

# 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.

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

## 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.

## 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:**

To assess the environmental impact from discharge of surface water from site

## 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	Storage of permitted waste
2	Stage 1. Removal of refrigerants and oil
3	Stage 2a. Manual dismantling
4	Stage 2b. Destruction of carcasses and compaction of insulation panels

Comments

## Air Release Points

Please define your Release Points for Releases to Air

Are there any Air emissions?

Yes

Number	Description	Location or Grid Reference	Activity or Activities	Effective Height metres	Efflux Velocity m/s	Total Flow m3/hr
1	SP1	South of main building	granulator and pelletiser	2		
2	SP2	west of main building	crusher/shredder/fragmantiser	2		

Comments

## Air Emissions Inventory

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

Number	Substance	Meas'ment Method	Operating Mode (% of)	Data relating to Long Term effects			Data relating to Short Term effects			Annual Rate tonne/yr	ELV Conc. mg/m3
				Conc.	Release Rate	Meas'ment Basis	Conc.	Release Rate	Meas'ment Basis		
				mg/m3	g/s		mg/m3	g/s			
1	Particulates (PM10) (24 hr Mean)	Periodic*	100.0%	10.0			10.0		24 hr Mean		
2	n-pentane	Periodic*	100.0%	15.0			15.0				

Measurement method: \* provide detail in comments box

Comments:

## Air Emissions Inventory

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

Number	Substance	Meas'ment Method	Operating Mode (% of)	Data relating to Long Term effects			Data relating to Short Term effects			Annual Rate tonne/yr	ELV Conc. mg/m3
				Conc.	Release Rate	Meas'ment Basis	Conc.	Release Rate	Meas'ment Basis		
				mg/m3	g/s		mg/m3	g/s			
1	Particulates (PM10) (24 hr Mean)		100.0%								
2	n-pentane		100.0%								

Measurement method: \* provide detail in comments box

Comments:

## 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	S1	SP855645	front yard: processing	1 Swanspool Brook	No	0.0050	0.0100
2	S2	SP854646	storage area: storage	1 Swanspool Brook	No	0.0050	0.0100

Comments

\* 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	Significant Load (PHS Only) kg/year
				Conc. µg/l	Meas'ment Basis	Conc. µg/l	Meas'ment Basis		
1	Ammonia (un-ionised)	Spot	100.0%	933	Annual Avg	2700	15 minute	147.11544	
2	Copper	Spot	100.0%	182	Annual Avg	790	15 minute	28.69776	
3	Nickel and its compounds	Spot	100.0%	7.33	Annual Avg	22	15 minute	1.1557944	
4	Zinc	Spot	100.0%	980	Annual Avg	4400	15 minute	154.5264	

Comments

## 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	Significant Load (PHS Only) kg/year
				Conc. µg/l	Meas'ment Basis	Conc. µg/l	Meas'ment Basis		
1	Zinc	Spot	100.0%	4047	Annual Avg	14000	15 minute	638.13096	
2	Copper	Spot	100.0%	401	Annual Avg	760	15 minutes	63.22968	

Comments

## Water Temperature

Where relevant, please enter temperature of effluent for each release point.

This table is to check that the effluent is acceptable, i.e. within the required temperature range. It is not used to make relative judgement between options.

Discharge Location	Release Point	Measurement Method	High Normal Rate	High Peak Rate	Max Temp. Difference	Benchmarks		
						Max Summer	Max Winter	Max Temp
1 Swanspool Brook	1 S1	Periodic*				21.5	10	2
1 Swanspool Brook	2 S2	Periodic*				21.5	10	2

Comments

## Water pH

Where relevant, please enter pH of effluent for each release point.

This table is to check that the effluent is acceptable, i.e. within the required pH range. It is not used to make relative judgement between options.

Discharge Location	Release Point	Measurement Method	High Normal Rate	High Peak Rate	Low Normal Rate	Low Peak Rate	pH of Receiving Water	Do artificial variations caused by effluent exceed 0.5pH units?
1 Swanspool Brook	1 S1	Periodic*	7.8	7.8	7.4	7.4	7	No
1 Swanspool Brook	2 S2	Periodic*	7.8	7.8	7.4	7.4	7	No

Comments

### Identify Relevant Impacts

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

Releases in Part 2?

