

H1



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.

Introduction

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.

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:

Assessment of the impacts of emissions to air and GWP from the proposed Energy from Waste facility

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	Incineration of 230,000 tpa of treated non-hazardous waste
---	--

Comments

	<div style="border: 1px solid black; height: 100px;"></div>
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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	125 MWth waste to energy facility, burning 390,000 tpa of treated non-hazardous waste
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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".

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	A1	Stack	Waste incineration	95	21.2	174354

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 effect			Annual Rate tonne/yr	ELV Conc. mg/m3
				Conc. mg/m3	Release Rate g/s	Meas'ment Basis	Conc. mg/m3	Release Rate g/s	Meas'ment Basis		
1	Hydrogen chloride	Estimated*	100.0%	6.0	#####	daily avg	60.0	#####	Half-hourly average (100%)	9.1640	
2	Sulphur Dioxide (24 Hour Mean)	Estimated*	100.0%	30.0	#####	daily avg	200.0	#####	Half-hourly average (100%)	45.8202	
3	Nitrogen Dioxide	Estimated*	100.0%	120.0	#####	daily avg	400.0	#####	Half-hourly average (100%)	183.2809	
4	Carbon monoxide	Estimated*	100.0%	50.0	#####	daily avg	100.0	#####	half-hourly avg	76.3671	
5	Dioxins and Furans	Estimated*	100.0%	0.0	#####	avg over sampling period	0.0	#####	Avg over min 6 hours and max 8 hours	0.0000	
6	Polychlorinated biphenyls	Estimated*	100.0%	0.0	#####		0.0	#####		0.0076	
7	Polycyclic aromatic hydrocarbons (PAH)-total content within PM10 fraction	Estimated*	100.0%	0.0	#####		0.0	#####		0.0015	
8	Cadmium and its compounds (as Cd)	Estimated*	100.0%	0.0	#####	avg over sampling period	0.1	#####	Avg over min 30 mins and max 8 hours	0.0305	
9	Mercury and compounds, except mercury alkyls, (as	Estimated*	100.0%	0.0	#####	daily avg or avg over sampling period	0.1	#####	Avg over min 30 mins and max 8 hours	0.0305	
10	Antimony and compounds (as Sb)	Estimated*	100.0%	0.3	#####	avg over	0.5	#####	Avg over	0.4582	

Air Emissions Inventory Base Option

	except antimony tri					sampling period			min 30 mins and max 8 hours	
11	Arsenic and compounds (as As)	Estimated*	100.0%	0.3	#####	avg over sampling period	0.5	#####	Avg over min 30 mins and max 8 hours	0.4582
12	Lead	Estimated*	100.0%	0.3	#####	avg over sampling period	0.5	#####	Avg over min 30 mins and max 8 hours	0.4582
13	Manganese and compounds (as Mn)	Estimated*	100.0%	0.3	#####	avg over sampling period	0.5	#####	Avg over min 30 mins and max 8 hours	0.4582
14	Chromium, chromium (II) compounds and chromium (III) compounds as Cr	Estimated*	100.0%	0.3	#####	avg over sampling period	0.5	#####	Avg over min 30 mins and max 8 hours	0.4582
15	Nickel (total Ni compounds in the PM10 fraction)	Estimated*	100.0%	0.3	#####	avg over sampling period	0.5	#####	Avg over min 30 mins and max 8 hours	0.4582
16	Vanadium	Estimated*	100.0%	0.3	#####	avg over sampling period	0.5	#####	Avg over min 30 mins and max 8 hours	0.4582
17	Copper dusts and mists (as CU)	Estimated*	100.0%	0.3	#####	avg over sampling period	0.5	#####	Avg over min 30 mins and max 8 hours	0.4582
18	Particulates (PM10) (Annual Mean)	Estimated*	100.0%	5.0	#####	daily avg	30.0	#####	Half-hourly average (100%)	7.6367
19	Carbon dioxide	Estimated*	100.0%	33361.9	#####		33361.9	#####		#####
20	Ammonia (human health receptor)	Estimated*	100.0%	10.0	#####	daily avg	10.0	#####		15.2734
21	Hydrogen fluoride (as F) (Monthly Mean)	Estimated*	100.0%	1.0	#####	daily avg or avg over sampling period	4.0	#####	Half-hourly average (100%)	1.5273
22	TOC	Estimated*	100.0%	10.0	#####	daily avg	20.0	#####	Half-hourly average (100%)	15.2734

Measurement method: * provide detail in comments box

Comments: Long term values are the upper end of the BAT-AELs for new incinerators, short term are the IED half hourly (100%) limits where these exist.

For As; Sb; Cr; Co; Cu; Pb; Mn; Ni and V the concentration is assumed to be at 100% of the limit total for that group of metals (0.3mg/Nm³ total).

Note H1 does not include data for Co and TI or PCDD/F + dioxin-like PCBs. These are therefore excluded from the assessment but are considered within the detailed air dispersion modelling report (Appendix B).

Long term based on BAT AELs for all pollutants included in the BAT conclusions, or IED limits if not. PCBs and PAHs are based on achievable emissions in the waste incineration BREF.

Normalised to 11% O₂, dry, 0 degrees C, 101.3 kPa.

CO₂ emission based on CO₂ per annum of 50,955 tonnes from the planning stage Carbon assessment. Concentration has been back calculated on this basis. Note the CO₂ concentration includes biogenic and nonbiogenic carbon and nitrous oxide emissions from burning waste and use of auxiliary/back-up power. Nitrous oxide is not an air pollutant and impacts relate to GWP, therefore a separate entry for nitrous oxides has not been included to avoid duplication.

Mass Emissions based on 8,760 hours operation per annum to be conservative



Energy Consumption

Please list all Energy Sources and Annual Consumption

Select energy sources by Clicking on 'Add' and using the pull-down list.

Number	Energy Sources	Delivered MWh/yr	Conversion Factor	Primary MWh/yr	CO2 Factor	CO2 tonne/yr
1	Electricity from other source (specify in c indirect emissions					

Comments

Electricity used by plant during normal operation and fuel burned for auxiliary and back up firing are not included to avoid double counting as GWP it is included in releases from stack calculated in Carbon assessment.

Raw Materials

Please list all Raw Materials Consumed:

Number	Material	Annual Consumption	Units
1	Non-potable Water	24800	tonnes/year
2	Waste feedstock	230000	tonnes/year
3	Hydrated lime	3000	tonnes/year
4	Activated carbon	120	tonnes/year
5	Ammonium hydroxide	1050	tonnes/year

Comments Data provided by Britaniacrest. Note urea may be used in place of ammonium hydroxide.

Performance Indicators

Enter consumption data to determine your performance indicators

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

Product

Please describe and justify your choice

Basic Consumption Data

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" value="24,800.00"/>	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

Specific Consumption per of :

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?

Yes

Air

Justification for omission

Yes

Deposition from Air to Land

No

Water

no process releases to water

Yes

Waste

No

Visual

Yes

Ozone Creation

Yes

Global Warming

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)

Yes, air quality standards apply to releases from the facility. See Air Quality Assessment, Appendix B to the main application

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

See Air Quality Assessment, Appendix B to the main application

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?

N/A - no process releases to water

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

N/A - no process releases to water

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

N/A - no direct releases to land

Proximity to Sensitive Receptors

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

See Environmental Risk Assessment, Appendix D to the main application

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)

