environment & tourism

Department:
Environmental Affairs and Tourism
REPUBLIC OF SOUTH AFRICA

NATIONAL POLICY DEVELOPMENT PROCESS FOR HIGH TEMPERATURE WASTE INCINERATION AND AFR CO-PROCESSING IN CEMENT PRODUCTION

FINAL COMMENTS AND RESPONSE REPORT

August 2007 – March 2009

Date :	23/03/2009

CONTENTS

1. Dr T Paterson, Aluminium Federation of Southern Africa (AFSA); 15/10/2007	
Comments	**Response**
I was at the public meeting regarding the air cleanliness legislation held on 10th October. Item 3 from the handout titled "Listed Activities and Minimum Emissions Standards Project" gives the basis for the selection criteria. This is "that option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term". This is the essence of the environmental aspect of sustainable development and cannot be faulted as a concept. Sustainable development relates to people, prosperity and planet and is applied locally, regionally and globally. However, the policies you suggest do not appear to meet this criterion. They "are to be based (only?) on good science and robust data." What am I not understanding? Alternatively has a cost benefit assessment been undertaken and where can this be accessed?	There has not been a cost benefit analysis done by the Department, this study is not to determine feasibility of the technologies, but merely the acceptability of the technologies being considered. Although incineration is more expensive than landfilling, DEAT obtained information which identifies that the costs associated with co-processing will be similar to that of landfilling.

2. Mr B Bowles, eco2 (Lafarge NPC-CIMPOR); 26/10/2007	
Comments	**Response**
On the p.25 table Jorn [Dr Lauridsen] gives a List of Waste Types and includes S_{ut} as a type that cannot be handled by cement kilns. Would you explain what this and the other waste types shown are? *(Referring to Literature Review on High Temperature Thermal Treatment of Hazardous Waste, COWI, 10/11/2007)*	The term S_{UT} = Solids (un-treated) refers to dedicated hazardous waste incineration plants where a crane can load about 2 500 kg of untreated solids (of many kinds) direct into the rotary kiln. That is not normally done in a cement kiln, where the solids normally has to be treated and changed into minor constituents before introducing it to the kiln.

3. Mr D Hughes, Plastics Federation of South Africa (PFSA); 06/11/2007	
Comments	**Response**
Since the Plastics Federation has little understanding of the cement production process, we have nothing of value to offer opposite the document you sent. *(Referring to 'South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste', SINTEF, 05/11/2007)*	Noted.

4. Mr R Euripidou, groundWork; 05/11/2007	
Comments	**Response**
1. Can you please urgently email me copies of the docs you are using in this process (listed below) as well as any previous relevant policy papers used by the DEAT in this process: - National Waste Management Strategy (NWMS), 15 October 1999 (Revision 2009/2010) - White Paper on Integrated Pollution & Waste Management (IPWM), 2000 - National Environmental Management: Waste Act (2007/2008) - The emerging Health Care Waste Management Policy (2008) - And do we know when the waste minimisation and landfill policies will be available? Are there any drafts yet?	Please note that the National Waste Management Strategy, The White Paper on Integrated Pollution & Waste Management and the Draft Health Care Waste Management Policy are on the DEAT website at http:www.environment.gov.za. The first two documents are under the heading policies and legislation and the Draft HCRW policy is under the NWMS implementation project which is visible on the homepage. We have however for your convenience e-mailed you copies of the documents through our consultant Mr H Crous. [*E-mailed on 07/11/2007 and 12/11/2007*] Work with respect to the development of a Waste Minimisation Policy and Landfill Policy is ongoing through the implementation of the Directorate's business plan, although specific projects have yet been completed
2. Please provide me with whatever data you are you have available on current cement kiln emissions and compliance?	For current kiln emissions, we refer you to the Cement Kiln Technology Assessment which has just been completed and distributed. The information as far as it is available is included toward the end of the document in a table format on pages 47 and 48.
3. There are a range of figures for the potential waste arising in SA yet none of these figures is available in the consultation docs you have provided us. Please give me a breakdown by waste type you are using which is essential for determination of appropriate treatment or elimination alternatives. Do you have any additional information or data on this? (COWI in their "literature review" provide some data from Denmark but NOT SA)	The waste types being used will, as far as it is available be contained in a document which has been identified in the TOR for the International Consultant "The Comparative Assessment of South African versus international waste profiles". This output will only be finalised towards the end of November beginning of December. It will be distributed to all once finalised.
4. Please clarify exactly what are the "Current applications (PPC 5, Holcim 1,NPC 1) Others? Please also clarify how many kilns are proposed to co-process at each facility etc.	The number of EIA applications initiated to date are: - 1 Holcim/Afrisam (Re- application for the Dudfield plant) - 1 NPC/Cimpor EIA have been initiated (Simuma plant, KwaZulu Natal) - 5 PPC EIA applications (Hercules, Gauteng; Dwaalboom, Limpopo; Slurry, North West; Port Elizabeth, Eastern Cape and De Hoek, Western Cape) The number of kilns which are intended to co-process hazardous waste are to some extent contained in the Cement Kiln Technology Assessment, however we would suggest for the definitive answer you should check the EIA's. At our next Stakeholder meeting when the industry is present it will also be possible to confirm the number.
5. Please clarify what is meant by the DEAT comment that: "Two decisions have been finalized which were conflicting – blending platform approved but not constructed due to uncertainty w.r.t the kilns" - What are the two decisions? Why are they conflicting and what was the uncertainty?	The comment that two conflicting decisions have been reached related to the EIA authorisation which was denied by the North West Province in 2005 for Holcim's proposed use of AFR's at their Dudfield plant and the authorisation which was granted by the Northern Cape Province for essentially the same activity at the Ulco plant. It should, however, be qualified that the reasons for the negative ROD did not relate to the technology but to the air quality study which did not adequately consider all cumulative impacts. The "uncertainty" relates to the blending platform, which has been approved, but no capital will be spent on the development until it is known that the kilns will be able to accept the blended wastes.

5. Mr B Wigston, Sentrachem; 07/11/2007	
Comments	**Response**
I am happy with this document and support the testing of alternate fuels in certain approved kilns. However what is not mentioned here is that the cement industry has difficulties in handling significant quantities of wastes with high chlorine contents or wastes containing significant heavy metals, especially mercury. For this reason disposal in approved landfills must remain part of the policy mix until alternate technologies become technically and economically feasible. These alternate technologies should include gasification which shows the most promise in terms of energy efficiency/recovery while reducing unacceptable toxic emissions. *(Referring to 'South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste', SINTEF, 05/11/2007)*	Noted. The limitations posed by the composition of certain waste streams are being considered and is discussed in the literature reviews on *Co-processing of Alternative Fuels and Raw Materials, and Hazardous Wastes in Cement Kilns* (SINTEF, 06/09/2007) and *Cement Production Technology* (SINTEF, 21/09/2007). DEAT is considering high temperature thermal treatment and use of AFRs in cement kilns as two of the options for integrated management of waste in SA, together with landfill (although the least favoured alternative) and other options such as minimisation and recycling, as identified in the Waste Management Hierarchy, which reflects an integrated waste management system.

6. Mr R Euripidou, groundWork; 08/11/2007	
Comments	**Response**
Thanks for all the docs. I have a couple of observations and queries from some of the reports we have reviewed thus far. Please respond ASAP to assist us in keeping to the November 26 deadline: 1. Hanre why on earth are the documents from Kare protected so that you can't copy from them or use the acrobat editing features for comments and review. This is silly for a consultation document and viewed as obstructionist.	The restriction on editing and copying documents is a SINTEF policy to avoid misuse. The document composition is in no way intended to be obstructionist.
2. Whilst Kare discusses the kilns he has visited in general terms that gives little away the tables on pages 47 and 48 (attached) are quite interesting. Not least because for the kilns currently processing secondary materials there is no dioxin, PCB, metals or VOC data. This is simply shocking. Does this mean that these kilns were never ever tested for these or does this mean the some of the data for various kilns have been omitted? If the latter is found to be the case then I would interpret this as being deliberately misleading! I therefore urge you to disclose ALL data available for ALL the cement kilns in SA (even those not proposing to burn AFR since these data are also predictive of the status quo in SA.	Note that all the emission test results that were provided have been included in the document – none have been omitted. Where results were not included, the tests have not been done, i.e. the reality is that not many kilns have done VOC or dioxin emission tests.
3. The temperatures of the ESPs in Port Elizabeth and Slurry # 7 are high and these are likely to produce a lot of dioxins. NOx levels are generally very high also.	Noted. Exit gas temperature is one of a number of factors that may affect the level of dioxin formation in thermal processes. Due to the nature of the process, NOx emissions from cement kilns are relatively high.
4. The metals data for Afrisam says "See attachment" which is also not provided – please provide these data.	Data for Afrisam attached to e-mail, and would be included in the final version of the report *South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste.*
5. Also please provide any other data which can be used to validate these generally single data points? From the data provided and omitted it does not appear that a true picture has been presented.	Detailed investigations and considerations of each kiln would form part of the specific EIAs that are being conducted, which would be reviewed within the context of BAT/BEP and requirements.

7. Mr G Rittner, Thermoselect; 08/11/2007	
Comments	**Response**
I know that is unfortunate that we are only now getting involved at a time when this work shop has reached an advanced stage, but we were invited to attend at a very late stage. There are a number of conclusions with which we do not agree. The following comments are based on information received from Thermoselect's head office:- • The UK will not be building any further incineration plants. Although there will not be any "banning" of incineration plants, the fact is that they will not meet the current environmental stands; • In Germany at the moment it is not an issue as they have a large number of existing incineration plants and are not planning any additional ones for the foreseeable future;. • Japan has built and is operating 7 gasification plants using Thermoselect technology; • In Canada, the City of Montreal has just received a report on an investigation it commissioned recommending the erection of four Thermoselect gasification plants for the treatment of the city's waste. The report concludes that incineration will not meet the city's environmental standards. Please find my translation of an article coming from Montreal, attached. (see next page)	Thermoselect has been participating in the process since 3 October 2007, and effectively only missed out on the initial focus group meeting in August 2007, the first meeting where stakeholders were engaged with, and was provided with all project documents generated up to 3 October. Thermoselect manufactures and markets gasification plants for the thermal treatment of general and hazardous waste. Although indications are provided that incineration (presumably conventional incineration plants) would not be supported in some countries, no supporting documentation was provided. Research done as part of the policy development process found that 'incinerators' can and are complying with current standards of the EU Directive 2000/76EC (see *Literature Review on High Temperature Thermal Treatment of Hazardous Waste* - COWI, 10/11/2007). The current policy development process considers the high temperature thermal treatment of waste, and does not attempt to evaluate specific thermal treatment technologies (e.g. incineration, pyrolysis, gasification etc.). International legislation and standards refers to incineration in general, and nowhere is gasification singled-out as a particular or preferred thermal treatment technology.
Regarding the disposal of waste in cement kilns, Thermoselect feels that you are likely to encounter the following problems: • The rate at which waste can be introduced into a cement kiln is very limited. It will only make a minor contribution to solving the problem of disposing of MSW in cities; • The type of waste that is to be introduced into the kilns needs to be carefully selected. This is costly and results in major odour emission. In Germany this year, two such waste sorting sites were closed because of the very high odour level experienced by the surrounding population; and • to clean the gas leaving the cement kiln requires major capital investments in treatment equipment. We know that it will be inconvenient to go back to the beginning, and that there is great pressure from consultants advocating incineration. But we believe that SA should not go down this path at a time when the EC is already preparing the paper Annex V of the Directive 2000/76/EC. If at all possible we would like to get the chance to make a presentation during a next work shop.	Cement kilns can in fact accommodate large volumes of waste as AFR depending on the type and composition thereof. Unsorted municipal waste would not be used as AFR, and the intention is not to solve MSW disposal problems using cement kilns. The types of waste used as AFR are evaluated based on certain constraints associated with kilns and required product quality, emission standards etc. Pre-processing/blending of waste is an activity that requires careful management to prevent the problems mentioned. Any investment required to comply with standards would be for the evaluation of each company. Due to the inherent characteristics of cement kilns, most would not require major investment into treatment equipment. It is not clear why or what exactly is implied by going back to the beginning, as these comments were received at a relatively early stage and incorporated into the policy process. The relevance of Annex 5 is also unclear. Although requests for a presentation at stakeholder workshops were received, this was not possible due to time constraints and Thermoselect's primary intention of advocating their specific gasification technology (confirmed during a meeting between Thermoselect and Mr H Crous (ESA)

	on 29 October 2007), and the evaluation of specific thermal treatment technologies not within the scope of the policy development process. It must be noted that the consultants have not been employed to pressure the Department to make any decisions. The consultants have been employed to provide the science associated with the two technologies.
Article Translation www.lesaffaires.com from 27.10. til 2.11.2007 **Project for about 1 billion $ to treat the waste in the region of Montreal** Environment: A study proposes the construction of four plants for the gasification of waste. It is possible that the City of Montreal is going to invest more than one billion dollars to establish a centre to treat municipal waste using the latest technology. This is the conclusion of a study, done by SNC-Lavalin and Solinov, a copy of which has been obtained by "Les Affaires". This study recommends a very new solution to waste treatment that will require building four plants to gasify the waste instead of disposing it in landfills, resulting in extremely low emissions of green house gases. In addition, the two companies suggest the construction of four to six centres for the composting of plant waste, which will be collected separately. The study, commissioned by the Metropolitan Authority of Montreal, recommends that the four gasification plants should be located at sites within the city of Montreal itself and in the northern and southern districts. **Waste to produce energy.** In contrast to what happens with incineration, still in use in Quebec and Levis, gasification results in practically no emission of any CO2. During the gasification process, the waste is heated to up to 2000 degrees Celsius and reacted with a limited amount of oxygen. The process produces a synthetic gas which is collected and used as a fuel instead of being blown into the atmosphere. The authors of the study estimate the cost of constructing the four plants at about $ 850 million, with a total working capacity of 875 000 tonnes/year. According to the study, although the process is expensive, it has some significant advantages compared with incineration or landfill with biogas collection. This technique also eliminates the problem of lixiviate, a liquid produced during the decomposition of land filled waste and which needs to be treated. A further conclusion of the study by SNC-Lavalin and Solinov, is that gasification does not produce any ash or other material that requires to be disposed of in a landfill, but instead produces metal and mineral granulates, which can be used by industry. THERMOSELECT, the chosen Swiss technology supplier has industrial sized in operations in Italy, Germany and Japan.	Any properly managed and operated thermal waste treatment process is preferable to landfill in terms of the Waste Management Hierarchy. Use of this synthetic gas as fuel would ultimately release CO_2.

8. Mr A Cluett, Afrisam SA (Holcim); 09/11/2007

Comments

Comment on South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste' (SINTEF, 05/11/2007):

Page #	Paragraph / Aspect	Reads	Recommendation/ Comment
13/75	1.4 Para 1	,several suppliers applied that	, Several suppliers applied that
20/75	Para 3	In order to keep heat losses at minimum	In order to keep heat losses at a minimum
26/75	Para 1	speaking SO_2 and NO_2. emissions	speaking SO_2 and NO_2 emissions
26/75	Para 2	As the industry produces an equal weight of CO_2 and clinker…	As the industry produces an almost equal mass of CO_2 and clinker… *(Industry figures indicate that 942 kg CO_2 are generated per ton of clinker).*
31/75	Bullet 1	Mineral wastes containing significantly quantities	Mineral wastes containing significant quantities
34/75	6.1 Para 1	South African cement plants was visited	South African cement plants were visited
35/75	Plant legend	Legend reference to Alpha	Please change to Holcim
36/75	Figure 7	Nathal Portland Cement	Natal Portland Cement
38/75	Figure 9	Photo not of a kiln	Please consider change to attached photo.
40/75	Second bullet	i.e. Escom	i.e. ESKOM
"	"	air pollution control instability.	air pollution control instability where fitted with ESPs.
47/75	Table	Ulco Clinker production 130 000	Ulco Clinker production 1 300 000
48/75	Table	No Energy consumption (Mj/t clinker) for PPC kilns.	Insert missing row of PPC Energy consumption

A photograph of the Ulco Plant that shows the kiln is provided as a possible replacement for "Figure 9".

