

Welcome to the H1 software

Introduction

This version of the database tool accompanies the IPPC Guidance version H1v6 July 2003.

This software tool is for use with the IPPC guidance note H1 "Environmental Assessment & BAT Appraisal". The H1 guidance provides a structured methodology to demonstrate that an activity uses the Best Available Techniques, by:

- assessing the the costs and environmental benefits of options for pollution prevention and control techniques; and
- conducting an environmental assessment to demonstrate that no significant pollution is caused.

Important Notes:

This software tool can be used to complete most of the modules within 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 PPC permit, therefore to get the most from this software tool, you should:

- read the introduction to the H1 guidance, 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

Some basic instructions for using the software tool are provided in Appendix I of the H1 Guidance



The application has been optimised for a screen resolution of 800 x 600

Version 1.6.0 24 July 2003



www.ability-software.co.uk

Reference Information

Please complete the following information:

Company Name:

Shanks Waste Management Ltd

Location:

Pontypool MBT Plant, pontyfelin ind estate

Permit Number:

Module 1: Describe the Scope and Options

The aim of this module is to:

- state the OBJECTIVES of the assessment
- in the case of ENVIRONMENTAL ASSESSMENT of the whole installation, 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 MODULE 1, PRESS "NEXT".

Describe the Objectives

Depending on the reason for the assessment, you will need to complete different modules of the guidance.

Select the type of assessment:

- a) to conduct a costs/benefits OPTIONS APPRAISAL to determine BAT for selected releases from an installation
- Do modules 1,2, 3 and 4 and continue with 5 and 6 if necessary
- b) to carry out an ENVIRONMENTAL ASSESSMENT of the emissions resulting from the installation as a whole
- Do modules 1, 2 and 3 only

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 impact of all emissions from all activities within a mechanical biological treatment plant (Bio-MR2F) for municipal waste and from a MRF located on the same site.

List the activities included in the assessment

This should include all the activities in your permit, broken down into the basic process steps, such as: raw materials storage, handling, processing, emission control, waste treatment etc. as appropriate. See section 1.2 of H1 for guidance and use the comments box below to provide any additional information.

Number Activity

1	Treatment of mixed municipal solid waste to produce segregated recyclables and stabilize in the Bio-MR2F
2	Treatment of air emissions from the Bio-MR2F
3	Collection and disposal of leachate streams from the Bio-MR2F

Comments

--

Module 2: Emissions Inventory

The aim of this module 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 module you will require information on:

- release points and sources of emissions to all media
- concentration and mass rate of emitted substances
- frequency and duration of emissions 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 H1 guidance for details).

TO CONTINUE WITH MODULE 2, PRESS "NEXT".

Air Release Points

Please define your Release Points for Releases to Air

Are there any Air emissions?

Number	Description	Location or Grid Reference	Activity or Activities	Effective Height	Efflux Velocity	Total Flow
1	Baghouse filter stack (2	Roof of materials refining area	Release of abated particulate matter	17	18	82800
2	Biofilters (*3)	Roof of Bio-MR2F buildings	Release of abated emissions	0	0.028	75600
3	Biofilters (*3)	Roof of Bio-MR2F buildings	Release of abated emissions	0	0.028	75600
4	Carbon filter	Adjacent to lagoon	Release of carbon			

Comments

1. Total for two stacks/six biofilters
2. Concentrations given are the limits guaranteed by Ecodeco. Actual concentrations are likely to be lower.
3. Releases are continuous and there will be no pulsed releases; short term emissions are not relevant.
4. Release rate is calculated by multiplying the concentration by the normalised flow rate of 23 Nm³/s for the biofilter emissions and 21.9 Nm³/s for the baghouse filters.

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 (if relevant)	Data relating to Long Term effects			Data relating to Short Term effect			Annual Rate	ELV Conc.
				Conc.	Release Rate	Meas'ment Basis	Conc.	Release Rate	Meas'ment Basis		
1	Particulates	Continuous	100%	10	0.23				7.25	10	

Measurement method: * provide detail in comments box Comments

1. Total for two stacks/six biofilters
2. Concentrations given are the limits guaranteed by Ecodeco. Actual concentrations are likely to be lower.
3. Releases are continuous and there will be no pulsed releases; short term emissions are not relevant.
4. Release rate is calculated by multiplying the concentration by the normalised flow rate of 23 Nm³/s for the biofilter emissions and 21.9 Nm³/s for the baghouse filters.

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 (if relevant)	Data relating to Long Term effects			Data relating to Short Term effect			Annual Rate	ELV Conc.
				Conc.	Release Rate	Meas'ment Basis	Conc.	Release Rate	Meas'ment Basis		
1	Benzene	Continuous	100%	0.15	0.00315	annual avg				0.099	0.016
2	Ammonia (human health receptor)	Continuous	100%	5	0.105	annual avg				3.311	0.18
3	Hydrogen sulphide	Continuous	100%	5	0.105	annual avg				3.311	0.14
4	Sulphur dioxide (human health receptor)	Continuous	100%	0.085	0.001785	annual avg				0.056	0.05
5	Trimethylbenzenes, all isomers or mixtures	Continuous	100%	0.307	0.006447	annual avg				0.203	1.25
6	n-propylbenzene	Continuous	100%	0.22	0.00462	annual avg				0.146	
7	n-nonane	Continuous	100%	0.366	0.007686	annual avg				0.243	
8	Ethylbenzene	Continuous	100%	0.256	0.005376	annual avg				0.169	4.41
9	Styrene	Continuous	100%	0.091	0.001911	annual avg				0.06	0.8
10	p-xylene	Continuous	100%	0.204	0.004284	annual avg				0.135	4.41
11	2-methylhexane	Continuous	100%	0.132	0.002772	annual avg				0.087	
12	3-methylhexane	Continuous	100%	0.034	0.000714	annual avg				0.224	
13	Trichloroethylene	Continuous	100%	0.13	0.00273	annual avg				0.086	1.1
14	Toluene	Continuous	100%	0.801	0.016821	annual avg				0.53	1.91
15	2-methylpentane	Continuous	100%	0.03	0.00063	annual avg				0.019	
16	Acetic acid	Continuous	100%	0.025	0.000525	annual avg				0.017	0.25
17	n-Hexane	Continuous	100%	0.042	0.000882	annual avg				0.028	0.72
18	Cyclohexene	Continuous	100%	0.132	0.002772	annual avg				0.087	10.2
19	n-decane	Continuous	100%	0.65	0.01365	annual avg				0.43	
20	n-heptane	Continuous	100%	0.114	0.002394	annual avg				0.075	
21	1,1,1-Trichloroethane	Continuous	100%	0.054	0.001134	annual avg				0.036	11.1
22	n-octane	Continuous	100%	0.138	0.002898	annual avg				0.091	

23	n-pentane	Continuous	100%	0.03	0.00063	annual avg			0.019
----	-----------	------------	------	------	---------	------------	--	--	-------

Measurement method: * provide detail in comments box Comments

1. Total for two stacks/six biofilters
2. Concentrations given are the limits guaranteed by Ecodeco. Actual concentrations are likely to be lower.
3. Releases are continuous and there will be no pulsed releases; short term emissions are not relevant.
4. Release rate is calculated by multiplying the concentration by the normalised flow rate of 23 Nm³/s for the biofilter emissions and 21.9 Nm³/s for the baghouse filters.

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 IPPC Technical Guidance Notes)

Yes - see separate report in Section C (Air Quality Assessment)

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

A review has been completed by Hampshire County Council and no Air Quality Management Area has been declared. Refer to website used.
REBECCA CHECK

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 ?

Odour is potentially an issue at the site (See B0.1.4 of Part B form. Noise is not considered to be an issue due to the lack of any significant point sources, the location of the plant relative to sensitive receptors and the nature of its surrounding area which is heavy industry. (See B0.1.6 of Part B form). Plume visibility is managed through the heating of the flue gases prior to their release from the stack and is not subject to regular substantiated complaints, see ASR Table X

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 IPPC Technical Guidance Notes)

The New Forest is a Ramsar site, SAC and SPA and lies within 0.3 km to the South and 0.8 km SW of the site.
The Solent and Southampton Water is a Ramsar site and SPA and lies approximately 0.8 km to the NE.
The Hythe to Calshot Marshes is a SAC and SPA and lies approximately 0.8 km NE.

3.3.1 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	PC	* Modelled PC	EAL	PC	Modelled PC
1	Particulates	40	2.95		50	66.0	
1	Benzene	16.25	0.933		208	24.6	
2	Ammonia (human health receptor)	180	31.1		2500	819	
3	Hydrogen sulphide	140	31.1		150	819	
4	Sulphur dioxide (human health receptor)	50	0.529		267	14.0	
5	Trimethylbenzenes, all isomers or mixtures	1250	1.91		37500	50.3	
8	Ethylbenzene	4410	1.60		55200	42.0	
9	Styrene	800	0.566		800	15.0	
13	Trichloroethylene	1100	0.809		1000	21.3	
14	Toluene	1910	4.98		8000	131	
16	Acetic acid	250	0.156		3700	4.10	
17	n-Hexane	720	0.262		21600	6.88	
18	Cyclohexene	10200	0.821		306000	21.7	
21	1,1,1-Trichloroethane	11100	0.336		222000	8.85	

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

3.3.2 Air Impact Screening

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	Short Term EAL	Long Term			Short Term		
				PC	% PC of EAL	> 1% of EAL?	PC	% PC of EAL	> 10% of EAL?
1	Particulates	40.0	50.0	2.95	7.38	Yes	66.0	132	Yes
1	Benzene	16.3	208	0.933	5.74	Yes	24.6	11.9	Yes
2	Ammonia (human health receptor)	180	2,500	31.1	17.3	Yes	819	32.8	Yes
3	Hydrogen sulphide	140	150	31.1	22.3	Yes	819	546	Yes
4	Sulphur dioxide (human health receptor)	50.0	267	0.529	1.06	Yes	14.0	5.22	No
5	Trimethylbenzenes, all isomers or mixtures	1,250	37,500	1.91	0.153	No	50.3	0.135	No
8	Ethylbenzene	4,410	55,200	1.60	0.0361	No	42.0	0.0760	No
9	Styrene	800	800	0.566	0.0708	No	15.0	1.87	No
13	Trichloroethylene	1,100	1,000	0.809	0.0735	No	21.3	2.13	No
14	Toluene	1,910	8,000	4.98	0.261	No	131	1.65	No
16	Acetic acid	250	3,700	0.156	0.0622	No	4.10	0.111	No
17	n-Hexane	720	21,600	0.262	0.0363	No	6.88	0.0319	No
18	Cyclohexene	10,200	306,000	0.821	0.00805	No	21.7	0.00707	No
21	1,1,1-Trichloroethane	11,100	222,000	0.336	0.00303	No	8.85	0.00399	No

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.	PC	Long Term			Short Term	
				% PC of headroom (EAL -	PEC	% PEC of EAL	PC	% PC of headroom (EAL - Bkgrnd)
1	Particulates		2.95	-	-	-	66.0	-
1	Benzene		0.933	-	-	-	24.6	-
2	Ammonia (human health receptor)		31.1	-	-	-	819	-
3	Hydrogen sulphide		31.1	-	-	-	819	-
4	Sulphur dioxide (human health receptor)		0.529	-	-	-	14.0	-

See guidelines in H1 section 3.3.3 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 section 3.3.3

Detailed modelling is required as the levels of Nitrogen Dioxide, Sulphur Dioxide, Particulates, Cadmium, and Hydrogen Chloride were above the required percentage of the appropriate EALs. Benzene is shown as an exceedence but in fact has been utilised to demonstrate a VOC at the WID limit. Actual monitoring data does not indicate significant levels of Benzene.

Describe source of background information:

Amanda

Document Reference of detailed modelling work:

Section C Detailed Air Quality Assessment