Yes - see Air Quality assessment, Appendix B to the main application

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 µg/m3	PC µg/m3	* Modelled PC µg/m3	EAL µg/m3	PC µg/m3	Modelled PC µg/m3
1	Hydrogen chloride		0.0383	1.3	750	28.6	7.7
2	Sulphur Dioxide (24 Hour Mean)		0.192	1.2	125	95.3	4.9
3	Nitrogen Dioxide	40	0.766	0.6	200	190	11.5
4	Carbon monoxide		0.319	4.6	10000	47.7	
6	Polychlorinated biphenyls	0.2	0.00003188	0.00002	6	0.00239	
7	Polycyclic aromatic hydrocarbons (PAH)-total content within PM10 fraction	1	0.00000638	#####		0.000477	
8	Cadmium and its compounds (as Cd)	0.005	0.000128	0.0002		0.0239	
9	Mercury and compounds, except mercury alkyls, (as	0.25	0.000128	0.0002	7.5	0.0239	
10	Antimony and compounds (as Sb) except antimony tri	5	0.00192	0.002	150	0.239	
11	Arsenic and compounds (as As)	0.003	0.00192	0.002		0.239	
12	Lead	0.5	0.00192	0.002		0.239	
13	Manganese and compounds (as Mn)	0.15	0.00192	0.002	1500	0.239	
14	Chromium, chromium (II) compounds and chromium (III) compounds as Cr	5	0.00192	0.002	150	0.239	
15	Nickel (total Ni compounds in the PM10 fraction)	0.02	0.00192	0.002		0.239	
16	Vanadium	5	0.00192	0.002	1	0.239	
17	Copper dusts and mists (as CU)	10	0.00192	0.002	200	0.239	
18	Particulates (PM10) (Annual Mean)	40	0.0319	0.04		14.3	
20	Ammonia (human health receptor)	180	0.0638	0.04	2500	4.77	
21	Hydrogen fluoride (as F) (Monthly Mean)	16	0.00775	0.1	160	1.91	0.5

Air Impacts Base Option

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		Long Term			Short Term		
		EAL	EAL	PC	% PC of EAL	> 1% of EAL?	PC	% PC of EAL	> 10% of EAL?
		µg/m3	µg/m3	µg/m3	%		µg/m3	%	
1	Hydrogen chloride	-	750	1.31	-		7.71	1.03	No
2	Sulphur Dioxide (24 Hour Mean)	-	125	1.21	-		4.91	3.93	No
3	Nitrogen Dioxide	40.0	200	0.601	1.51	Yes	11.6	5.76	No
4	Carbon monoxide	-	10,000	4.60	-		47.7	0.477	No
6	Polychlorinated biphenyls	0.201	6.00	0.00002000	0.01001	No	0.00239	0.0397	No
7	Polycyclic aromatic hydrocarbons (PAH)-total content within PM10 fraction	1.000	-	0.00003990	0.00400	No	0.000477	-	
8	Cadmium and its compounds (as Cd)	0.00500	-	0.000201	4.00	Yes	0.0239	-	
9	Mercury and compounds, except mercury alkyls, (as	0.251	7.51	0.000201	0.0801	No	0.0239	0.318	No
10	Antimony and compounds (as Sb) except antimony tri	5.00	150	0.00201	0.0401	No	0.239	0.159	No
11	Arsenic and compounds (as As)	0.00301	-	0.00201	66.7	Yes	0.239	-	
12	Lead	0.501	-	0.00201	0.401	No	0.239	-	
13	Manganese and compounds (as Mn)	0.151	1,500	0.00201	1.34	Yes	0.239	0.0159	No
14	Chromium, chromium (II)	5.00	150	0.00201	0.0401	No	0.239	0.159	No

Air Impact Screening Base Option

	compounds and chromium (III) compounds as Cr								
15	Nickel (total Ni compounds in the PM10 fraction)	0.0201	-	0.00201	10.00	Yes	0.239	-	
16	Vanadium	5.00	1.000	0.00201	0.0401	No	0.239	23.9	Yes
17	Copper dusts and mists (as CU)	10.00	200	0.00201	0.0201	No	0.239	0.120	No
18	Particulates (PM10) (Annual Mean)	40.0	-	0.0401	0.1001	No	14.3	-	
20	Ammonia (human health receptor)	180	2,500	0.0401	0.0223	No	4.77	0.191	No
21	Hydrogen fluoride (as F) (Monthly Mean)	16.0	160	0.1001	0.626	No	0.501	0.313	No

Air Impact Modelling Stage Two Screening

Identify need for Detailed Modelling of Emissions to Air

This page displays the Process Contributions in relation to the background pollutant levels and the EAL or EQS. You should use this information to decide whether to conduct detailed modelling. Note that releases that are insignificant are not shown as they are screened from further assessment. Also complete this page if you have already done detailed modelling.

Number	Substance	Air Bkgrnd Conc. µg/m3	PC µg/m3	Long Term			Short Term			
				% PC of headroom (EAL -	PEC mg/m3	% PEC of EAL %	% PEC of EAL >=70?	PC µg/m3	% PC of headroom (EAL - Bkgrnd)	% PC of headroom >=20?
3	Nitrogen Dioxide	11.9	0.601	2.14	12.6	31.3	No	11.6	6.53	No
8	Cadmium and its compounds (as Cd)	0.00025	0.000201	4.22	0.000451	9.00	No	0.0239	-	
11	Arsenic and compounds (as As)	0.00099	0.00201	99.6	0.00300	99.7	Yes	0.239	-	
13	Manganese and compounds (as Mn)	0.00569	0.00201	1.39	0.00769	5.13	No	0.239	0.0159	No
15	Nickel (total Ni compounds in the PM10 fraction)	0.00088	0.00201	10.5	0.00289	14.5	No	0.239	-	
16	Vanadium	0.001	0.00201	0.0401	0	0	No	0.239	23.9	Yes

Air Impact Modelling Assessment

See guidelines in H1 Annex F section entitled "Decide if you need detailed air modelling."

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 F

Detailed modelling has been undertaken for all pollutants - see Appendix B to the main application

Describe source of background information:

Air Quality Assessment (2018) - Appendix B to the main application

Document Reference of detailed modelling work:

Air Quality Assessment (2018) - Appendix B to the main application

Deposition to Land from Air

With reference to H1 Guidance, describe assessment of deposition below:

Number	Substance	% PC of EAL %	Insignificant?	Decision whether to screen as insignificant Reason (See section "Deposition of air emissions onto land/Screen out insignificant emissions" of Annex F in H1).
1	Hydrogen chloride	-	Yes	
2	Sulphur Dioxide (24 Hour Mean)	-	Yes	
3	Nitrogen Dioxide	1.51	Yes	
4	Carbon monoxide	-	Yes	
5	Dioxins and Furans	-	Yes	
6	Polychlorinated biphenyls	0.01001	Yes	
7	Polycyclic aromatic hydrocarbons (PAH)-total content within PM10 fraction	0.00400	No	

Deposition to Land from Air Base Option

8	Cadmium and its compounds (as Cd)	4.00	Yes	
9	Mercury and compounds, except mercury alkyls, (as	0.0801	Yes	
10	Antimony and compounds (as Sb) except antimony tri	0.0401	Yes	
11	Arsenic and compounds (as As)	66.7	Yes	The predictions are based on the assumption that arsenic comprises the total of the group 3 metals emissions. In reality, the IED emission limit applies to all nine of the group 3 metals. If the emissions limit is assumed to apply equally to each of the
12	Lead	0.401	Yes	
13	Manganese and compounds (as Mn)	1.34	Yes	
14	Chromium, chromium (II) compounds and chromium (III) compounds as Cr	0.0401	No	
15	Nickel (total Ni compounds in the PM10 fraction)	10.00	Yes	
16	Vanadium	0.0401	Yes	The predictions are based on the assumption that arsenic comprises the total of the group 3 metals emissions. In reality, the IED emission limit applies to all nine of the group 3 metals. If the emissions limit is assumed to apply equally to each of the m
17	Copper dusts and mists (as CU)	0.0201	Yes	

Deposition to Land from Air Base Option

18 Particulates (PM10) (Annual Mean) 0.1001 Yes

19 Carbon dioxide - Yes

20 Ammonia (human health receptor) 0.0223 Yes

21 Hydrogen fluoride (as F) (Monthly Mean) 0.626 Yes

22 TOC - Yes

For those emissions not screened as insignificant, describe the location of any further assessment here:

Visual Impacts

Assess the visual impacts of plumes generated from the release points

Can ANY of the Options generate a visible plume

Can any of the release points generate a Visible Plume?

Photochemical Ozone Creation Impacts

Number	Substance	Annual Rate tonne/yr	POCP Value per tonne	POCP
2	Sulphur Dioxide (24 Hour Mean)	45.82	4.8	219.94
3	Nitrogen Dioxide	183.28	2.8	513.19
4	Carbon monoxide	76.37	2.7	206.19
			Total:	939.31

Comments

Global Warming Potential Impacts

Substance	Source	Annual Rate MWh/yr	GWP Value per tonne	Annual GWP
CO2 Energy: indirect	indirect emissions		1.00	
Carbon dioxide Process: direct	A1	50,955.00	1.00	50,955.00
			Total:	50,955.00

Comments

Note: GWP as calculated from the Carbon assessment includes biogenic and non-biogenic carbon and nitrous oxide emissions from burning waste and for energy used at the EfW plant including that associated with the parasitic demand of the plant which is supplied by burning waste and back-up / auxiliary firing supplied by burning fuel oil (i.e. these are included within the direct process emissions).

Summary Tables

Print or Preview summary tables:

Choose which summary tables

Air
Deposition from Air to Land
Waste
Visual
Ozone Creation
Global Warming

Export to
Excel

Export Releases
to OPRA Profile

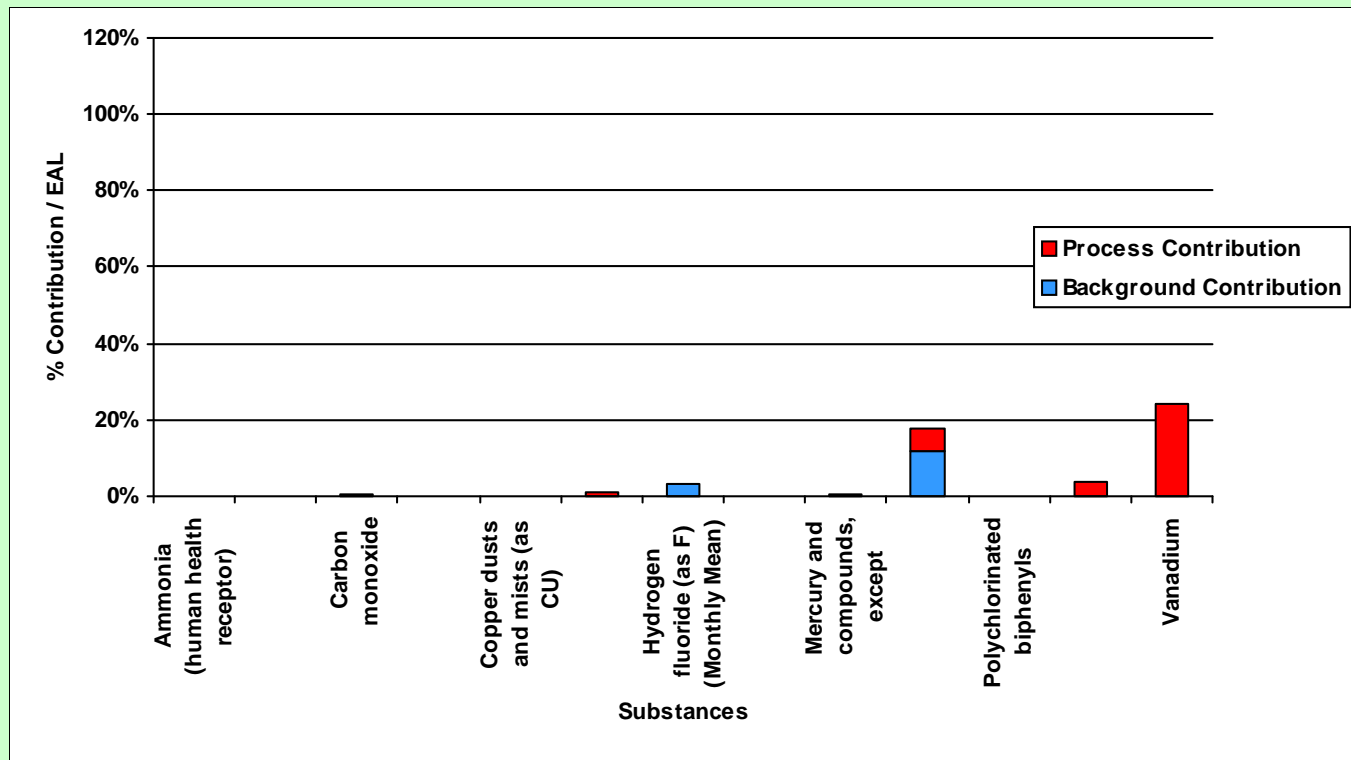
Preview

Print

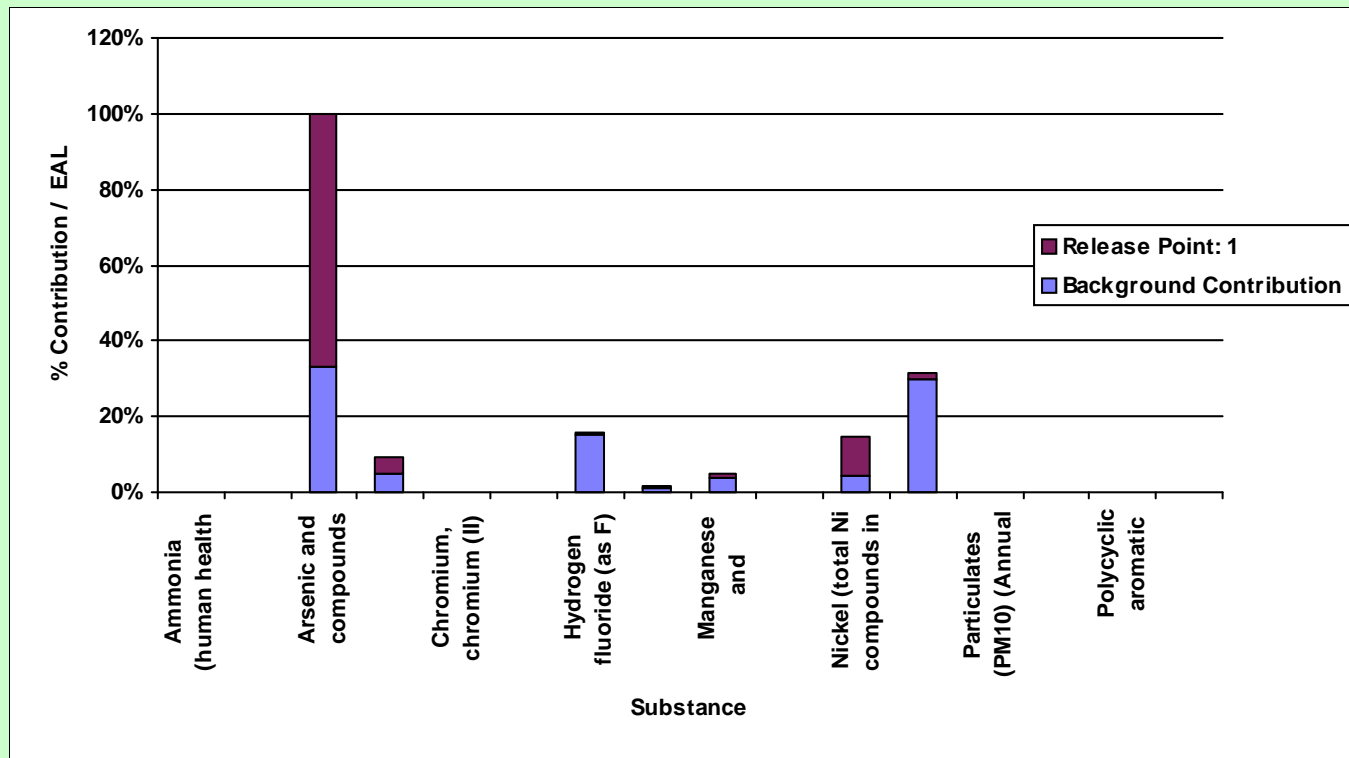
Include

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

Air Short Term Effects - Comparison by Substance



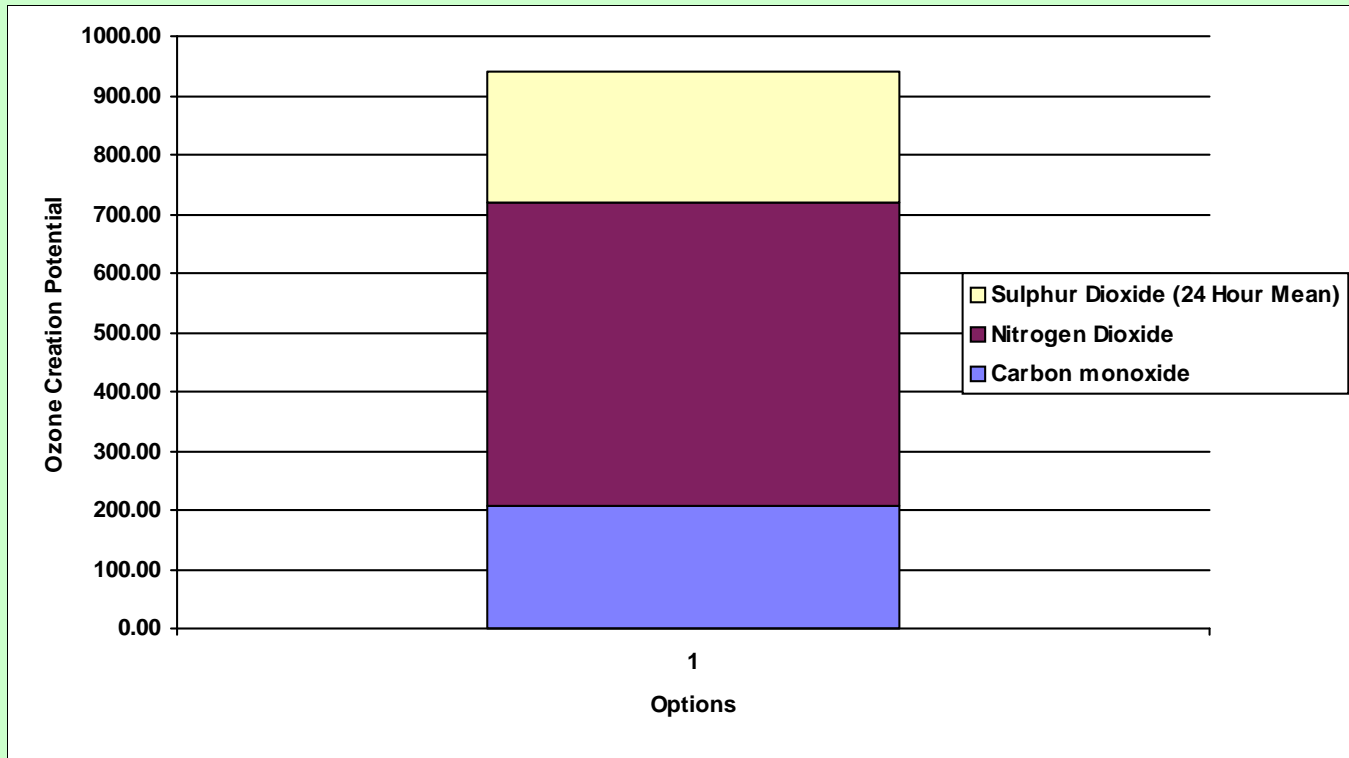
Air Long Term Effects - Comparison by Substance



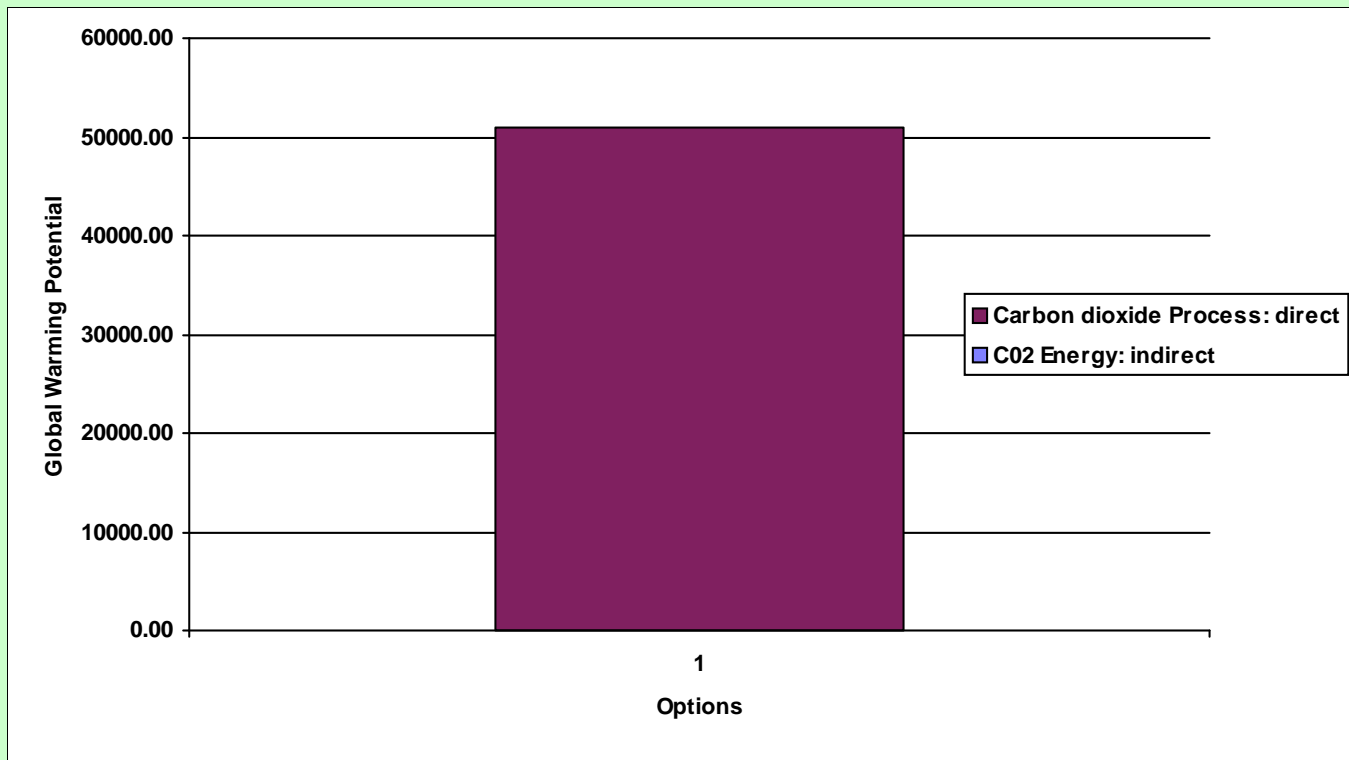
Water Long Term Effects - Total EQ by Option

No Data Available

Ozone Creation - Substance Comparison



Global Warming - Substance Comparison



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"/> Yes | 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':

Nitrogen dioxide and arsenic - further modelling has been undertaken and they have been screened out as insignificant. See Appendix C to the main application

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 style="width: 50px;" type="text"/>

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"/>	<input type="text"/>
Releases to Water	Long Term:	<input type="text"/>
	Short Term:	<input type="text"/>
Visual:	<input type="text"/>	<input type="text"/>
POCP:	<input type="text"/>	<input type="text"/>
GWP:	<input type="text"/>	<input type="text"/>
Disposal of Waste:	<input type="text"/>	<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:

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.