Yes

Air

Justification for omission

Yes

Deposition from Air to Land

not in scope

Yes

Water

No

Waste

not in scope

Yes

Visual

not in scope

Yes

Ozone Creation

not in scope

Yes

Global Warming

not in scope

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

## Air Impacts

## Calculate Process Contributions of Emissions to Air

This table estimates the Process Contribution (PC), calculated as the maximum ground level concentration for each emission listed in the inventory, according to the release point parameters input earlier. If you have more accurate data obtained through dispersion modelling, this may be entered as indicated and will be used instead of the estimated PC.

Number	Substance	Long Term			Short Term		
		EAL $\mu\text{g}/\text{m}^3$	PC $\mu\text{g}/\text{m}^3$	* Modelled PC $\mu\text{g}/\text{m}^3$	EAL $\mu\text{g}/\text{m}^3$	PC $\mu\text{g}/\text{m}^3$	Modelled PC $\mu\text{g}/\text{m}^3$
1	Particulates (PM10) (24 hr Mean)		-		50	-	

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.

\* State the location of any detailed air dispersion modelling and also the main assumptions:      Comments

## Air Impact Screening Stage One

### Screen out Insignificant Emissions to Air

This page displays the Process Contribution as a proportion of the EAL or EQS. Emissions with PCs that are less than the criteria indicated may be screened from further assessment as they are likely to have an insignificant impact.

Number	Substance	Long Term EAL µg/m3	Short Term EAL µg/m3	Long Term			Short Term		
				PC µg/m3	% PC of EAL %	> 1% of EAL?	PC µg/m3	% PC of EAL %	> 10% of EAL?
1	Particulates (PM10) (24 hr Mean)	-	50.0	-	-		-	-	

## Water Impacts - Fresh 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 Freshwater releases, 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 µg/l	Release conc < 10% EQS Test 1	Release µg/l	MAC µg/l	Release conc < 10% EQS Test 1
[S1] Ammonia (un-ionised) (Swanspool Brook)	933.0000		N/A	2700.0000		N/A
[S1] Copper (Swanspool Brook)	182.0000	1.0000	Fail	790.0000		N/A
[S1] Nickel and its compounds (Swanspool Brook)	7.3300	4.0000	Fail	22.0000	34	Fail
[S1] Zinc (Swanspool Brook)	980.0000	10.9000	Fail	4400.0000		N/A
[S2] Copper (Swanspool Brook)	401.0000	1.0000	Fail	760.0000		N/A
[S2] Zinc (Swanspool Brook)	4047.0000	10.9000	Fail	14000.0000		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 - Fresh Water Releases

### Apply Test 2

This page applies Test 2 and displays the Process Contribution as a proportion of the EQS. Emissions with PCs that are less than 4% of the EQS can be screened from further assessment as they are likely to have an insignificant impact.

Substance	Annual Avg EQS					MAC EQS				
	Annual Avg EQS µg/l	PC µg/l	Modelled PC	% PC of EQS %	PC < 4% of EQS? <b>Test 2</b>	MAC EQS µg/l	PC µg/l	Modelled PC	% PC of MAC %	PC < 4% of MAC? <b>Test 2</b>
Copper (Swanspool Brook)	1	2.1577		215.77	Fail		11.3887		-	Pass
Nickel and its compounds (Swanspool Brook)	4	0.0272		0.68	Pass	34	0.1628		0.479	Pass
Zinc (Swanspool Brook)	10.9	18.6047		170.69	Fail		135.1947		-	Pass
Comments										

## Water Impact Screening (Predicted Environmental Concentration) - Fresh Water Releases

Apply Tests 3 and 4 and identify which releases may need more Detailed Modelling of Emissions/Discharges to Water

This page applies Tests 3, 4a and 4b and displays the Predicted Environmental Concentrations in relation to the background pollutant levels and the AA or MAC EQS. Any substances that pass all 3 of these tests can be screened out. Substances failing any of the tests must be modelled. Note that releases that have passed Tests 1 and 2 are insignificant are not shown as they are already screened out.

Number	Substance	Bkgrnd Conc. µg/l	Annual Avg EQS				MAC* EQS					
			PC µg/l	PEC µg/l	(PEC - BC)/ EQS	PEC -BC >10% AA EQS	% PEC of EQS %	PEC >100% AA EQS	PC µg/l	PEC µg/l	% PEC of MAC %	PEC >100% MAC
						Test 3		Test 4a				Test 4b
2	Copper (Swanspool Brook)	16	2.16	18.2	215.8%	Fail	1,816	Fail	11.4	0	-	Pass
4	Zinc (Swanspool Brook)	110	18.7	129	170.7%	Fail	1,180	Fail	135	0	-	Pass

\* MAC = Maximum Allowable Concentration

Describe source of background information or reference to relevant documentation here: