310616	5	Pass
Severn Estuary	Mercury and its compounds	0.520344	1	Pass





Water Impact Modelling Assessment

See guidelines in H1 Annex D and respond to the following

Describe here the justification for whether detailed modelling is, or is not required for any of the releases. Refer to the guidelines in H1 Annex D.

Describe source of background information:

Describe location of detailed modelling work:





Summary Tables

Print or Preview summary tables:

Choose which summary tables

Water

Export to
Excel

Export Releases
to OPRA Profile

Preview

Print

Include

- All Air and Water Substances
- Air and Water Release Not Screend Out





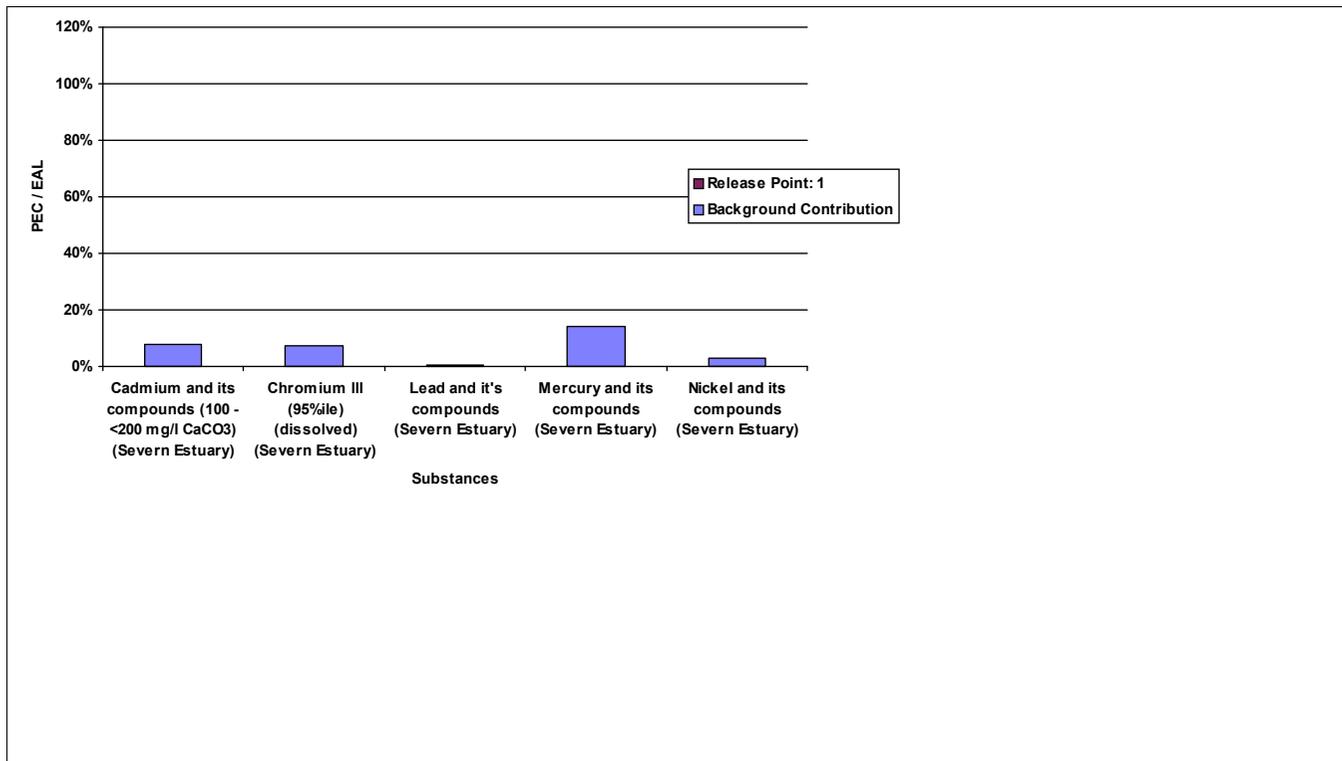
	Air Long Term Effects - Total EQ by Option

No Data Available





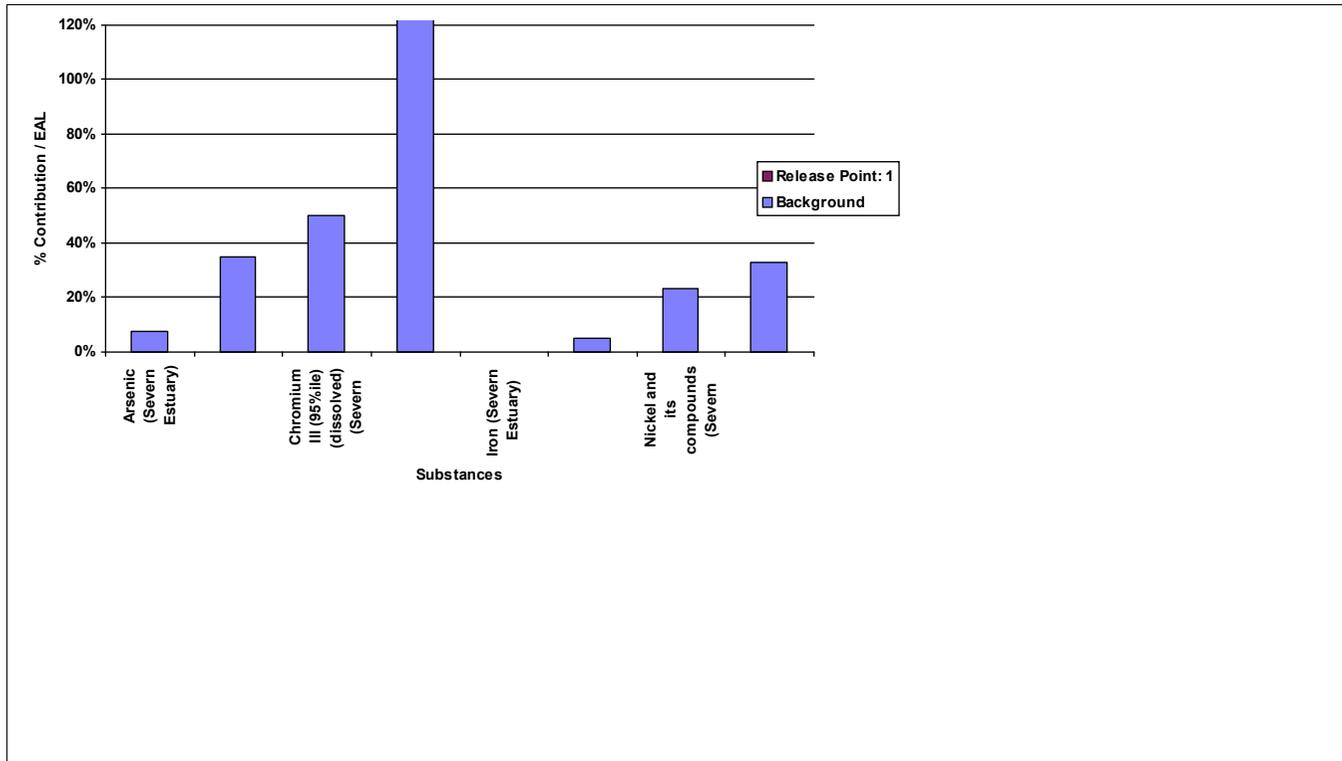
Short Term Water - Substance Comparison







Water Long Term Effects - Comparison by Substance







Summary of Environmental Assessment

You have now completed all of the steps in this software for the environmental assessment. This will provide you with:

- an inventory of all emissions sources and substances emitted from your activities
- an information trail of how the impacts of these emissions have been assessed
- a summary of the impacts

You now need to use this information to confirm whether the emissions are acceptable, i.e. that they do not cause significant pollution to occur, by responding below:

Do any of the emissions exceed any of the following:

- | | | |
|--|-----------------------------|---|
| Statutory Emission limit values: | <input type="checkbox"/> No | If yes, identify the substances concerned and improvements that are needed to at least meet the statutory requirement |
| Environmental Quality Standards (air and water): | <input type="checkbox"/> No | If yes, identify the substances concerned, the contribution from the activities and investigate whether further detailed fate and effect modelling and/or pollution controls are needed. Ensure that the relevant EQS reference conditions are applied. |
| Environmental Assessment Levels: | <input type="checkbox"/> No | If yes, identify the substances concerned, the contribution from the activities and investigate whether further detailed fate and effect modelling and/or pollution controls are needed. |

Use the box below to provide further information on any of the above to which you have responded 'Yes':

Finally, print all of the information and submit with your application. Remember to include any supplementary information and reports that you have had made reference to during the assessment procedure.





Compare Impacts between Options

The aim of this Step is to compare the overall performance of each option for all of the environmental considerations assessed in Step 3, in order to identify which option represents the lowest impact on the environment as a whole.

IMPORTANT NOTE

Unless the best option is self-evident (i.e. results in the lowest impact for all considerations), you will need to use professional judgement to decide which option is the best overall. This judgement should be made taking into account the considerations described in the H1 guidance notes and may require decisions about the relative importance of environmental considerations. The operator should submit a response to the Regulator that describes how the decision has been made. The following page provides a structure which may be used to summarise the decision-making process.

TO CONTINUE WITH STEP 4, PRESS "NEX





Compare the Options

Review the graphs and summary data to rank the options according to environmental impact

Is the best Option self-evident?
i.e. results in the lowest impact in all environmental considerations

No

Is cost information required before the Best Available Technique can be selected?
If yes, continue to Part 5, after resolving cross media conflicts (next page) where relevant.

No

Compare the Options

Review the graphs and summary data to rank the options according to environmental impact

Is the best Option self-evident?
i.e. results in the lowest impact in all environmental considerations

No

Is cost information required before the Best Available Technique can be selected?
If yes, continue to Part 5, after resolving cross media conflicts (next page) where relevant.

No





Resolve Cross Media Conflicts

Environmental Consideration	Importance	Comments / Justification
Releases to Air	Long Term:	<input type="text"/>
	Short Term:	<input type="text"/>
Deposition to Land:		<input type="text"/>
Releases to Water	Long Term:	<input type="text"/>
	Short Term:	<input type="text"/>
Visual:		<input type="text"/>
POCP:		<input type="text"/>
GWP:		<input type="text"/>
Disposal of Waste:		<input type="text"/>

Provide a description of how cross media conflicts have been resolved:

This will require reasoned judgement, with reference to any decisions or assumptions made over the relative importance of different environmental impacts. See H1 for requirements, guidelines and examples to assist in the process. You may submit this information

Location or reference to information on resolution of cross media conflicts:

Present a summary of the final ranking of options in the table below:

Number	Title	Ranking
1	Base-Case	<input type="text"/>



Resolve Cross Media Conflicts

Environmental Consideration	Importance	Comments / Justification
Releases to Air	Long Term:	
	Short Term:	
Deposition to Land:		
Releases to Water	Long Term:	
	Short Term:	
Visual:		
POCP:		
GWP:		
Disposal of Waste:		

Provide a description of how cross media conflicts have been resolved:

This will require reasoned judgement, with reference to any decisions or assumptions made over the relative importance of different environmental impacts. See H1 for requirements, guidelines and examples to assist in the process. You may submit this information

Location or reference to information on resolution of cross media conflicts:

Present a summary of the final ranking of options in the table below:



Option Ranking

Number	Title	Ranking
1	Base-Case	





	Summary of Option Appraisal

You have now completed all of the steps in this software for appraisal of BAT.

Finally, print all of the information and submit with your application. Remember to include any supplementary information and reports that you have had made reference to during the assessment procedure.