Response

Noted. The proposed corrections / amendments would be included in the final version of the report *South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste.*

9. Mr E Otterman, PPC Cement; 15/11/2007	
Comments	**Response**
Comment on South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste (SINTEF, 05/11/2007):	
Definitions The document refers to both ESP and EP for an Electrostatic Precipitator.	Noted. The EP will be amended with ESP.
Section 4.2 A long term average of 500 mg/NM^3 for new kilns is an European Emissions Standard that does not take South African conditions into account. South African Coal has higher Nitrogen content than other coals. A more realistic standard would be 1000 mg/Nm^3 for new kilns.	The setting of proposed Co-processing Emission Standards has considered the South African context, but also international standards and BAT/BEP. The proposed corrections / amendments would be included in the final version of the report *South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste.*
Figure 6 Please note that Alpha is now called Afrisam, PPC also has a cement operation in Germiston, called Jupiter, not in the diagram.	
Findings – Exit gas conditioning The paragraph indicates that long kilns, with no exit gas conditioning, may have favourable conditions for the formation of dioxins and furans. This is due to the fact that the exit gas temperatures are higher than 200 Deg C. The author of the report is reminded that a number of conditions are required for the formation of dioxins and furans. The temperature is only one of those conditions. The presence of the right temperature window does not indicate dioxin formation, but indicates that one of the many conditions required is present. PPC would appreciate more clarity on what has to be "checked" as quoted in the report.	
Page 43 There is existing regulation for the storage and handling of waste in South Africa. The handling and storage of AFR is currently regulated by that legislation. Please also find a few pictures for Slurry, Port Elizabeth, Dwaalboom, Hercules.	This is noted and accepted, the document will be amended.

10. Mr B Bowles, eco2 (Lafarge NPC-CIMPOR); 26/11/2007	
Comments	**Response**
Can you advise when the guidelines will be issued?	Although envisaged that the draft guideline would be completed by end 2007, the first draft *Guideline for Treatment of Hazardous Wastes and Co-processing of AFRs in Cement Kilns* (SINTEF, 07/01/2008) was finalised in January 2008 and distributed to stakeholders for comment on 08/01/2008.
At two recent meetings DEAT indicated that the EIA's would be much simpler document to complete because there would be a legal policy which would provide certainty with respect to the technology. As I understood it, the scoping document would also not be necessary for each type of fuel, trials could still be necessary by cement kilns themselves to determine addition rates and performance measurements including emission rates etc. (which would be reported to government) but unless a kiln was going to burn something that was not acknowledged as a waste fuel e.g. PCB's above 50 ppm or using a fuel that may contain an excess of a particular contaminant then a scoping document would not be required.	The authorisation processes are still under review, particularly as it pertains to the three different approvals required – Environmental Authorisation, Air Emission Licence and Waste Permit. Although a policy position and supporting standards and guidelines would ensure uniform and empowered decision-making, and also clarify what would be required from project proponents, the law and specifically the EIA Regulations require that specific steps are followed and reports generated(e.g. Scoping), which cannot be eliminated through the policy. The intention would however be to address all aspects adequately through the policy development and associated requirements to avoid an additional legal-administrative burden, such as having to apply for approval for use of each individual waste stream as AFR.

11. Mr A Watson, Public Interest Consultants o.b.o. groundWork; 26/11/2007	
Comments	**Response**
Please find below the holding response on behalf of Groundwork to the Consultation on a National Policy Development Process For High Temperature Thermal Waste Treatment. I will forward the full file and appendices shortly. **Summary** There can be little doubt that the development of a comprehensive policy on hazardous waste production and management is an urgent and essential requirement for South Africa. It is disturbing, however, to see that the current consultation and most of the associated reports appear to have been developed in a policy vacuum and have tenuous, if any, links with the emerging waste policy framework in South Africa. No explanation is offered for the failure to do this and it is assumed that the reason is largely related to the appointment of external consultants with little knowledge of the previous developments. An alternative, possibly less charitable explanation, would be that such linkages would highlight the failure of DEAT to deliver on previous promises and deadlines.	Noted. The key issues raised in this preliminary communication were included in the detailed submission from Mr Watson submitted on behalf of groundWork on 20 December 2008. Refer to Section 14 (pg. 27) of this document for the detailed response. The regulatory framework for waste is mature in that there is Policy of Integrated Pollution and Waste Management, there is a first version of a National Waste Management, there is an Act which manages waste in the Country and a second is progressing through the parliamentary process, there is a set of Minimum Requirements for the management of waste both general and hazardous, baseline documents have been produced on waste generation and there are a number of draft regulations and further policies underway within DEAT. The consultants are aware of these documents and have used them through the process.

Comments	Response
It is important to recognise these failures, however, as they are indicative of some of the problems of developing an appropriate policy, legislative, regulatory and operational framework for wastes where little or none currently exists. The over-optimistic projections made at the end of the last century risk being repeated - but with possibly greater environmental damage and with greater risks to the credibility of the administration, if the current rush to sanction thermal treatments is not appropriately tempered with the reality of the current capacity for effective regulation and control. The evidence indicates that the environmental costs of landfill and incineration are broadly similar but the social costs of incineration are much higher because of the higher capital costs. Therefore, rather than place such strong emphasis on incineration and thermal treatment at this stage, it is strongly recommended that DEAT should focus on longer term and more sustainable solutions. Priority should be given to waste minimisation and implementation of the Zero Waste declaration made at Polokwane in 2001.	The policy development process has been driven by pressure from NGO's, provinces and industry to have clear guidance on the use of high temperature thermal treatment technologies in the country. DEAT is therefore responding to the urgent needs of various stakeholders in the country.
The Existing Policy Framework and Context:	
The recent historical legacy of the incineration in the US, Japan and Europe – where serious contamination has been caused through high emissions to atmosphere and careless handling of ash residues could all too easily be repeated in South Africa. The cost to the waste management industry of overcoming those problems in the developed world has been enormous – both financially and in loss of credibility and public goodwill. According to Lukey *et al*., (Lukey, Brijlall et al. 2004) and Seeliger *et al*. (Seeliger, van der Westhuizen et al. 2003) the South African government has been perceived to be unwilling and/or unable to enforce pollution and waste-related legislation (Godfrey and Nahman 2007). It is vital that South Africa in this late rush to make apparent progress should learn from these mistakes.	Much research has been undertaken on incineration and the co-processing of alternative fuels and raw materials since the 1960's. The science is advanced and risks both on human health and the environment have been carefully considered.
In 1999 the National Waste Management Strategies and Action Plan (South African Department of Environmental Affairs and Tourism (DEAT) 1999) laid out the "immediate objectives" which were to be achieved by implementation of this Action Plan over the period July 1999 to December 2004. These objectives included the development of first generation integrated hazardous waste management plans which were to be developed by the provincial environmental departments and reviewed by national government within the period 2002 to 2004. The plan required that municipalities to finalise their IWMPs by 2003 and that they "will be ready for implementation in January 2005".	The inclusion of this comment with respect to the policy development process is not clear.

Comments	Response
Yet Godfrey (Godfrey and Nahman 2007) reports that as at mid-2005, only 58.3% of municipalities who responded to their questionnaire had completed, or were in the process of completing, an IWMP. Of those municipalities that have completed IWMPs, many of these documents are in fact only Status Quo Analyses, a first step towards IWMPs.	
A review of capacity assessments of local municipalities in South Africa (Municipal Demarcation Board 2005) indicated that 59.7% of municipalities could not fully perform their waste management functions as assigned to them under legislation, due principally to insufficient budgets, insufficient staff and insufficient equipment.	Noted.
The development of waste policy in South Africa has been closely followed and recently reviewed by Godfrey (Godfrey and Nahman 2007) The findings of on-going research conducted within South Africa on waste policy instruments shows that while typical command-and-control instruments lack effective monitoring and enforcement, alternative policy instruments such as economic or information based strategies, are either slow to find favour or fail soon after implementation.	In the past year every commercial health care risk waste incinerator has been inspected and action has been taken against those that do not comply.
Developing countries, such as South Africa, face a number of challenges to the successful implementation of alternative, first world, waste policy instruments including institutional challenges (financial and human resources); insufficient political support; an unsupportive legal environment; lack of clarity regarding the role of government and the intention of policy, leading to a lack of ownership and to ineffective policy; and a lack of supporting data.	Noted.
These challenges do not, however, imply that there is no place for such instruments in developing countries. Instead, what is needed in the implementation of waste policy instruments in developing countries is a stage- based, tailored approach, which takes cognisance of identified challenges in their design and implementation, thereby recognising the realities of developing country circumstances. There is no evidence that this approach has been adopted in the current consultation documents nor is there any obvious recognition of the fundamental importance of the range of policy instruments that are required if a holistic waste strategy, with emphasis on reduction and elimination is to be implemented. The likely outcome of the current approach would be piecemeal approval and authorisation of incinerators and cement kilns without any coherent strategy for optimising regulatory control or minimising environmental impacts.	As the authority mandated to deal with waste management issues in the country DEAT have identified the need to develop these policies. There are other initiatives ongoing with the department which address other aspect of waste management. It is impractical for no action to be taken until the full range of policy instruments are in place.

Comments	Response
A more sensible strategy would be to develop the country specific framework for the implementation of the full range of necessary policy instruments focussing on collecting useful and reliable waste data and minimising any residual wastes for treatment.	
An ideal policy foundation for the development of these tools arose in 2001. The South African, Polokwane Declaration on Waste Management of September 2001 set a goal, to ''*Reduce waste generation and disposal by 50 and 25%, respectively by 2012 and develop a plan for ZERO WASTE by 2022*''. (Department of Environmental Affairs and Tourism (DEAT) 2001) This provides a great opportunity to divert the Policy thrust away from this history of failure of 'command and control' regulatory and legislative developments.	Zero waste is the ultimate goal of all waste management, however this is not an event but rather a process which takes many years to achieve and has not been achieved anywhere in the world to date.
The Polokwane Declaration also reaffirmed a commitment to the Integrated Pollution and Waste Management Policy, the National Waste Management Strategy and the principles of waste minimization, reuse and recycling for sustainable development. The essential difference in this approach to that promulgated previously is that it is intrinsically sustainable, safe and precautionary. Instead of promoting an ultimately futile programme of risk management with inadequate resources the vision encapsulated in the Polokwane Declaration is to eliminate 'hazard' and thus reduce residual risks to near zero. This is an ambitious goal but, given the failures to implement an effective regulatory policy to date is probably the only option which can be truly protective and consistent with the requirements of the Constitution. Furthermore it promises to allow South Africa to avoid the expensive and damaging mistakes of Europe and the USA.	Waste recovery is higher on the waste hierarchy than landfill which is currently the predominant waste management method in the country. Therefore any diversion of waste from landfill is moving towards achieving the objectives of the waste hierarchy which would have as it ultimate goal zero waste.
The development of any strategy for Hazardous Wastes treatment and disposal should, in any case, be in accordance with the provisions of the National Implementation Plan ('NIP') for the Stockholm Convention [1]. Unfortunately South Africa has not yet submitted such a plan even though the deadline was 17th May 2006[2]. This is another powerful reason to delay the development of this policy.	The South African NIP is in progress and the fact that the plan is not in place will not hinder the development of the policies on incineration and the co-processing of alternative fuels and raw materials in cement kilns.
The 2000 White Paper on Integrated Pollution and Waste Management for South Africa (Republic of South Africa Department of Environmental Affairs and Tourism (DEAT) 2000) recognised: *"the fragmented and uncoordinated way pollution and waste is currently being dealt with, as well as the insufficient resources to implement and monitor existing legislation, contributes largely to the unacceptably high levels of pollution and waste in South Africa".*	The provision of a policy on these issues was called for by Provincial Government among other stakeholders. By DEAT heading this call the national department is providing guidance and is promoting cooperative governance.

Comments	Response
It went on to promise: *"This White Paper will implement co-operative governance as envisaged by the Constitution. The current fragmentation, duplication and lack of co-ordination will be eliminated."* The current consultation, which is set largely in a data and policy vacuum, can only hinder the implementation of that promise	
Current Policy Towards Open Burning of Waste: Open burning of wastes remains a problem in South Africa and whilst the Department technically prohibits the burning of waste at landfill sites they still permit it in certain circumstances and, indeed, give guidance about how it should be done (Republic of South Africa Department of Water Affairs and Forestry (DWAF) 1998). There is no doubt that open burning of this type is the cause of serious environmental pollution (Lemieux 2002; Lemieux, Lutes et al. 2004; UNEP 2005) and should be prohibited without exceptions.	Noted, with the increase in waste management options available to address the growing waste stream in the country, the more appropriate management of waste will be possible.
[1] <#_ftnref1> In spite of receipt of a GEF grant of $499,000 for this work http://www.gefonline.org/projectDetails.cfm?projID=1785 [2] <#_ftnref2> http://www.pops.int/documents/implementation/nips/submissions/default.htm	

12. Dr J Schoonraad, Enviroserv; 30/11/2007	
Comments	**Response**
EnviroServ has reviewed the document by Karstensen entitled "**Cement Production Technology in South Africa and an evaluation of their ability to co-process AFRs and treat hazardous wastes**" as supplied by e-mail on 6th September 2007.	The document reviewed was distributed on 6 November 2007.
We believe the document to be comprehensive and fair overview of the South African cement industry and despite a few typographical errors and one or two technical flaws presents a valid picture of the industry's preparedness to process AFR.	Noted. The proposed corrections / amendments would be included in the final version of the report *South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste.*
Should DEAT stick to the original dust emission limits for defining AFR capability as proposed by Karstensen (DEAT meeting, 9th October) then very few of the South African kilns will meet the limit of 80 mg/Nm^3 (dust) allowing non-hazardous AFR use (tyres, biomass, etc). Only the Holcim Dudfield kilns (Lichtenburg) and possibly the new NPC kiln (Port Shepstone) and PPC Dwaalboom kiln will meet the 50 mg/Nm^3 limit allowing hazardous waste derived AFRs. EnviroServ is of the opinion that this apparent adoption of the EU criteria for hazardous waste use in kilns (as proposed by Karstensen) is a sensible route to follow as it should meet the least resistance from the environmental NGO groups.	Noted. Certain transitional arrangements has been provided for compliance with dust and NOx emissions limits over time in the *Proposed Air Emission Standards for AFR Co-processing in Cement Kilns*.
1. Items of note from document 1.1. Pg 33 of 75 - cement kiln disposal is viewed as lower cost than landfill disposal. This is erroneous thinking in the South African context. 1.2. Pg 34 of 75 - fuels used by the cement industry are listed as "***coal, hard coal, coke and pet coke***". This is not true for South Africa as only coal is currently used. 1.3. Pg 35 of 75 - map refers to Alpha (now Holcim) 1.4. Pg 36 of 75 - Figure 7 - reads "Nathal" should read "Natal" 1.5. Pg 37 of 75 - "***current production of kilns planning to use AFR***" is given as 8 Mio T/a clinker (expanding by ~60% by 2014) with a coal usage of 1.3 Mio T/a. At a 20% thermal substitution rate this would equate to ~260 000 T/a of waste that could be treated by cement kilns but only if there is no emission limiting factor due to particulate emissions.	Noted. The proposed corrections / amendments would be included in the final version of the report *South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste.*

Comments	Response
1.6. Pg 39 of 75 - first bullet - the statement that "***It can be expected that the plants will be within normal emission levels***" is misleading as Table 1 clearly shows such a broad range of emission limits that even poorly run plants could meet most if not all of these emission levels. 1.7. Pg 47 of 75 - Table - clinker volume given for Ulco is incorrect 1.8. Pg 48 of 75 - Table - Dust emissions for new PPC Dwaalboom kiln (kiln 2) are surely incorrect for baghouse technology at 150 mg/Nm^3	Noted. The proposed corrections / amendments would be included in the final version of the report *South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste.*
Various other errata • Pg 4 - reads "ESP Electro static precipitator" should read "Electrostatic precipitator" • Pg 4 - reads "kPa Kilo Pascal" should read "kilopascal" • Pg 4 - reads "LOI loss of ignition" should read "loss on ignition" • Pg 4 - reads "MJ Mega joule" should read "megajoule" • Pg 5 - reads "Nm_3" should read "Nm^3" • Pg 5 - duplication of line "ppm" • Pg 6 - reads "SNCR Selective non catalytic reduction" should read "Selective non-catalytic reduction" • Pg 6 - reads "TCDD 2,3,7,8-tetrachlorobidenzo" should read "2,3,7,8-tetrachlorodibenzo" • Pg 6 - reads "TCDF 2,3,7,8-tetrachlorobidenzofuran" should read "2,3,7,8-tetrachlorodibenzofuran" I trust that the above will be of some assistance in helping to formulate the final Thermal Policy document and look forward to reading the final version with great anticipation.	Noted. The proposed corrections / amendments would be included in the final version of the report *South African Cement Kiln Technology and Evaluation of its Ability to Co-process AFR and Treat Hazardous Waste.*

<table>
<tr><th colspan="4">13. Dr L Lotter, Chemical and Allied Industries' Association (CAIA); 12/12/2007</th></tr>
<tr><th colspan="3">Comments</th><th>Response</th></tr>
<tr><td colspan="3">Comments on Draft Policy Framework presented at workshop 09/10/2007:

CAIA welcomes the opportunity to comment on this policy document. In making comments the original purpose of this policy needs to be recalled. From CAIA's perspective the policy is required in order to provide certainty to stakeholders in respect of the use of waste as an alternative fuel in cement kilns. In this regard one would expect to see the policy considerations that Government will use when considering applications for authorization of this technology.

The document is therefore not intended to present a motivation for the use of HTTT but rather to develop a set of policy statements on what needs to be adhered to for the use of HTTT to be approved by the regulator. The comments tabulated in the attached have been framed with this in mind.</td><td>Partially agree. At the time of development of the policy statements, the intention was to identify key considerations or principles that had been identified up to that time, which were guiding the development not only of the policy, but the project as a whole, including envisaged standards and guidelines. These included identifying some potential benefits, but the intention was not to develop a motivation for thermal waste treatment or AFR co-processing. Similarly, the statements are not necessarily setting limitations or providing the regulatory framework. Through combining the two concepts though, the policy considerations and guiding principles served to identify at an early stage what the aspects are that are being considered and informing the way forward, and to illicit comments and discussion. Accordingly, all these principles may not necessarily be included in the final policy documentation.</td></tr>
<tr><td colspan="4">1. Considerations and principles identified to date related to both HTTT and AFR are:</td></tr>
<tr><td>Policy Considerations / Guiding Principles</td><td>Comment</td><td>Proposed alternative</td><td></td></tr>
<tr><td>1.1. HTTT (incinerators) and AFR (cement kiln co-processing) technology can be applied in a manner that is not harmful to the South African environment or the health and well-being of its citizens.</td><td>This policy is subservient to NEMA and therefore needs to reflect the need for socio economic considerations to be taken into account</td><td>Reword accordingly</td><td>Noted, the proposal has been accepted and the document reflects new wording.</td></tr>
<tr><td>1.2. Thermal waste treatment and waste co-processing (recovery) are more preferred waste management options, compared with landfill, in terms of the waste management hierarchy.</td><td>This does not necessarily make thermal waste treatment or waste co-processing the ideal solution to every waste management problem.</td><td>Remove since it is not a useful statement – it is already covered under any discussion/ adoption of the waste management hierarchy (already included under Policy Information base)</td><td>In view of project inputs and comments there would however be value in reiterating that thermal treatment is preferred to landfill, but also less preferable than other options. In terms of integrated waste management it is however important to have it as an option, acknowledging that thermal treatment is not the ideal solution to every waste management problem.</td></tr>
</table>

Comments			Response
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
1.3. Waste management in the country is largely limited to landfill (landfill biased), which is not considered best practice due to long terms risk, pollution impacts and not being a permanent solution for waste management.	While landfilling is a large outlet for wastes there are also many other examples of successful waste minimization initiatives. While there are valid concerns with landfilling it is still a good practice if done correctly.	Remove/ revise to not make this an anti landfill policy – rather focus on the advantages/ disadvantages of HTTT and co-processing and set direction for the use of this technology in SA.	It is agreed that the policy is not intended to be 'anti-landfill', but the move away from landfill to better options where appropriate should be promoted. In some cases for certain waste streams, landfilling is clearly not the best option ('good practice'), and the option of thermal treatment should be available.
1.4. The composition of waste generated in SA is such that HTTT or AFR is a more desirable option of management compared comparing current practices with international best practice.	A very generalized statement. This may well be the case in certain instances but is not always the case.	Need to be guided by international practice but also taking into consideration Southern Africa's social, economic and environmental development goals.	The key consideration here is that certain waste streams that are currently being landfilled should rather be thermally treated or better still, used as AFRs and reduce pressure on natural resources.
1.5. HTTT and AFR technology have extensively been applied internationally and acceptable technologies are existing and proven safe to health and the environment.	Ok, but have there not also been examples of bad practices where the technology has failed? Again the fact that it is proven and safe technologies shouldn't necessarily imply that it should be applied.	Remove/ reword	The main question the policy development process aims to answer is whether it can be done safely and under what conditions. Each individual proposal for application of the technology would be evaluated on its merits, e.g. through the EIA process.
1.6. International best available techniques and best environmental practices can be applied as relevant within the South African context in implementing HTTT and AFR projects.	Not certain what is implied by "best environmental practices"? SA does not need to adopt "best in class" but apply an appropriate and well reasoned set of criteria to guide technology use.	Revise	There is no clear reason for not adopting best practice partially or in full has been provided. It should be noted that international standards for AFR co-processing and thermal treatment (incineration) can be and is already being achieved in the country. It should also be noted that AFR co-processing in cement kilns is currently proposed, and would not affect the product manufacturing processes. The specific industry sector would therefore not be unreasonably constrained through adopting BAT or BEP – their normal product manufacturing process is not subject to AFR co-processing.

Comments			Response
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
1.7. In providing a preferable solution to the management of certain hazardous waste streams, HTTT and AFR would contribute to South Africa meeting its international commitments in terms of the Stockholm Convention that requires irreversible treatment of waste (which landfill is not).	Yes it may contribute to SA meeting its obligations to the Stockholm convention but there are many other facets applicable to the convention which may carry a higher priority?	Reconsider the statement in light of SA's obligations to the convention.	One of the fundamental objectives of the Stockholm Convention is to reduce the release of POPs to the environment. Ensuring that technologies are available in SA to destruct POPs to standards that are internationally acceptable will therefore rate high on any priority. In addition, ensuring that standards are developed which will reduce the formation of unintended POPs will also be a high priority. The proposed policy will consider both issues.
1.8. In providing a local solution to the management of certain hazardous waste streams, HTTT and AFR would contribute to SA meeting its obligations in terms of the Basel Convention, which prevents trans-boundary movement of waste.	Again similar to 1.7. Basel doesn't prevent the trans-boundary movement of wastes but controls the process	Reconsider the statement in light of SA's obligations to the convention.	The Basel Convention includes conditions regarding countries' provision of own technology to manage hazardous waste, which would also reduce the need for cross-boundary transport thereof (also see response above).

Comments			Response
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
1.9. Reducing the volumes of waste disposed to landfill through thermal treatment or co-processing would reduce Greenhouse Gas emissions, demonstrating the country's commitment to reducing its contribution to climate change.	Don't think this is necessarily the case. Thermal waste processing also generates GHG's, Landfill GHG emissions can also be controlled – some context to this statement is necessary. We need to make sure that this policy remains confined to the purpose which is the policy to be applied when considering applications for the use of HTTT as a waste disposal option and in particular where waste is used as an alternative fuel in cement kilns.	Reconsider inclusion. This is not important to the policy setting debate for HTTT .	It has been established that the GHG produced by thermal treatment (CO_2) is much less potent than GHG from landfills (methane), and the reductions that could be realised are considered important.
1.10. Through the reduction waste volumes, HTTT and AFR will reduce the current critical pressure of limited airspace in existing landfills, and pressure on scarce land required for new landfills.	Ok, maybe although that is an advantage to incineration which should be dealt with separately to incineration. There are other means of reducing the placement of high calorific wastes into a landfill.	Revise Again suggest separating landfill policy from HTTT policy – or combine from the beginning and approach the discussion from an (unbiased) waste hierarchy perspective.	The main intention is to clarify that there are problems associated with landfilling of waste, and that an integrated waste management system and strategies require the availability of a range of alternative management options (also refer to previous responses under 1.3 and 1.4).

Comments			Response
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
1.11. Acknowledging that thermal waste treatment and co-processing are viable waste management options would provide security to the waste management industry in South Africa to invest in the development of better, alternative technologies.	Agree to some extent in the principle but there is a cut-off between the development of end of pipe waste treatment solutions and the implementation of waste minimization and related Cleaner Production processes.	Reconsider statement	Waste minimisation initiatives will not stop due to the development of this policy. DEAT is committed to moving towards waste reduction and cleaner technology. Literature provides evidence that where there are several waste management options, the rate of recycling and waste avoidance are higher.
1.12. A clear policy position on HTTT and AFR would promote technology development in SA.	Maybe. Statement applicable to waste management in general and not specifically to HTTT and AFR?	Reconsider statement	The statement refers to the development of not only thermal treatment technology, but also that related to emission abatement, pollution control, emission monitoring etc.
1.13. AFR, and potentially HTTT, provides the opportunity for energy recovery, a resource that is lost through landfill.	Again separate landfill policy from HTTT and AFR. This statement needs context – for example incineration in itself is also energy intensive.	Revise based on comment	The net energy output which can be recovered from incineration or is used during the co-processing process is considerably higher than the direct energy input.
1.14. Introduction of HTTT and AFR, which are new technologies in South Africa, would contribute to skills development and better use of resources and engineering skills through exposure to and transfer of advanced international knowledge and skills.	HTTT and AFR are not new technologies although skills development would be required.		Noted. The point made was that these technologies are fairly new to South Africa.

Comments			Response
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
1.15. The absence of internationally acceptable waste treatment options could restrict South Africa's entry into and participation in the global market, or restrict foreign investment, due to environmental policies and requirements of international companies.	Agreed, need to be careful that SA does not fall behind compared to internationally acceptable practices.		Noted.
2. Considerations and principles identified to date related specifically to HTTT:			
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
2.1. International experience shows that HTTT does not reduce the incentive for, or actual volumes and success of, recycling programmes.	Surely cost of waste disposal drives behaviour so if HTTT becomes prohibitively expensive (like it would be for most general wastes produced in SA) it will not be used.	Reconsider particularly in light of purpose of this document	The intention is to confirm, based on international experience, that thermal treatment would be seen as one of a number of waste management options as in the waste hierarchy, and not seen as the ultimate and only option or solution, and that waste prevention, re-use and recycling would always remain the preferred option as relevant to specific waste streams.
2.2. HTTT would encourage regionalisation of waste management facilities with associated improved efficiency in waste management on municipal level, cost reduction and reduction in point sources of pollution.	Are we saying that if the proposed facility can serve a region then it is a positive policy consideration		Having thermal treatment as an option would provide the opportunity for regionalisation and more efficient waste management.

Comments			Response
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
2.3. Thermal treatment results in a significant reduction of waste volumes that needs to be managed.	The fact that thermal treatment results in a reduction cannot be used as a stand alone reason to proceed. HTTT will be subject to the Waste Management Bill.	Reconsider statement	The volume reduction of waste processed through incineration is only one of several documented advantages of these technologies.
3. Considerations and principles identified related specifically to AFR:			
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
3.1. AFR results in the recovery of energy and raw materials, which reduces the pressure on non-renewable resources such as coal and minerals.	Similar to GHG debate, in principle agree with statement but my understanding is that the amount of resource (raw material) replacement under current activities is low in relation total resource consumption. (maybe relevant though)	Reconsider	The co-processing of waste materials as AFR have the potential to significantly reduce not only the volumes of finite natural resources (fossil fuel and minerals), but also the environmental impacts caused by the mining thereof.
3.2. Implementation of AFR programmes would indirectly result in the improved environmental performance of cement kilns in a relatively short period of time.	Uncertain why this should be the case. Can reduce NOx, improve energy balance and so on but wouldn't the opposite also apply?	Reconsider.	Cement kilns co-processing AFR would have to comply with significantly stricter and more comprehensive emission limits than is currently the case for cement production with conventional fuels and raw materials.
3.3. The residues from co-processing in cement kilns are incorporated into the final cement product, leaving no waste that needs to be disposed of to landfill.	We are not sure if this would be the case under all situations – there may be situations where the residues cannot be used in the final cement mix	Check and reconsider	Although in some cases dust from emission abatement equipment is not recycled back into the production process, this is not the case in South Africa. No residues that have to be disposed of will be produced by the co-processing of AFRs.

Comments			Response
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
3.4. Co-processing of AFR would allow the waste management plans of industry, specifically the tyre industry, to be realised as provided for in the Waste Bill.	It would create an outlet for tyre recycling but is not the only outlet.		Noted. The use of tyres as alternative fuel in cement kilns (and other processes in fact) is one of several mechanisms that are provided for in the tyre industry's plans.
AFR Policy Implementation/Regulation – A policy on AFR co-processing technologies, if found acceptable, would be supported by:			
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
1. Requirements to comply with relevant best international practice (BAT/BEP) provisions, which would be formalised through DEAT's development of norms and standards, and would be captured in and regulated through a Sector Specific Guideline (i.t.o. S73 of GN R.387) and other legislation, and included in conditions of environmental authorisation (or integrated permitting).	Consider "good", not necessarily "best"		Refer to previous response under 1.6. Compliance with internationally accepted BAT and BEP provisions are key to the support of thermal waste treatment and AFR co-processing, and compliance with these provisions is not considered to be a limitation.

Comments			Response
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
2. Regulatory requirements based on BAT and BEP would include or address:			
2.1. Specific norms and standards, e.g. emission standards and pollution control measures	Supported. Already included in listed activities and emission standards in terms of AQA.		Regulatory requirements would consider more than existing local requirements, and would be based on international BAT and BEP.
2.2. Environmental assessment and approval procedures, including technical and information requirements, commissioning, performance verification etc.	Requirements in terms of existing national legislation		Noted. Specific conditions related to operations, management, monitoring and reporting are being developed as part of the project to provide a specific, effective regulatory framework which ensures environmental performance would comply with international BAT and BEP.
2.3. Waste storage and handling	Requirements in terms of existing national legislation		Regulatory requirements would consider more than existing local requirements, and would be based on international BAT and BEP.
2.4. Waste input control (selection, quality, quantity, feed-point, etc.)	Regulations must control environmental outcomes not operational procedures		Noted. However, it is often necessary to set standards for operational procedures.
2.5. Operational parameters (e.g. feed, start-up/shut-down procedures and limitations)	Regulations must control environmental outcomes not operational procedures		Noted. As above.
2.6. Operational procedures and management	Regulations must control environmental outcomes not operational procedures		Noted. As above.
2.7. Monitoring and reporting requirements	To be included in regulations		Noted. As above.

Comments			Response
Policy Considerations / Guiding Principles	*Comment*	*Proposed alternative*	
3. DEAT will develop an implementation plan for regulating and monitoring industry (e.g. auditing procedures)	Should be developed in consultation with industry		It is normal procedure for DEAT to develop regulations with all stakeholders, including industry.
4. Compliance with the Waste Management Hierarchy throughout project inception, development, implementation	This policy is subservient to the Waste Management Bill		Noted to the extent that the development of the Waste Bill and its provisions are being considered in the policy development process. Currently the Bill is however not enacted and the policy is therefore not subservient to it – rather The Constitution and NEMA.
5. Waste utilised as AFR must have an energy or raw material value	Surely this is self evident		Noted. Cement kilns could however be used to thermally treat certain hazardous waste streams with limited or no particular energy or raw material value, if the need arise in very specific circumstances.
6. Thermal treatment of non-AFR waste will be managed under the HTTT policy	It is understood that this is a policy for AFR in kilns. Any other thermal treatment should be managed as appropriate in terms of the Waste Management Bill	Need some discussion on this point.	The policy will address thermal treatment of waste in both dedicated waste incinerators, as well as co-processing in cement kilns. Where necessary, specific regulatory mechanisms / conditions are being developed for particular waste streams to be co-processed.

14. Mr A Watson, Public Interest Consultants o.b.o. groundWork; 20/12/2007 ***(Summary of key issues raised and response thereto. Refer to Annexure 1 for the complete submission.)***	
Comments	**Response**
Please find attached the final GroundWork comments for the thermal treatment consultation. If you need any clarification or copies of any of the references then please do not hesitate to come back to me. Could I also please prompt you to fill an omission from one of the consultation documents? I sent the email below to Kare on 24th October asking for the permit levels for the Brevik plant which had been removed from the permit in the consultation. Without this emission limit data the permit alone gives no useful information about operations of cement kilns in Norway or how they might relate to the situation in South Africa and it would be very helpful if you could supply it.	The permit for the Brevik plant was included as an example of an 'older' type of Norwegian permit. The author of the report doesn't have the values at hand though. The particular permit is however no longer valid, as it has been replaced with the requirements as per the EU Incineration Directive.
Existing policy framework and context: Mr Watson draws the conclusion that the current policy development process on incineration and co-processing of waste is being developed in a policy and legislative vacuum.	In response, it must be noted that the development of the two policies directly responded to a call from NGO's, Provincial government and industry for a clear policy direction from DEAT on incineration and the co-processing of hazardous waste in cement kilns. Groundwork in your press release dated 27 February 2008 indicated that you have pushed government for many years for a clear policy on incineration of waste, especially hazardous waste. Over the past 10 years significant advances have been made to strengthen the environmental policy and legislative framework in the country. The policy development team has at its disposal the guidance provided by the Constitution of the Country, the National Environmental Management Act and the amendments thereto, the Waste Management Strategy, the Integrated Pollution and Waste Management Policy, the Polokwane Declaration on Waste Management and the Waste Bill. As such it is felt that not only has the need for the policy been clearly articulated by the NGO sector the waste industry and the Provincial government, a comprehensive framework for implementation of improved waste management is also in place.
In support of the conclusion reach, a quotation by Lukey, Brijlall et al 2004, is included which reads as follows "Lukey added that for many years the government was seen as unwilling or unable to enforce waste and pollution regulations";	The article was written in response to an enforcement action taken against an illegal dumping of hazardous waste. The statement was made that this is not longer the case; government will take swift legal action against polluters. The quote therefore would not support the conclusion made that government cannot or does not enforce the law.

Comments	Response
Waste arisings: Significant concern is raised about the lack of information on waste arising, distribution and composition. Mr Watson indicates that this information is required in order to generate appropriate policies for the reduction, treatment or disposal of wastes, and indicates his disappointment that the documents do not provide this information. Mr Watson makes the statement that that no feasibly on the costs of implementing either technology has been provided. A missing reference was identified on page 10	It is acknowledged that the literature reviews did not include detailed information on waste generation, composition or distribution. This information is contained in a separate document which was identified in the consultant's terms of reference (TOR) as immediate objective D - "The comparative assessment of South African versus international waste profiles". This is correct as the policy development process is not intended to provide economic information which would determine the feasibility of an incineration facility. The policy development process is only intended to support, or not the acceptance of incineration and co-processing as a technology which could be considered for waste management in the country. Should an incineration facility be planned a detailed feasibility study would need to be undertaken by the proposed developer at the time of application. The consultant team has attended to this and has provided the reference.
Waste management policies: A lot is said about the waste hierarchy and that the focus should be on encouraging recycling and waste minimisation initiatives. The comment is made that it should not be assumed that incineration or energy recovery is necessarily environmentally preferable to disposal in terms of Best Practical Environmental Option (BPEO). The comments provided by Mr Watson on the documents produced seem to indicate that to support incineration means that it is not possible to support other waste minimization, reuse and recovery options. The comment is that the main policy instruments for promoting prevention of hazardous waste actually belonging to the field of chemical policy and resource management. An example of work done in Finland is quoted.	It is agreed that the management of waste within the waste hierarchy is fundamental. The hierarchy is the basis on which the Waste Bill is written and forms the foundation of all the work undertaken by DEAT, including the work on developing the policy on incineration and co-processing of waste. By its nature a policy on incineration and co-processing will however focus on the lower half of the waste pyramid. DEAT is engaged in other projects which focus attention on recycling and reuse. DEAT does view energy recovery from waste preferable to landfill in terms of BPEO. In terms of the waste hierarchy energy recovery is preferable to disposal. This policy will merely provide for additional tools for waste management should these technologies be found to be acceptable. It has been demonstrated in several counties that have very high recycling and recovery rates that recycling, co-processing and incineration can co-exist. In all developed counties in the world waste management and chemical policy and not mutually exclusive. It is possible for the waste management policies and technology tools to be developed as well as concentrating on chemical policies. There is a desperate need to improve waste management technologies in the country. It is important for counties that have developed effective waste management options to assist developing counties to also develop waste management options rather than force developing countries

	into spending all their resources on developing waste strategies that even the most developed counties with significant resources are unable to achieve in the medium term. It is unrealistic for Mr Watson to expect waste management policy development in South Africa to be on a par with the waste management policy in Finland.
The conclusion is made that incineration undermines zero waste policies	It is evident when considering recycling and incineration figures from the EU that in countries that achieve significant recycling rates, incineration is practiced. In countries where landfill is the most used option recycling figures are reduced. It is clear that these results are not just related to incineration or recycling but could also be attributed to the maturity of waste management policies, strategies and implementation plans and the resources spent on waste management. It must be concluded that recycling, incineration and co-processing can co-exist and that there is a place for all of these technologies in the waste management hierarchy. South Africa should not be forced to focus only on one waste management option i.e. recycling which has not been the ultimate answer to waste management in any other country, there is a need to develop a suite of waste management options.
The right to know and access to information A conclusion is reached that the fact that an internet search for Integrated Waste Management plans (IWMP) in South Africa produced only 3 plans, demonstrates a lack of consultation with communities through the IWMP drafting process and a reluctance to make these IWMP's available to the public for consultation and comment	This statement seems to be unfounded. There may be many reasons why Municipalities do not upload their IWMP onto the internet. It cannot automatically be concluded that this demonstrates an unwillingness to consult.
The comment is made that when air quality permits are received from the Department that basic information is removed.	It is noted that this is not part of this policy development process.
POPs Control in South Africa The comment is made that as South Africa has not completed it National Implementation Plan for the implementation of the Stockholm convention that the development of an incineration orientated strategy should be delayed.	The policy on incineration will only comment on the acceptability of the technology or not in the country. No strategy is to be developed for the use of incineration through this process. The development of environmentally sound treatment options will enable South Africa to treat their own POPs and POPs wastes, as well as achieve better control (and the possibility of minimizing) South Africa's unintentional POPs emissions. It is not reasonable to expect that all the building blocks of the perfect waste management system need to be in place before improvements in the current waste management systems in the country can be effected.

Comments	Response
Literature reviews Mr Watson finds the literature reviews to be of poor quality, he does not considered them fit for the purpose, he finds them to display a disappointing lack of attention or relevance to the South African context and demonstrate a bias towards incineration and co-processing.	DEAT has found the information contained in the documents to be of a high quality and providing the background required to develop the current policies. As both consultants are experts in their relevant fields one being co-processing of hazardous wastes and raw materials in cement kilns and the other being incineration, and given that the scope of the Terms of Reference were to provide information on the two technologies it is only natural that the documents would consider the positive aspects of each technology as well as the limitations. It is noted that in choosing a consultant to provide comments to the various documents developed through this process Groundwork has employed a consultant sympathetic to the anti-incineration cause and one who has provided comments to the NGO sector including IPEN on waste and incineration issues. Through this mix it is believed that a balanced view has been given which has provided a good basis for developing the policies.
The Economics of Thermal Treatment Much has been said by Mr Watson about the economics of thermal treatment. A price for the cost of incineration has been provided in the comments which is based on using the capital costs of a plant erected in Copenhagen, adding the costs of the Norwegian incineration tax and applying this figure to half the estimated amount of waste generated in South Africa per annum and projecting this over a 25 year period, then equating this to the Health budget for 12 years.	The literature review was not intended to produce a feasibility study for thermal treatment technologies. Not only is this method unscientific, releasing statements based on such extrapolations is alarmists and irresponsible.
Climate change and incineration The comment is made that combined heat and power is not a practical option for South Africa. A graph is also provided which indicates that electricity only incineration produces about twice as much carbon dioxide per kWh as coal fired power stations.	With respect to the various comment about “combined heat and power” the literature review on incineration identified the same point on page 32 of the document. It is noted that this is the case only when biogenic carbon is added, research on biogenic carbon is not advanced. Should the results in figure 2 be used they clearly support the need for South Africa to move towards alternative methods of energy production and supports the move towards incineration with electricity generation. The CO_2 per unit of electricity generated by a coal fired power station is approximately 800 g per KWh whereas the figure for incineration with electricity generation is approximately 500g. Noting that in South Africa 91.9% of our electricity is generated through coal fired power stations this could be a significant consideration.

Comments	Response
Emissions from incineration and potential health impacts It is noted that the quote from the National Research Council regarding the health risks from incineration that was included in the literature review on high temperature incineration was not reassuring given the low level of certainly expressed and considering the badly operated incineration facilities in South Africa in the recent past.	It is felt that the quote is sufficiently reassuring in that should incineration be considered as a treatment technology in the country international emission standards will apply. The National Research Council is fairly certain that "…well run facilities are expected to contribute little to environmental concentrations and to health risks ….". The more negative aspects of the statement are associated with older poorly operated facilities.
Emissions from Municipal Waste Incineration In this section provides information on the emissions from the incineration process. The point that a Total Organic Emissions determination for site specific risk assessments should be done.	It is noted that data from 1995 as well as data from batch fed pilot plant are used to support the statement about a range of emission from incinerators and the impacts of these emissions that are poorly understood. It was noted in several instances in both literature reviews significant advances have been made in the past ten years in understanding emission from incineration. The literature review on high temperature incineration provided evidence from Germany, Sweden and Denmark, which indicates that emissions from incineration significantly reduced since 1999. It is stated that mercury and other heavy metal emissions from waste incineration plants have been reduced by 98 – 99 % from 1985 to 2002 and that dioxin emissions into the air from all waste incineration plants in Sweden have decreased from approx. 100 gram per year in 1985 to 1.1 gram per year in 2002. It is therefore very questionable to use data which is clearly dated and for which new research is available**.**
Relative Health impacts of waste management options & Health reviews Two references for health reviews undertaken are included and it was strongly suggested that they become part of the consultation process.	The findings have been noted and carefully considered by the Department as part of the policy development process as was requested.
Compliance This section contains comments on the non compliance of several United Kingdom and French incinerators	It is difficult to comment on non-compliances of international incinerators. In South Africa over the past few years permit conditions and compliance monitoring have improved significantly. Over the past two years, compliance audits have been undertaken to all commercially operated health care risk waste incinerators and where non-compliance has been detected sever actions have been taken to correct the situation.

Comments	Response
Health Reviews The comments document deals extensively with dioxin formation, the opening statement indicates that until recently municipal solid waste incinerators were the largest source of dioxin emission to air in Europe, the US and Japan.	The literature review on high temperature incineration explains that due to stringent German and EU regulations, waste incineration plants emissions of dioxins, dust, and heavy metals from waste incinerators in Germany and the EU have been drastically reduced since 1990, even though waste incineration capacity has almost doubled since 1985. Total dioxin emissions from all 61 waste incineration plants in Germany in 2000 has dropped to approximately one thousandth of the emission in year 1990 as a consequence of the installation of filter units stipulated by statutory law: from 400 grams to less than 0.5 grams.
A comment is made that dioxin formation is increased at start up and shut down of the incineration plants and at upset conditions and that the literature review did not discuss this aspect.	A section has been added to the literature review on high temperature incineration which deals specifically with this aspect. In brief according to the European Directive on Incineration during start-up and shut down or when the temperature of the gas falls below 850 ºC or 1100 ºC as the case may be, the auxiliary burner shall not be fed with fuels which can cause higher emissions than those resulting from the burning of gasoil. So the strict operating requirements for incinerators have considered and addressed this concern.
It is assume that start-up and upset conditions would likely be exempt from regulations in South Africa	This is an incorrect assumption, should incineration be accepted as a waste management technology in South Africa international standards would apply, and as noted above, start-up and upset conditions are specifically dealt with.
A call is made for continuously sampling for dioxins, should South Africa recommend thermal treatment, this request is noted.	Noting the experimental nature of this equipment as stated in the Groundwork document, the value of a developing country seeking to improve waste management measures taking the international lead by requiring the installation of this expensive and untested equipment is questionable.
Brominated and other halogenated dioxins Information is provided on mixed halogenated dioxins and furans which could be formed in both incinerators and cement kilns.	DEAT understands that few tests have been undertaken and the results to date have been conflicting. Therefore it would be unreasonable to pre-empt the findings of further work in this field and not to consider the use of a technology based on research and data still to be presented.
Dioxin Mass Balance The Groundwork document disagrees with the fact that modern incinerators are net dioxin destroyers. The point is made that no reference is included to support the statement in the literature review.	The reference is included as follows: McKay; G. "Dioxin characterization, formation and minimization during municipal solid waste (MSW) incineration: review"; Chemical Engineering Journal 86 (2002) 343–368.

Comments	Response
Main Risks of Incineration Plants The comment is made that the literature review on high temperature incineration is silent on the main risks associated with incineration.	The main risks of incineration have been included in section 6.7.
Cement Kiln Specific Issues Proposed AFR's It is noted that the exclusion lists provided in a presentation at a public meeting did not meet the standards expected by BAT-BEP guidelines or those proposed by the GTZ process. A reference is made to the exit gas cleaning equipment in cement kilns being rudimentary as this equipment is usually only crude electrostatic precipitators or bag filters. It is said that this gas cleaning equipment would not quench temperature over the de novo synthesis phase and could result in dioxin formation.	The intension would be to include the most stringent list. If the preference would be to include "electronic waste", rather than "unsorted electronic waste", this will be amended. It is noted that BAT technology for cement kilns include exit gas conditioning which reduces exit gasses to temperatures lower than 200^{o}C which is below the ideal dioxin forming temperatures.
Test Burns The comments note that the test burn undertaken in Vietnam can not be called a success as the NOx levels were nine times higher than the EU Waste Incineration Directive standards.	The test burn was not about NOx control or NOx reduction – it was about proving that hazardous chemicals causing a serious local health and environmental threat, could be disposed of in a sound and cost-efficient way without delays by using a local cement kiln – this particular kiln had a NOx problem already, but thanks to this article and the attention this test gave, the company have now installed a SNCR-system for NOx reduction and the kiln is practicing co-processing in full scale solving urgent local problems, and the emissions are in compliance with the EU-directive standards.
Municipal Waste The point is made that South African kilns cannot reasonably be considered as a potential "solution" to the disposal of municipal waste as this would generate large quantities of ash.	The list of wastes to be excluded from consideration in a cement kiln which was commented on earlier, indicate that unsorted municipal waste is not being considered for treatment in cement kilns.
Emissions from Cement Kilns It is notes that at times when the Electrostatic Precipitators trip, emissions to the atmosphere are experienced.	In times when electricity is interrupted the inclusion of hazardous waste into the process can be stopped immediately. Should this technology be considered acceptable for inclusion as a waste management technology in South Africa international standards will apply.

Comments	Response
Cement Kiln dust and Cement Quality Issues The comment is made that most cement kilns require the Cement Kiln Dust (CKD) to be removed from the kiln system, and therefore it is strange that little CKD is produced in South Africa with the majority of it being blended into the product. This is raised as a concern as CKD is likely to be one of the most contaminated outputs from a cement kiln.	CKD is a valuable raw material and is not removed from the process if it is not necessary. The removal of CKD is only necessary in cases where alkali reactive aggregates are present in the feed material. This is only the case for a few geographic areas in the world e.g. eastern parts of the United States.
Health Concerns Associated with Cement kilns New references have been provided under this heading.	Stringent emission and monitoring requirements have been recommended should this technology be accepted as a waste management option in South Africa. These emission requirements are in line with best international standards and will improve the overall performance of cement industry in the country.
Performance of Existing Kilns It is noted that the conclusions of the review of existing cement plants in South Africa give cause for concern as the conclusions are carefully worded not to undermine the older kilns and that even the new modern pre-calciner kilns do not have bypasses.	Should this technology be considered as being acceptable as a waste management option in the country each kiln that applies to utilise hazardous waste would be required to meet the emissions requirements. The by pass is not associated with BAT considerations but is used to remove alkalis.
A concern is raised that there are no laboratories in South Africa that can do dioxin analysis.	The fact that there are no laboratories in South Africa to analyze for dioxins is currently correct, however, there has been little demand for dioxin analysis. The recommended monitoring requirements call for dioxin measurements to be taken. Once demand is increased a laboratory in the country may apply to become accredited to undertake this analysis.
A concern was raised that the costs of retrofitting kilns in South Africa did not form part of the terms of reference of the consultants.	The costs of retrofitting kilns should this technology be accepted as a possible waste management option in the country would be the work of the kiln owners. The cement industry have clearly indicated their interest in co-processing so one would imagine that knowing the emission standards that would apply and the operating conditions that would be applied the industry has considered the costs of retrofitting.

15. Mr B Bowles, eco2 (Lafarge NPC-CIMPOR); 11/01/2008	
Comments	**Response**
Comment on draft Guideline for Treatment of Hazardous Wastes and Co-processing of AFRs in Cement Kilns (SINTEF, 07/01/2008):	
I am reading your recommendations for SA and generally agree, however there are 2 issues (I'm up to p31) that I don't agree with and need to understand more. 1. The difference between a cement kiln and a pre-treatment platform. You correctly mention that cement kilns need a homogenised fuel that is consistently produced with heat value and specification. These fuels whether liquid, sludges or sawdust/carrier type will be produced by a pre-treatment platform and made from many different wastes. As you know cement kilns because of the variable and inconsistent cv's, specifications & physical limitations can not use many types of wastes in small volumes particularly paint & other sludges and solid wastes (such as resins) that are generated by industry and rely on a pre-treatment platform to produce an homogenised waste derived fuel. They can and do in Brazil, France& the USA use a liquid solvent or oil based liquid waste but only when the market generates sufficient volume, consistent cv & specifications (you may be aware of other countries). At the moment Sasol is the only company in SA that probably generates this waste in sufficient volumes. Certainly no other refinery, paint company, car company etc. does or can.	Noted.
2. I am also concerned at the use of time restrictions for waste storage; I assume these are at cement kilns. In Malaysia & some states in Australia storage time limits were introduced to ensure that generators did not avoid their responsibilities in disposing of wastes for cost reasons, even so they were given up to 6 months. I have also been involved in other types of waste disposal (landfills & soil remediation plants) when for social reasons buffer zones were artificially imposed and the public said - why, if the waste is harmful at x-1 distance why is it not harmful at x distance. I am concerned that the same argument could be used here and there is no scientific answer for waste per se but, there can be for packaging, which can corrode or be damaged in other ways. Also, as far as I'm aware there are no storage limitations in the EU regs.	Noted.
I would suggest the following: 1. Greater differentiation between Cement kilns taking wastes direct in bulk and large quantities and pre-treatment platforms producing an homogenised waste derived fuel. 2. Storage times be introduced for all hazardous waste storage with a period of 3- 6 months with perhaps an introduction period.	Noted. The Guideline has been developed to provide a general framework for the development of site specific operational, management and monitoring plans. These plans would be developed based on each particular kiln's characteristics, the wastes to be co-processed etc., and may therefore require detailed motivation on aspects which may have to be different from the parameters proposed in the guideline.

16. Mr G Rittner, Thermoselect; 15/01/2008	
Comments	**Response**
Communication via letter forwarded to H Crous (ESA) and representatives of Holcim, PPC and Plasfed.	
Dear Partners of the work shop, Unfortunately I were invited late so I was unable to make it. So please find hereafter our position concerning the papers we have got the last some days. I hope you can accept this "short message" with best regards Günter Rittner.	The date for the workshop on 16 January 2008 was set with everyone's agreement at the stakeholder workshop on 9 October 2007, which was attended by Mr Rittner, and the date was included in the presentation with the 'Way forward' and record of the meeting distributed thereafter. Mr Rittner did in fact attend the stakeholder workshop on 16 January 2008.
National Policy on High Temperature Thermal Waste Treatment and Cement Kiln Alternative Fuel & Resource Use We should like to respond specifically to the paper by Dr. Karstensen as follows: We believe DEAT or the cement producing industry should carry out a comparative cost study of two cases, as outlined below. THERMOSELECT would able to assist in this regard, if required, as we often encounter the issue of the possible disposal of waste in kilns worldwide. **Case A:** This case should be based on the pre-conditions raised by Dr. Karstensen in his paper for the disposal of waste in cement kilns, such as, for example: • Page 13 ff: Only hazardous wastes from trustworthy parties throughout the supply chain … • Page 16: Cement Quality. Treatment of hazardous wastes and co-processing of AFR's shall not affect … • Page 17 to 20: Operational guidelines: Pre-acceptance of waste-information needed, pre-treatment and mixing of wastes etc., etc. and at least finally: • Page 43: Emission Limits: to clean leaving the cement kiln requires major capital investments in treatment equipment. It goes without saying that all existing emission and air quality standards would need to be adhered to.	The cement industry has considered the cost involved with AFR co-processing, and Thermoselect seems to wish for a comparative cost study. This falls outside the scope of the policy development process, and is not required to achieve the objectives thereof.

Comments	Response
Case B: As an alternative to Case A, a waste gasification, e.g. THERMOSELECT, plant needs to be evaluated, taking cognisance of the advantages that this offers, namely, no municipal waste pre-selection, or physical and chemical testing, or sourcing from special depositories, for the process to meet environmental standards. Hospital and medical wastes could also be treated but this would be a separate consideration. Except for explosive and nuclear material, most categories of hazardous waste could also be handled in such a facility. Furthermore, no landfill disposal of residual waste, or ash or filter dusts would be required. Such a plant would be able to treat a far wider variety of waste and is likely to prove more cost effective than the disposal of a limited amount of waste in a cement kiln. The Cement Producer would be getting a clean gaseous fuel, and the cement making process itself would not be affected at all. For such a case "B" we see some form of contractual arrangement between the cement company and such a city waste treatment unit. We should like to reiterate our offer to assist with such a comparative study.	Mr Rittner made a short presentation regarding this proposal at the stakeholder workshop of 16 January 2008, proposing the processing of waste in a Thermoselect gasification process, with the resultant gas being used as fuel, and slag used as raw material (AFR) in cement kilns. Considering that AFRs can be used mostly as is in cement kilns, this 'pre-treatment' would be unnecessary, and unlikely to be feasible considering the investment required for a gasification plant, additional management procedures required, volumes that can be 'pre-treated', double handling etc.

17. Mr H Linde, WC Department of Environmental Affairs & Development Planning; 17/01/2008	
Comments	**Response**
With regard to the workshop on Tuesday [*Provincial Stakeholder Workshop, 15/01/2008*], just a few comments. We as officials were called to the workshop to discuss the Guidelines for the treatment of hazardous waste and co-processing of AFRs in cement kilns. The documents circulated are excellent and clearly indicate that DEAT has well researched the process. When trying to raise discussion or giving comment on the guideline I unfortunately got the impression that the author of the document was not open for discussion or any constructive criticism. At the meeting I tried to express some views that I think is important and that should be discussed, but got the impression from the author that the document is cast in stone. The document, once accepted and published will become the guideline to be used by all, industry, authorities and the community. This is a DEAT document and will go a long way to provide guidance to the Municipal officials who will ultimately be responsible for approval in terms of Air Quality. From the meeting you got the thinking behind the issues I raised. Without going into extensive comments on each of the aspects I suggest that the document be revisited to see in the comments myself and other members of the workshop made has merit. I am of the opinion that the wording of the guideline must be more assertive that what it is at present.	Agreed to an extent. The comments have been considered and the guideline amended to an extent. However, due to the site specific and technology aspects associated with each kiln, the guideline provides a general framework for the development of site specific operational, management and monitoring plans. These plans would be developed based on each particular kiln's characteristics, the wastes to be co-processed etc., and may therefore require detailed motivation on aspects which may have to be different from the parameters proposed in the guideline. The pro-forma conditions developed as part of the process requires the development of these plans, as well as authorities' approval thereof. In this way, the provisions of the guideline are enforceable.

18. Mr B Bowles, eco2 (Lafarge NPC-CIMPOR); 28/01/2008	
Comments	**Response**
I am trying to get some documentary evidence but in the meantime submit the following:	
Threshold of 40% use of hazardous waste fuels in cement kilns. There is no EU regulation governing the amount of hazwaste fuels that a cement kiln can use. This threshold was developed in France some years ago as a competitive limit vis - a -vis High Temperature Incineration, I don't know if it applies in any other country in Europe. At the time HTI's were concerned that they would lose competitively to Cement Kilns, potentially could close and the country could not incinerate any other types of hazardous wastes.	Noted. The Guideline has been developed to provide a general framework for the development of site specific operational, management and monitoring plans. These plans would be developed based on each particular kiln's characteristics, the wastes to be co-processed etc., and may therefore require detailed motivation on aspects which may have to be different from the parameters proposed in the guideline.
Of course it has all been a furphy as growth in hazardous waste has far outstripped the capacity of cement kilns and HTI's. In fact I think there has been growth in HTI capacity. I am trying to find out this growth for you. I take the point that NGO's may complain that a CK could become "just another incinerator" if the use of hazardous waste is unrestricted. But I also suggest that this is a furphy as cement kilns in Europe can burn up to 100% of non-hazardous wastes.	Only waste with a calorific value or a material value will be considered for co-processing in cement kilns.
Furthermore there are no such restrictions in the USA where at least 2 Lafarge kilns burn more than 60% Hazardous waste. The government is responding to an industry request to use hazardous wastes as fuels, which will also reduce greenhouse gas, with a commensurate effect on climate change and a reduction in the use of landfills and the need to replace them.	As above.

19. Mr E Otterman, Association of Cementitious Material Producers (ACMP); 07/03/2008	
Comments	**Response**
Comment on draft Guideline for Treatment of Hazardous Wastes and Co-processing of AFRs in Cement Kilns (SINTEF, 07/01/2008), and draft Proposed Air Emission Standards for Treatment of Hazardous Waste & AFR Co-processing in Cement Kilns (ESA, 14/01/2008):	
The ACMP appreciates the opportunity to pro-actively participate in the Policy Development Process for the High Temperature Treatment of Waste and Alternative Fuels in Cement Kilns. In the spirit of constructive engagement we hereby submit our comments on the following documents – - Proposed Air Emission Standards For Treatment Of Hazardous Waste & AFR Co-Processing In Cement Kilns - Guidelines for the Treatment of Hazardous Waste and Co-Processing of AFR in Cement Kilns. Our comments on the two documents are detailed separately in the pages following this cover. Please be assured of our continuous support in the development of this policy.	Noted.
Proposed Air Emission Standards for Treatment Of Hazardous Waste & AFR Co-Processing In Cement Kilns	
Section 2.1.1 We agree with the intention to formalize these emissions standards in terms of S21 of the NEMAQA, but urge that the integration of these standards into NEMAQA, which is expected to take another 12 to 18 months, does not delay the completion of the review of the EIAs submitted by the ACMP member companies with regard to the use of alternative fuels.	Although the setting of air emission standards would be formalised through the national process in terms of S21 of the NEMAQA, and are accordingly subject to the timeframes of this process, it is not expected to delay processing of EIA applications, as the act requires the consideration of all existing policies etc. in the issue of Air Emission Licences in terms of the act. Accordingly, once the policy on the co-processing of AFRs in cement kilns has been finalised, which would require compliance with the standards set through the policy development process, the relevant provisions of the policy, particularly the emission standards set in terms thereof, would be written into the Registration Certificates / Air Emission Licences (as the case may be) for co-processing of AFRs.
Section 2.1.2 We agree with your opinion with regards to the applicability of Sections 26 and 27 of NEMAQA to alternative fuels.	Noted.

<table>
<tr><th>Comments</th><th>Response</th></tr>
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<u>Section 4.2 - Proposed Emission Standards</u>
The document proposing the emissions standards indicates that the department has chosen to deviate from the EU Waste Incineration Directive by combining emissions standards for Cadmium (Cd), Thallium (Tl) and Mercury (Hg) as follows:
<table>
<tr><th>EMISSIONS</th><th>PROPOSED AIR EMISSION STANDARD (HTTT POLICY)</th></tr>
<tr><td>Cd+Tl+Hg</td><td>0.05 mg/Nm^3 at normalised conditions</td></tr>
<tr><th>EMISSIONS</th><th>AIR EMISSION STANDARD (EU Directive 2000/76EC)</th></tr>
<tr><td>Hg</td><td>0.05 mg/Nm^3 at normalised conditions</td></tr>
<tr><td>Cd+Tl</td><td>0.05 mg/Nm^3 at normalised conditions</td></tr>
</table>
The standards proposed by the department would effectively be three times stricter on mercury than the standards prescribed by the EU Directive 2000/76EC. The ACMP believes that the department should separate the emission standards for Hg and Tl + Cd as is indicated in the standards of the EU Directive 2000/76EC.
</td><td>The proposed emission standards have been revised as proposed to reflect the EU Directive 2000/76EC requirements for Cd, Tl and Hg.</td></tr>
<tr><td>
Furthermore, the department has chosen to deviate from the EU Directive with regard to the other metal emissions monitored by adding Barium (Ba), Beryllium (Be), Silver (Ag) and Tin (Sn) as follows:
<table>
<tr><th>EMISSIONS</th><th>PROPOSED AIR EMISSION STANDARD (HTTT POLICY)</th></tr>
<tr><td>Cr,Be,As,Sb,Ba,Pb,Ag,Co,Cu,Mn, Sn,V,Ni (Sum total)</td><td>0.5 mg/Nm^3 at normalised conditions</td></tr>
</table>
The members of the ACMP do not understand the reasoning behind the inclusion of these metals, additional to the metals listed in the EU Directive 2000/76EC, seen below:
<table>
<tr><th>EMISSIONS</th><th>PROPOSED AIR EMISSION STANDARD (HTTT POLICY)</th></tr>
<tr><td>Cr,As,Sb,Pb,Co,Cu,Mn,V,Ni (Sum total)</td><td>0.5 mg/Nm^3 at normalised conditions</td></tr>
</table>
The ACMP also notes that none of the regulatory documents reviewed for this document, except for the process 39 standards, use the collection of metals as chosen by the department. The choice of these standards would make the South African standards the strictest in the world. Although we support the improvement of environmental emissions standards in South Africa, we believe there should be a very good technical reason to propose the strictest standards in the world for an activity that has yet to be developed in this country. We propose that the department use the limits for these metals as described in the EU Directive 2000/76EC.
</td><td>The proposed emission standards have been revised as proposed to reflect the EU Directive 2000/76EC requirements for Cr, As, Sb, Pb, Co, Cu, Mn, V and Ni.</td></tr>
</table>

Comments	Response
Section 4.3 Some of the members of the ACMP have existing baseline measurements that cover the emissions standards as proposed by the ACMP in this document. The ACMP proposes that these members may apply for exemption from additional baseline testing.	Existing baseline measurements could in some cases be acceptable subject to the age thereof and specifically the ability to illustrate that these measurements are representative of current operations, that acceptable measurement methodologies were followed, etc. However, very limited instances exist of emissions from kilns recently having been monitored for the full range of emissions as per the new proposed standard. Complete, up to date monitoring results would be critical in cases where transitional periods related to particulate and NOx would apply as proposed.
Section 4.3 *Maximum waste AFR feed rate, e.g. 40% (if more than 40%. EC standards for incineration of waste apply).* The members of the ACMP did some research on the origin of this limit. Although an EU regulation, it has no technical or environmental merit or issue and in fact was introduced some years ago by France as a non-competitive measure due to pressure from High Temperature Incinerators, who argued they would lose business as the use of alternative fuels in cement kilns grew. This did not occur and in fact is not the situation in South Africa. The ACMP recommends that this provision be removed.	Noted. The percentage replacement of virgin fuels or raw materials with AFR should be immaterial provided emission standards are complied with. Although certain limitations do exist in terms of substitution fractions, higher AFR use would increase the positive impact of saving more virgin fossil fuel and raw material minerals. A kiln achieving a theoretical substitution of 100% would still not be considered an incinerator as it principally remains a product manufacturing process. It also seems as if the EU Directive refers to 40% heat release coming from AFR, rather than the percentage substitution. Note that the Guideline has been developed to provide a general framework for the development of site specific operational, management and monitoring plans. These plans would be developed based on each particular kiln's characteristics, the wastes to be co-processed etc., and may therefore require detailed motivation on aspects which may have to be different from the parameters proposed in the guideline.
Guidelines for Treatment Of Hazardous waste and co-processing of AFR in cement kilns - *General Comments applicable to Guidelines:*	
The guidelines, although a hybrid of international guidelines, cannot be applied on it's own to any co-processing activity in any cement kiln in South Africa as it does not refer to South African conditions, legislation or South African standards. If it is the intention of the department to publish a guideline for the treatment of hazardous waste and co-processing of AFR in cement kilns this document must be much more specific in it's guidance to the cement plant operator with regard to the handling, storage and co-processing of waste. The following comments and recommendations by the ACMP refer:	Noted. It is however the purpose of the policy development process to set the necessary conditions, standards etc. Due to the site specific and technology aspects associated with each kiln, the guideline provides a general framework for the development of site specific operational, management and monitoring plans. These plans would be developed based on each particular kiln's characteristics, the wastes to be co-processed etc., and may therefore require detailed motivation on aspects which may have to be different from the parameters proposed in the guideline. The pro-forma conditions developed as part of the process requires the development of these plans, as well as authorities' approval thereof. In this way, the provisions of the guideline are enforceable.

Comments	Response
Split the guidelines to allow separate guidelines for pre-processing of AFR at the pro-processing centre and co-processing of AFR at the cement kiln. There needs to be a clear sectional difference between the guidelines for the pre-processing of waste for AFR and the actual co-processing activity. The requirements and procedures for these two activities are very different and, although there are a few commonalities with regard to the handling, there needs to be more focus on the actual use of the AFR at the kiln for the co-processing section as most of the handling is done automatically by mechanical or pneumatic transport equipment. If well designed, human interaction with AFR at the cement plant will be minimal, if non-existent. In contrast, most of the handling at a pre-processing centre is done either manually of with mechanical handling equipment like cranes and loaders. Human interaction and risk of exposure during the pre-processing of waste is higher.	The guideline provides general provisions for all possible operations that may form part of co-processing. Detailed operational, management and monitoring plans will have to be developed within this framework as appropriate for each specific site and kiln.
DEAT to provide framework for guidelines and ACMP to develop guidelines The ACMP members are of the opinion that these guidelines should be a set of documents that can be used by cement plant operators as a reference and guideline for the safe and legal co-processing of AFR. To achieve this purpose the guidelines will have to be written specifically for South African conditions. The development of these specific guidelines will be a significant undertaking and will delay the completion of the policy for 6 months or more. Thus the ACMP proposes that DEAT publish a framework for the development of the guidelines as part of the policy and that the cement industry be requested by DEAT to develop the guidelines. These will then be developed and published by the ACMP after the policy has been adopted by the cabinet and will be verified by an expert appointed by DEAT.	The guideline would be gazetted as a so-called 'sector guideline' in terms of the EIA Regulations. Furthermore, the pro-forma conditions of authorisation developed as part of the project requires the development of these site specific plans in terms of the guideline, as well as authorities' approval thereof. In this way, the provisions of the guideline are enforceable.
Guidelines for Treatment Of Hazardous waste and co-processing of AFR in cement kilns - *Comments on specific sections of the Guidelines:*	
Section 1.4 Although the requirements and pre-requisites mentioned in 1.4 are all applicable to the successful co-processing of alternative fuels, they are too vague and if included in a guideline, should be much more specific with regard to the technical reference to be used.	The guideline has been significantly amended to address this and other issues as appropriate.
1 An approved EIA and all necessary national and local licenses The report does not make clear which local and national licenses are needed. As the department is making drastic changes to legislation affecting the co-processing of AFR in cement kilns, the required licenses must be specified in the guidelines to give the cement industry guidance on the legal processes to be followed.	The required approvals, standards etc. could be included, but law reform is a continuous process and the industry has a duty to keep abreast of changes in legislation now and in future.

Comments	Response
4 Approved location, technical infrastructure and processing equipment The ACMP is not clear about what is meant by an approved location. Who will conduct the approvals and what technical references will be used for the approval process?	The EIAs conducted for the co-processing of AFRs would include components associated with locality, technology etc. as part of determining significance of potential environmental impacts. It is accepted that all the current applications are for existing plants, the locality of which is not in question. What is evaluated though is the suitability of the site (locality) and plant for accepting and processing AFR, in addition to cement production.
6 Adequate air pollution control It is not clear what is meant by adequate. What technical references will be used to determine adequate? The same comment is true for 11, 14, 13, 16, 17, 19 and 20	Due to different kiln technologies and emission abatement alternatives, the guideline is not prescriptive in terms of particular technology to be applied. Rather, the equipment's ability to comply with air emission standards would determine the adequacy thereof. The same applies to other provisions – the adequacy thereof would be evaluated in terms of compliance with set standards and conditions.
7 Exit Gas conditioning/cooling and temperatures of <200 ºC in the air pollution control device (APCD) Although the ACMP recognise that APCD inlet temperatures of above 200 ºC can lead to an increase in the risk of dioxin formation, we believe that having this as a pre-requisite to the co-processing of AFR is excessive.	Avoiding the temperature range where the risk of dioxin and furan formation are known to increase is one of a number of control techniques necessary to ensure the significance of these potential emissions are reduced to acceptable levels.
18 Gas Cooling We recommend that, if a cement kiln does not have exit gas cooling and does have an APCD inlet temperature of above 200 ºC, the dioxin emissions should be measured to determine if the emissions standards required by the policy can be maintained. If that is the case then the cement operation should be allowed to co-process AFR.	The importance of temperature control remains a key consideration (see above).
Section 2.4 - Training This section in the report mentions requirements for pre-processing, but nothing about the actual co-processing. Training requirements must be clearly split between the training required for pre-processing and the training required for co-processing. Training for Occupational Health & Safety should also be mandatory and include such items as handling of wastes, manual opening of drums, driving of fork lift and other movable vehicles, eye washing, housekeeping, safety clothing & equipment, wet & dry rooms etc.	The guideline has been significantly amended to address this and other issues as appropriate.
Section 2.5 - Waste Acceptance The document only suggests what should happen in general terms. A specific waste acceptance guideline is suggested, as published by the GTZ Guidelines and various other EU bodies. A clear guideline is needed on how to develop a waste acceptance procedure, keeping South African legislation and standards in mind.	Noted. The Guideline document gives general guidance, while specific waste handling procedures are to be developed by the cement company.
Section 2.6 - Transport The guideline must be specific to ensure that the operator knows what the legislative requirements are.	Each company is required to comply with all applicable legislative requirements.

Comments	Response
Section 3.1 - Pre-acceptance The document omits that tolerance limits that need to be developed for inputs into each cement kiln. For example a certain cement kiln may have the potential for a higher Chlorine input than another. These input limits are a critical part of the pre-acceptance procedure for a cement kiln. There are pre-acceptance decision flowcharts available in international literature that can be included in the guideline to guide cement plant operators in the development of their own acceptance procedures. Again this section is not specific enough and does not differentiate clearly between requirements for the pre-processing waste into AFR and co-processing of AFR in cement kilns.	Tolerance levels are to be worked out by the cement company and agreed to by authorities.
Section 3.2 - Collection and Transport South Africa has detailed and specific standards and legislation governing the handling and transportation of dangerous goods. These should be referenced during the development of this section. Again this section cannot be used by the cement plant operator as it is too general.	The guidelines have been amended to some extent, but note that law reform is a continuous process and the industry has a duty to keep abreast of changes in legislation now and in future.
Section 3.4 - Sampling and Checking A detailed manual must be developed for the sampling and checking of the incoming waste. General descriptions are not sufficient. A clear indication should be given, taking South African legislation into account, when the ownership of the waste reverts to the cement plant operator.	The guideline makes provisions for sampling, while the cement company will be required to prepare a specific sampling and checking regime.
Section 3.7 - Storage South Africa has detailed and specific standards and legislation governing the storage of dangerous goods. These should be referenced during the development of this section. Again this section cannot be used by the cement plant operator as it is too general.	The guidelines have been amended to some extent as appropriate, but note that law reform is a continuous process and the industry has a duty to keep abreast of changes in legislation now and in future.

Comments	Response
Section 3.7.1 To define maximum storage times for AFR at the cement plant is inappropriate, but very appropriate for a pre-processing plant. Cement Plants can have scheduled or non-scheduled downtimes lasting up to four weeks, depending on the nature of the work to be done. Also the storage systems at cement plant are well designed to handle a certain amount of material for a long time. To scientifically determine storage times for hazardous waste would require that the hazard rating particularly flammability for each batch be determined. Normally storage time limits or volume limits are applied to waste generators. This is to avoid the risk of contamination & pollution from rusted and damaged drums and packaging, for the waste generator to avoid appropriate disposal, and gives the authority control of the generators storage facility. The ACMP members recommend that: - Storage times at cement plans for AFR not be limited with regard to time, if the design of the storage systems complies to South African standards and relevant guidelines, to be developed in this guideline. - Maximum storage times be defined for pre-processing plants, using international benchmarks for well known pre-processing facilities like Scoribel.	This matter was discussed at the Provincial meeting and a decision taken that the timeframes should remain.
Section 3.8 -Input Control Again the guidelines for Input control need to be separate for the pre-processing of waste into AFR and the co-processing of AFR in cement kilns. *.. .i.e. the main burner or the secondary burner in the precalciner/preheater will ensure temperature >900 ℃* Strict temperature limits (for example 900℃) should be avoided, as temperatures below this level may be sufficient to combust certain waste materials, especially non-hazardous wastes.	Noted, the guideline has been amended to an extent. The guideline provides general provisions for all possible operations that may form part of co-processing. Detailed operational, management and monitoring plans will have to be developed within this framework as appropriate for each specific site and kiln. The temperature stipulation is in line with international requirements related the minimum temperature required to ensure destruction of volatile organics, and goes for general and hazardous waste.

Comments	Response
Alternative Raw materials with volatile organic components should not be introduced with other raw materials ..... *Mineral inorganic waste materials, free of organic compounds, may be added to the raw meal .....* Alternative Raw Materials, containing organics, may be a source of VOC or TOC emissions but a requirement of no organics leads to both analytical & threshold measurement issues. Also there are cement plant operators with organic fractions embedded in the limestone at the plant. This provision would exclude that operation from making any further cement and this cause to shut down. The ACMP recommends rather specifying a limit of organic content to be allowed in alternative raw materials. If alternative raw materials are to be added to the raw mill, the required testing for dioxin emissions should take place. If the organics in the alternative raw material are in the graphitic form (for example fly ash and boiler ash), then the risk of VOC/TOC and dioxin emissions is often insignificant. This then becomes coherent with 3.8.1 b.	Noted. The guideline has been significantly amended to address this and other issues as appropriate. The Guideline has been developed to provide a general framework for the development of site specific operational, management and monitoring plans. These plans would be developed based on each particular kiln's characteristics, the wastes to be co-processed etc., and may therefore require detailed motivation on aspects which may have to be different from the parameters proposed in the guideline. The ultimate, non-negotiable regulatory point would remain the compliance with all the emission standards and associated provisions.
Interlocks should be provided to stop the flow of waste automatically if either normal fuel supply of combustion air flow is interrupted, or if CO levels indicate less than 99.9% combustion efficiency. The members of the ACMP and concerned that procedural issues can arise with both temporary analytical measurements and background CO from raw materials. The combustion efficiency cannot be measured directly, but has to be calculated from other measurements. Also, although the cement industry has almost perfected the art of measuring the gas analysis of the back end of a cement kiln, that measurement remains difficult due to the extremely aggressive conditions in the kiln. International experience among ACMP members has shown that a strict policy by authorities for automatic cut-offs can lead to a greater number of kiln upsets or increasing the severity of an upset rather than reducing the Alternative Fuel in a controlled manner. The reduction of the Alternative Fuel in a controlled manner would achieve the same results as cutting off the supply, but would preserve the stability of the kiln. The ACMP recommends to modify the paragraph to read as follows: .... *interlocks should be provided to adequately adjust or stop the flow ..... or if CO levels indicate significant reduction in combustion efficiency*. The members of the ACMP are fully in support of completely and automatically shutting off the flow of AFR under the controlled conditions, should the following occur: - Any sudden failure of the firing system - Any failure of the main fans in the kiln system - Any failure that would lead to a feed failure in the kiln.	Noted.

Comments	Response
Section 3.8.3 - Laboratory The analysis of the AFR is the heart of the co-processing activity and needs very specific guidelines, separate for pro-processing of waste into AFR and for co-process of AFR in cement kilns.	The Guideline has been developed to provide a general framework for the development of site specific operational, management and monitoring plans.
Section 3.9 - Kiln Operation *Feeding of hazardous waste should not be permitted during periods of kiln-startup, shut down ....* Used oil is classified as a hazardous waste in South Africa. Used oil and some non-hazardous wastes such as biomass can be safely combusted during startup conditions. To have a general condition that no AFR may be used during startup conditions is technically unsound. This provision would also exclude every user of waste oil, from the Rose Foundation process, from using the waste oil in their boiler, collapsing the entire waste oil industry in South Africa. The ACMP recommends that AFR that can be used at start-up be specifically mentioned in a detail guideline as described earlier in the comment document. Please note that alternative raw materials are waste and will be inherently part of the feed during start-up & shut down operations. *Kiln Speed decrease to below 60 rph* Cement Kiln optimal speeds range from below the above number to above 120 rph. Thus the kiln speed, indicated above, is technically unsound as a benchmark below which AFR must not be fed. The ACMP recommends to rather use a percentage of rated production rate as a benchmark. The control system for each cement kiln uses a ratio between the kiln speed and the feed rate, thus the kiln speed is automatically controlled by controlling the feed rate. Also the minimum production rate for a cement kiln is kiln specific and must be determined by each operation. *Automatic Shutdown of AFR if certain conditions prevail* The same comments are relevant here than above. Immediate, automatic shut down of AFR will lead to even further process instability. The ACMP recommends that controlled shutdowns of AFR feed to the kiln are initiated under the conditions mentioned, except for the condition where the skin temperature of the shell exceeds 500 ℃. This provision is unnecessary detail since, at that temperature, the kiln already has significant damage to the shell.	It has been decided that the requirement not to allow wastes to be fed into the kiln at start up and shut down should be retained. Noted. The guideline has been significantly amended to address this and other issues as appropriate. The Guideline has been developed to provide a general framework for the development of site specific operational, management and monitoring plans. These plans would be developed based on each particular kiln's characteristics, the wastes to be co-processed etc., and may therefore require detailed motivation on aspects which may have to be different from the parameters proposed in the guideline. The ultimate, non-negotiable regulatory point would remain the compliance with all the emission standards and associated provisions.

Comments	Response
Oxygen above 1.5% The document duplicates this provision in e and h. *Waste not to be used during failure of air pollution control equipment* Although the ACMP supports this provision in principle, the condition needs to be much more specific. Immediate, automatic shut down of AFR will lead to even further process instability.	Noted, to be corrected. Noted. The guideline has been significantly amended to address this and other issues as appropriate.
Section 3.11 - Emissions It is not true that all cement kilns in Europe comply with the EU Directive, many operate under an exception to allow for local issues, for example: - monitoring and DRE specific to the use of wastes in a pollution cleanup that may occur for a limited time - high metals contents in raw material that is generated in a particular region which under the strict EU Directive would not be allowed. It is true that cement plant operators in the EU must comply with the European Directive 2000/76EC unless an exception is granted by the competent authorities. The ACMP recommends that the same provision applies in South Africa.	Noted. The *Proposed Air Emission Standards for AFR Co-processing in Cement Kilns* does include certain provisions (as in the EU Directive) allowing for transitional and different standards based on age of kiln, type of waste used as AFR, and site-specific raw material composition.
Section 3.11.1 - Continuous Emissions Monitoring Although the gas conditions (Volume, Humidity, Temperature and Pressure) need to be measured to determine the accurate quantity of emissions, these need not be reported. The ACMP recommends that these be omitted from reporting requirements, but must be available for inspection if required.	Gas conditions form an integral part of evaluating compliance with emission standards, and the absence thereof would reduce the efficiency of compliance monitoring if not reported.
Section 3.11.4 - Additional measures for gas cleaning The measures proposed in this section have been demonstrated as being prohibitively expensive and, with the exception of SNCR, have not been implemented in the cement industry, except for a few test cases. In the South African context the mandatory implementation of these measures would lead to the shut-down of that particular cement operation.	Noted. The guideline does not intend to prescribe any particular abatement technology. The focus is however on the required compliance with emission standards within the specified timeframes (see *Proposed Air Emission Standards for AFR Co-processing in Cement Kilns*).
Section 3.12 - Test Burns The members of the ACMP agree with the need for test burns for the co-processing of POP's as defined by the Stockholm Convention, but stress that the test burns for DRE verification purposes should be conducted only once for a specific kiln. Also the ACMP recommends that DRE demonstration not be a requirement for every AFR implemented at cement operations.	DRE and DE tests would be required for verification should POPs containing waste be co-processed.

20. Mr R Euripidou, groundWork; 12/03/2008 *(Two articles forwarded to several stakeholders via e-mail)*	
Comments	**Response**
Dear all, Mercury from cement kilns is finally also set to be properly regulated in the US following global trends.	Noted. The articles seem to have been sent for information and no specific response is required. The importance of limiting and monitoring mercury and other emissions is acknowledged though, and related provisions have accordingly been included in the *Proposed Air Emission Standards for AFR Co-processing in Cement Kilns*.
EPA Finally Sets Plans for Mercury Limits on Cement Kilns *Years of delay means thousands of pounds of mercury pollution have gone unchecked* **March 6, 2008**; **Washington, D.C.** -- Under intense pressure from states and local and national environmental and public health groups, the U.S. Environmental Protection Agency announced in a recent court document plans to regulate mercury pollution from over 100 cement kilns across the country by September 2009. The announcement marks a dramatic shift in EPA policy which, until now, had been to resist requiring mercury controls for cement kilns. "After nearly a decade of litigation and multiple court orders directing EPA to regulate mercury from cement kilns, it seems the agency is finally paying attention," said Earthjustice attorney James Pew. Three times in the last ten years, federal courts have ordered EPA to set emission standards to control cement kilns' mercury emissions. Until now, EPA has ignored these orders or sought to evade them. EPA finally indicated that it would set mercury emission standards in papers filed on February 20, 2008, in a fourth case brought by Earthjustice on behalf of Sierra Club, Downwinders at Risk (TX), Friends of Hudson (NY), Montanans Against Toxic Burning, Desert Citizens Against Pollution (CA), and the Huron Environmental Activist League (MI). The States of New York, Michigan, Connecticut, Illinois, Maryland, Delaware, Massachusetts, New Jersey, and Pennsylvania also filed suit. "Cement kilns are among the nation's worst polluters, and their free ride on mercury pollution needs to end at long last," said Jane Williams, executive director of Desert Citizens Against Pollution. Cement kilns pumped nearly **12,000 pounds of mercury into the air in 2006**, according to EPA's Toxics Release Inventory (TRI). However, the TRI depends on voluntary emissions estimates that may significantly understate kilns' actual pollution levels. Individual cement kilns in New York, Michigan and Oregon routinely understated their emissions until being required by State officials to conduct emissions tests -- at which point it was evident that	Where kilns are not burning AFR's, mercury emissions result from the provision of energy to the cement process and trace elements are found in the raw material used in cement manufacture (shale, limestone, clay etc.). In some parts of the world mercury emissions can be slightly elevated due to local geography, this is the case in some parts of the US. The input specification for AFR blended material for mercury is set at 10ppm as a general Holcim GTZ standard. Should the use of AFR's be accepted in South Africa a similar limit on mercury could be applied to safeguard the environment and the health of the community. Alternatively, emission limits for mercury would be set in line with international BEP.

their actual emissions were approximately ten times higher than previously reported. **The Lafarge kiln in Ravena, New York previously reported mercury emissions of only 40 pounds. It now acknowledges emitting more than 400 pounds per year.**

"One of California's biggest mercury polluters is a cement kiln in Davenport, California, just across the street from the Monterey Bay National Marine Sanctuary," said Kristen Raugust, a member of the Executive Committee of the Santa Cruz County Group of the Sierra Club. "Hopefully, the EPA will finally do something about this pollution and protect both our fragile marine environment and local children from the harmful effects of mercury."
According to a 1991 article in Science News, it only takes 1/70th of a teaspoon of mercury to contaminate a 25-acre lake. Over 40 states have warned their citizens to avoid consuming various fish species due to mercury contamination; over half of those mercury advisories apply to all waterbodies in the states.

Mercury is a dangerous neurotoxin that can impair a young child's ability to walk, talk, read, write and learn. While the mercury pollution from these kilns is staggering, they are also major emitters of toxic organic compounds, such as benzene and formaldehyde, known carcinogens. In the court documents, EPA also pledged to set emission standards for these pollutants as well.
"It is a good thing Americans can hold their government accountable for breaking the law," said Marti Sinclair, Sierra Club's National Air Committee Chair. "The cement industry has far too much clout at EPA. If the courts hadn't put a stop to its scofflaw behavior, the agency would never have made this industry clean up."

Ten Years And Four Lawsuits To Bring EPA Into Compliance With Clean Air Act
Sierra Club first filed suit in 1998, after EPA failed to meet a November 15, 1997 deadline to issue air toxics regulations for cement kilns. In that case, the United States District Court for the District of Columbia ordered the agency to do so by May 15, 1999.
When the agency issued the overdue regulations, however, it refused to include standards to control cement kilns' mercury emissions. Sierra Club, represented by Earthjustice, challenged that decision in the United States Court of Appeals for the District of Columbia Circuit, which found in 2000 that the agency's refusal violated the federal Clean Air Act and ordered the agency to set mercury standards.
EPA ignored the D.C. Circuit's order until 2004, when Sierra Club brought a third suit, which resulted in an order requiring EPA to issue the required mercury standards no later than December, 2006.

In 2006, the agency issued another rule refusing to set mercury standards. On this occasion, it was sued not only by local and national environmental groups, but also the States of New York, Michigan, Connecticut, Illinois, Maryland, Delaware, Massachusetts, New Jersey and Pennsylvania. That case was held in abeyance from 2006 until now, when EPA was forced to indicate whether it wished to set mercury standards or litigate the issue a fourth time. The agency indicated in a motion to the court that it expected to propose mercury standards by "mid-September 2008" and issue them by "mid-September 2009." **Contact:** James Pew, Earthjustice, (202) 667-4500	
3.10.2008 9:57 AM **The 27 Worst Cement Kilns for Mercury Pollution** **EPA, Finally, Will Crack Down on Major Polluters** **By Dan Shapley** After years of litigation, it appears that environmental groups and states have won a victory against the Environmental Protection Agency, which had refused for 10 years to set mercury emissions limits on cement kilns, one of the largest sources of pollution in the country. The news came to us from Earthjustice, the group that has, in collaboration with national and local environmental groups, led the legal fight to see this mercury pollution reined in. The EPA had cracked down on mercury from power plants in recent years, though that regulation was recently tossed by the courts. But the EPA had refused, despite four court decisions stating that the Clean Air Act required mercury regulation from major industrial sources like cement manufacturing plants, to set first-ever limits. The cement industry is heavily consolidated and controlled by international companies that are, in many cases, based outside the United States. While the U.S. economy demands cement, the pollution is dumped domestically while the profits are exported. Mercury fallout from burning coal and processing limestone contaminates lakes, rivers and reservoirs, where elemental mercury is transformed into toxic methymercury. That neurotoxin enters the food chain and can damage the brains of fetuses and young children who eat, or whose mothers eat, contaminated fish. Here's a list of the 27 cement kilns that emitted more than 100 pounds of mercury in 2006. (View all 100 in the EPA's Toxic Release Inventory. Note, however, this caveat from Earthjustice: "The TRI depends on voluntary emissions estimates that may significantly understate kilns' actual pollution levels. Individual cement kilns in New York, Michigan and Oregon routinely understated their emissions until being required by state officials to conduct emissions tests – at which point it was evident that their actual emissions were approximately ten times higher than previously reported. The Lafarge kiln in Ravena, New York previously reported mercury emissions of only 40 pounds. It now acknowledges emitting more than 400 pounds per year."	As above. Many cement industries in the US have a special dispensation from the EPA to use limestone with higher than usual quantities of mercury as this is related to the geology of the region. This plant does not have an AFR program and therefore the emissions which were from a once off test could only have come from the materials used in the process being coal, coke or materials in the raw feed.

Biggest Cement Kiln Mercury Polluters, 2006 **Pounds – Facility, Location** 1. 2,582 – Ash Grove Cement Co., Durkee, Baker County, Ore. 2. 654 – California Portland Cement Co., Colton, San Bernardino County, Calif. 3. 586 – Lehigh Southwest Cement Co., Tehachapi, Kern County, Calif. 4. 522 – Ash Grove Cement Co., Chanute, Neosho, Kan. 5. 496 – Hanson Permanente Cement, Cupertino, Santa Clara County, Calif. 6. 472 – Ash Grove Cement Co., Foreman, Little River County, Ark. 7. 417 – LaFarge Midwest Inc., Alpena, Alpena County, Mich. 8. 416 – LaFarge Building Materials Inc., Ravena, Albany County, N.Y. 9. 271 – Cemex California Cement LLC, Victorville, San Bernardino County, Calif. 10. 252 – River Cement Co., Festus, Jefferson County, Mo. 11. 241 – Cemex Cement of Texas LP, New Braunfels, Comal County, Texas 12. 225 – Cemex de Puerto Rico Inc., Ponce, Ponce County, Puerto Rico 13. 208 – National Cement Co. of Alabama, Ragland, St. Clair County, Ala. 14. 190 – Lehigh Cement Co., Mason City, Cerro Gordo County, Iowa 15. 176 – Essroc Cement Corp., Speed, Clark County, Ind. 16. 172 – RMC Pacific Materials, Davenport, Santa Cruz County, Calif. 17. 163 – Essroc Cement Corp., Nazareth, Northampton County, Penn. 18. 161 – Mitsubishi Cement Corp., Lucerne Valley, San Bernardino County, Calif. 19. 160 – Buzzi Unicem USA, Cape Girardeau, Cape Girardeau County, Mo. 20. 159 – Lehigh Cement Co., Mitchel, Lawrence County, Ind. 21. 153 – Ash Grove Cement, Leamington, Leamington County, Utah 22. 151 – Essroc Cement Corp., Bessemer, Lawrence County, Penn. 23. 149 – Capitol Cement Corp., Martinsburg, Berkeley, W.Va. 24. 130 – Buzzi Unicem USA, Greencastle, Putnam County, Ind. 25. 120 – Holcim (US), Dundee, Monroe County, Mich. 26. 106 – Holcim U.S. Inc., Clarksville, Pike County, Mo. 27. 105 – Keystone Cement Co., Bath, Northampton, Penn.	

21. Mr R Euripidou, groundWork; 26/03/2008 *(Article forwarded to several stakeholders via e-mail)*	
Comments	**Response**
Dear all, Some worrying recent news from the US highlighting dangerously high Hg emissions from cement plants.	Noted. The article seems to have been sent for information and no specific response is required. The issues related to mercury have been dealt with in the comment above.
http://www.dailyfreeman.com/site/news.cfm?newsid=19420003&BRD=1769&PAG=461&dept_id=74958&rfi=6 **Cement plant mercury emissions spur concern** **By Bob Green, Special to the Freeman** **03/25/2008** STUYVESANT - After federal data recently showed that Lafarge Cement's plant across the Hudson River in Ravena was the state's largest source of mercury emissions in the state in 2006, the Stuyvesant Town Board moved at its March meeting to send a letter to the state highlighting its concerns. Environmental groups, citing data from the federal Environmental Protection Agency, say that the Lafarge plant emitted over 400 pounds of mercury in 2006, although in 2003, the company said it produced a tenth of that amount, or 40 pounds. Mercury can cause health problems in humans and animals. It also can lead to birth defects. The plant's output of toxic mercury was nearly a third of the state's total mercury pollution, equivalent to four of the state's largest coal- fired power plants, according to one published estimate. The plant, on U.S. Route 9W near the west end of the Castleton Bridge, is less than eight miles from some parts of Stuyvesant, and its plume is plainly visible from many residences in town. Ravena is less than 20 miles north of Catskill. Stuyvesant town Supervisor Valerie Bertram acknowledged the Lafarge had "been in the news" and said she had recent contacts with the offices of U.S. Rep Kirsten Gillibrand and state Assemblyman Tim Gordon. The supervisor said she had been informed that Gillibrand would meet with the state Department of Environmental Conservation "to request air quality monitoring for the southern and northern ends of Columbia County." Residents have frequently pressed the board to speak out on the topic of air quality, and Bertram raised the matter with the county Board of Supervisors. But the county has received a letter from Gillibrand saying that previous air monitoring in Columbia County "did not produce any meaningful information," and that "particulate matter is best measured 'at the fence.'"	A review of the article indicates that the mercury results from particular raw materials used at the plant, and not due to use of AFRs.

After that response, members the Stuyvesant Town Board were reluctant to take further action. But that stance changed this month when Deputy Supervisor Ron Knott proposed a resolution unanimously adopted by the board: "Due to the concerns from the recent release of information regarding mercury emissions from the Lafarge Cement Plant in Ravena, we the Town Board of Stuyvesant respectfully ask that (the state Department of Environmental Conservation) provide monitoring of this situation and take steps to help Lafarge achieve better emissions standards while continuing to operate at this location." In making his motion, Knott added, "I also would like to ask Supervisor Bertram to share our concerns with the county Board of Supervisors and ask that they join us in asking DEC to provide monitoring in Columbia County." Most persistent in keeping the issue on the board's agenda has been resident Ned Depew, who asks about it every chance he gets. Depew appeared at an Albany news conference regarding the Lafarge mercury issue, representing the Columbia County group Citizens for Clean Air of the Upper Hudson Valley, which unsuccessfully opposed the plant's application for permission to burn old tires. Depew also gave oral testimony in 2005 state hearings on the plant's application to use tire-derived fuel. Depew encouraged his neighbors to write letters to state Departmental of Environmental Conservation Commissioner Pete Grannis and to elected officials, urging that "strict mercury level language be in the new permit being negotiated" with the plant.	

22. Mr R Euripidou, groundWork; 27/03/2008	
Comments	**Response**
Please find below an abstract examining health outcomes comparing coal and coal/RDF. Please incorporate this research into the HTTT policy process. *"Data from these studies demonstrate significant alterations in lung permeability from coal/RDF ash exposure compared to control animals or animals exposed to coal ash alone."*	Noted.
<u>Fernandez et al., 2003. Inhalation health effects of fine particles from the co-combustion of coal and refuse derived fuel. Chemosphere 51: 1129–1137</u> Abstract This paper is concerned with health effects from the inhalation of particulate matter (PM) emitted from the combustion of coal, and from the co-combustion of refuse derived fuel (RDF) and pulverized coal mixtures, under both normal and low NOx conditions. Specific issues focus on whether the addition of RDF to coal has an effect on PM toxicity, and whether the application of staged combustion (for low NOx) may also be a factor in this regard. Ash particles were sampled and collected from a pilot scale combustion unit and then re-suspended and diluted to concentrations of ~1000 m g/m3. These particles were inhaled by mice, which were held in a nose-only exposure configuration. Exposure tests were for 1 h per day, and involved three sets (eight mice per set) of mice. These three sets were exposed over 8, 16, and 24 consecutive days, respectively. Pathological lung damage was measured in terms of increases in lung permeability. Results show that the re-suspended coal/RDF ash appeared to cause very different effects on lung permeability than did coal ash alone. In addition, it was also shown that a ''snapshot'' of lung properties after a fixed number of daily 1-h exposures, can be misleading, since apparent repair mechanisms cause lung properties to change over a period of time. For the coal/RDF, the greatest lung damage (in terms of lung permeability increase) occurred at the short exposure period of 8 days, and thereafter appeared to be gradually repaired. Ash from staged (low NOx) combustion of coal/RDF appeared to cause greater lung injury than that from unstaged (high NOx) coal/RDF combustion, although the temporal behavior and (apparent) repair processes in each case were similar. In contrast to this, coal ash alone showed a slight decrease of lung permeability after 1 and 3 days, and this disappeared after 12 days.	The experiments were conducted on a pilot scale combustion unit, and the operation thereof needs to be considered to establish the relevance and level of extrapolation possible, if at all, to cement kiln operation and AFR co-processing.

These observations are interpreted in the light of mechanisms proposed in the literature. The results all suggest that the composition of particles actually inhaled is important in determining lung injury. Particle size segregated leachability measurements showed that water soluble sulfur, zinc, and vanadium, but not iron, were present in the coal/RDF ash particles, which caused lung permeabilities to increase. However, the differences in health effects between unstaged and staged coal/RDF combustion could not be attributed to variations in pH values of the leachate. [from body of text] Data from these studies demonstrate significant alterations in lung permeability from coal/RDF ash exposure compared to control animals or animals exposed to coal ash alone.	

23. Port Shepstone Community Meeting; 12/04/2008	
Comments	**Response**
The permit to burn waste, will it come from community or informed by policy.	The permitting process has three steps, the first is the approval of the Environmental Impact Assessment which is approved by the provincial Environmental Department, the second is the approval of Section 20 waste storage permit which is issued by the Chief Directorate Pollution and Waste at DEAT and the third is the licence issued in terms of the Atmospheric Pollution Prevention Act which is issued by the Chief Directorate Air Quality and Climate Change.
The cement industry went ahead to ask for a permit to burn hazardous waste without speaking to the community	The first approval that is required to burn hazardous waste in a cement kiln is the Environmental Impact Assessment. The EIA applications were applied for in terms of the Environment Conservation Act and EIA Regulations, which requires the applicant to register with the relevant Department and then a plan of study is required to be approved before the scope the community concerns can begin. The procedures therefore require that the application is made before consultation with the community is undertaken. No decision is however taken on the application prior to the finalisation of the public participation process and well as the technical review process.
Community have not been consulted NPC specific	NPC response – in terms of the technical processes and communication have followed numerous processes. The industry dealt with different departments in terms of developing the communication strategy for expansion. Quarterly liaison meetings are held with the various communities – the meetings are open and anyone is welcome to attend. The management are committed to meeting with the community and will set up a meeting on Monday where issues not really for today's meeting will be discussed.
The Waste Bill is still pending how is it possible to propose the policy when the bill has not been passed	The Waste Bill is framework legislation, does not specify technologies. The Waste Bill status will therefore not have an impact on the police development process. In 2000 the Integrated Pollution and Waste Management policy was developed which identified the direction in which the country wished to move with respect to waste management. DEAT believe that this and the National Environmental Management Act which provides the principles for waste management provide a sufficient basis to develop the current policy.
Industry does not take people form the community for employment. What is the industry doing about unemployment in the area	This is not an issue which can be solved through the policy development process. This issue will be added to the agenda for the NPC quarterly meeting with the community. DEAT will request regular updates from the management of NPC on progress being made.
Small amounts are only given for social responsibility, will they take the maths and science students to other counties to look at these technologies	As above
Who owns the cement companies, are there any local people who have ownership	The ownership of the industry is not part of the approval process for either the EIA or the current policy. Transformation of the cement industry is an issue which the management of NPC must discuss with the communities through the quarterly meetings being held.

Comments	Response
Youth employment opportunities	The issue of youth employment will be added to the agenda of the quarterly meetings being held between NPC and the community. DEAT will request regular updates for the management of NPC on progress being made.
The company has not observed “traditional”/tribal protocol in its consultation	The EIA process is to ensure that the consultation process has been comprehensive and that all Interested and Affected persons have been consulted. The provincial authorities who are responsible for the authorisation of EIA attended the meeting and aware of the concerns raised by the community with respect to consultation. The issue of inclusively of the public participation will be carefully considered through the authorisation process.
Will the waste generated from households be used	Unsorted domestic waste will not be used as alternative fuel or raw material.
DEAT uses examples of countries that are industrialised, South Africa is not. Have people been trained to do this.	The aspect of training is a very important component of any new technology. The industry has made a commitment to training of staff. This is a technology used extensively internationally and a large pool of expertise has been built up. All the cement industries besides PPC have linkages to the international cement industry. Training and technology transfer is therefore very easily achieved. The “Guideline for co-processing of alternative fuels and raw materials and treatment of organic hazardous wastes in cement kilns”, includes a section on training. The requirement is to develop a training program and keep training records.
South Africa has not been able to manage dust – how will we cope with burning waste?	The permit conditions for the majority of cement kilns permitted in the country allows dust emissions of 120mg/m^3 which in relation to international standards, is relatively lenient. Should a cement kiln wish to co-process hazardous waste, emission limits which meet international standard are being proposed. The emission standards being proposed for co-processing of AFR’s also require on-line monitoring of a number of parameters, and external auditing. These requirements being the monitoring of emissions to levels which equal those applied internationally.
Cannot compare SA to industrialised countries	South Africa has a long history of cement production. The kilns in the country are a mixture of old and very new technology. The kiln technology undertaken as part of the policy development process concluded that “all of the kilns visited would from a technical standpoint be able to co-process AFRs and treat hazardous waste”. There are however qualifiers in terms of appropriate training and systems development.
There is poor enforcement of the law, the school in Port Shepstone closed down because the cement company was not functioning according to its permit	NPC have been requested to respond to this issue specifically as an addendum to the EIA scoping report for consideration of the provincial authority in their decision making.
Incineration is too complicated for SA	Incineration is a technology used for many years in South Africa
Tyre burning was tried in Lichtenburg and three workers became ill. If there are these case studies why do we still want to burn tyres	This issue was raised with Lafarge they confirmed that a trail using tyres in their cement kiln in Lichtenburg was undertaken, they were however unaware of any cases of illness associated with the trial. They indicated that no incidents were reported throughout the trial.

Comments	Response
We are experiencing load shedding, what will happen under unset conditions	Internationally as part of the safety features required for kilns utilising hazardous waste measures must be in place to stop the feed of waste immediately a problem is encountered. Should this technology be permitted in South Africa the same precautions will be required.
What will happen if the community do not want the cement industry to burn waste will it still go ahead	The decision to allow or not the burning of waste will rest with the Provincial Environmental Department and the Chief Directorate Air Quality and Climate change. The process for decision making will depend on the information provided which includes a detailed review of how the issues that Interested and Affected parties have raised have been considered, address and/or managed. The information considered by the authorising authority and the reasons for a decision need to be clearly indicated in the record of decision. Should either party be aggrieved an appeal process is also provided for.
In terms of monitoring of emissions, does NPC have expertise to monitor	Should any of the current kilns in South Africa be permitted to accept AFR's, the proposed emission standards that would be would require the on-line monitoring of many parameters. As such the emission monitoring would be largely mechanised. In addition where parameters are not monitored on line, the monitoring will be required to be undertaken by independently air quality monitoring experts.
Can NPC burn any type of waste as an alternative fuel	Not all types of waste are suitable for co-processing, in addition should this technology be approved for use in the country, only waste that has an energy or raw material advantage will be considered for co-processing.
What is the communities involvement in terms of AFR's how do they get included in the policy itself	Through the policy development process DEAT engaged with umbrella organisations, the policy once drafted will be gazetted for public comment. DEAT will ensure that all Interested and Affected parities who have been contacted through this process will be informed of the availability of the draft policy.
What is the company going to do with its own waste	This question has been posed to cement industries engaged through the community consultations.
How will the company contribute in reducing waste generally- in households in particular?	The activity of co-processing although not reducing the production of waste will reduce the waste that is landfilled. Co-processing will however not have any impact on household waste as this waste is not suitable for co-processing.
Is DEAT going to rally in old data to support the policy	Through the policy development process extensive research was undertaken.
There is a case where the EIA raised a boundary issue, and the cement company has not resolved the matter to date.	This comment relates to the school that was closed and to which the community does not have access to the school grounds. The industry has been requested to respond to this issue specifically as an addendum to the EIA scoping report for consideration of the provincial authority in their decision making.
Acknowledge social issues and recommend people must take issues to NPC. Also whatever NPC is doing with AFR, stop until policy is finalised through consultative process.	It has been agreed with the cement industry that no decisions will be made on EIA applications in the absence of the policy should the timeframe not extend excessively.

Comments	Response
Groundwork interpreted what the Nkosi said as being "policy process must stop, then consult, then continue". The Nkosi responded as follows: "Recommendation that company must stop any process on AFR, let government continue to finalise policy process and continue consultation with communities".	The cement industry is not currently co-processing hazardous waste other than that already permitted.
What was being proposed is not wrong but we must be careful. Want to see government setting very high standards. Also want to see independent monitoring.	Emission standard which meet international standards have been proposed should this technology be accepted, in addition on line monitoring will be required.
Need more than a day to consider the issues.	The EIA process has been designed to allow for participation of interested and affected parties into any project that has the potential to negatively impact on their health or well being. The EIA processes at each kiln that have applied to co-process AFR's have been initiated and are ongoing.
Need to postpone the meeting and set another date.	The draft policy will be published in the government gazette and posted on the website for a 30 day period to allow for further public comment. The leaders of the community as identified through the stakeholder meeting has been notified directly and they are requested to community members became aware of the availability of the document. I&AP's are encouraged to comment on the draft policy and put forward any outstanding matters. In addition, the EIA process should be used to raise additional issues of a more site related nature.
Not interested in the discussion on the policy, want to discuss the issue of jobs	The cement industry has committed to meeting with community leaders to discuss the issue of jobs.
In high priority areas, need to manage industry entrant so that air emissions are not exceeded in the first place requiring high priority area declaration.	Not all of SA has problematic air-shed, also sometimes the problems are historical, which can only be addressed retrospectively through the declaration of priority areas and the development of area specific air quality plans.
What about including necessary provisions in IDPs of development hotspots where new industry developments want to come in	Air Quality Monitoring plans are required from municipalities in terms of the National Environment Air Quality Act
Groundwork	
What else can be done with municipal waste	The policy on the use of co-processing AFR's does not deal with municipal waste but rather focuses on the hazardous waste stream. Large portions of the Municipal waste stream can however be recycled, and separate initiatives are ongoing within DEAT to address various waste steams including the Municipal waste stream.

Comments	Response
Is it not true that CO_2 comes from the limestone conversion	The calcination process which is an initial reaction of the feed material with heat intends to dissociate the Carbon Dioxide CO_2 from the lime $CaCO_3$. Therefore the nature of the chemical process that is required to make clinker produces large quantities of CO_2 emissions. CO_2 resulting from calcination can be influenced to a very limited extent only. As a rule of thumb 60% of CO_2 emissions are produced from the calcinations process and 40% from the fuel combustion process. Fuel combustion in cement production has generally been reduced due to the strong economic incentive for the cement industry to minimise fuel energy consumption. In Europe where energy costs are high a reduction of 30% in CO_2 emission has been achieved over the past 25 years due to improving the fuel efficiency of kilns. Further reductions can now mainly be made in substituting fuel by renewable alternatives or other waste derived fuels which reduce the overall carbon footprint, as the fuel is a waste and by recovering the energy reduces the need for landfill which produces methane (a greenhouse gas contributing significantly to climate change) avoids the emissions created from coal burning and reduces the need to mine coal, therefore contributing to the reduction of CO_2 emissions.
Explain to people how process will help in managing general waste?	The use of AFR's in cement kilns will not utilise general waste. One waste stream that would be suitable but will only be considered for co-processing should this technology be found to be acceptable is plastic waste, as this material has a high calorific value. As mentioned above DEAT has embarked on other initiatives to promote the recycling of various waste steams including general waste.
Global warming – GHG from organic waste, how much does organic fraction make up?	Preliminary figures which have been taken from the draft GHG inventory prepared in 1996 indicate that more than 2% of SA's greenhouse gases are generated through land-filling of waste. In addition it is estimated that approximately 1% of South Africa's greenhouse gases footprint is contributed by the cement industry, of which 40% is attributed fuel use. Substitutions that reduce CO2 emissions either directly by change of fuel from coal or indirectly from the reduction of electricity use of mining will have a further positive impact on South Africa's current carbon footprint.
The presentation indicated that electricity could be generated, would the communities be able to benefit	South Africa is currently experiencing an energy shortage, which will continue for a few years. Any additional energy that can be generated and fed to the grid would be beneficial to all of South Africa's citizens.

Comments	Response
The presentation indicates that these technologies impact positively on greenhouse gas emissions from the use of organic wastes, however cement kilns are not good for use of organic waste steams, therefore what are other options for organic waste types	Domestic is not intended to be co-processed in cement kilns, this is true also for the organic fraction of this waste stream. The presentation discussed the incineration of domestic waste from volume reduction and then using the off gases derived from the incineration process for the generation of electricity. Hazardous organic waste is a definite target for co-processing as these wastes usually have a high calorific value.
What other options are there for disposing of waste tyres	As part of the Guidelines produced to support the Basel Convention a technical guidelines on environmentally sound management of used tyres for the disposal of waste tyres has been produced. Appendix III provides a list of the various used and disposal methods for waste tyres and provides a list of advantages and disadvantages of each technology. The document does not identify a preferred option for the disposal of tyres. The guideline can be sourced from the website www.basel.int
It is noted that the coal usage for the cement industry is 5 to 6 million tons per annum. Who would benefit from the savings derived by the cement industry utilising waste for fuel. Are jobs going to be created?	The citizens of South Africa and the world would benefit from reduced resource usage and impact on global climate change. Job opportunities would be created through the preparing on alternatives fuels and the new infrastructure that would be required to collect and transport large numbers of tyres throughout the country. These activities are both new activities.
DEAT employed people to advise them who travel around the world promoting the technologies. Why choose these people to tell us what to do with our waste	When considering a potential technology it is usually best to identify the best experts in the world to advise on the technology. The NGO movement has also employed an expert who has previously represented the NGO movement in fighting incineration. It is therefore felt that a good balance has been stuck with both vies on technology represented. A decision will be made only after a full consideration of all inputs.
Is the SA kiln assessment available electronically	The document has been circulated to all stakeholders.
DEAT is accepting lesser standards, old and new technologies. Should not have double standards	In proposing emission standards to which facilities co-processing waste should operated in order to be considered acceptable, DEAT has following best international practice. The phase in of stricter requirements is required to allow the industry to upgrade technologies to meet the new requirements. Noting that the requirements proposed are very much stricter than what is currently in place to manage the cement industry, the phase in period is regarded as being strict. It should also be noted that should the cement industry be given permission to co-process hazardous waste immediate improvements in operational and emissions are being required.

Comments	Response
Don't run headlong into it, why is DEAT not planning to prevent hazardous waste	DEAT has several other initiatives in place which begin to address waste prevention. These are long term processes, in the meantime alternative disposal methods to landfill must be considered to ensure safe and environmentally sound management of hazardous waste can be achieved to protect the environment and to ensure that South African industry can compete globally in relation to their waste management responsibilities.
What is the government proposing in terms of the green levy on tyres	The tyre levy has been determined by the industry. Government has merely regulated that any company involved in the tyre industry must have an industry waste management plan which has been approved by the Minister in place to ensure the safe and environmentally sound disposal of waste tyres.
If DEAT does not come back then cannot develop the policy – haven't responded to the issues	It is not possible for DEAT to respond to many of the issues as they are related to social responsibility and employment. These issues has been formally raised with either the cement company directly involved, the cement industry as a whole, the respective government department where the issue related to a matter outside of the mandate of DEAT, or where the issue can be addressed by DEAT this would be done and feedback would be made to community leaders identified through these meetings for communication back to community stakeholders.
Standard setting process still under review trying to understand standards, what can industries comply with, what can't they comply with. Looking at international standards, with transitional arrangements, up to 2020 – is it acceptable to wait until then. Also new and old plants, why this distinction?	EU & WHO has transitional periods. Need lead time for industries to comply. Large constructions to comply with new standards.

24. Lichtenburg Community Meeting; 19/04/2008	
Comments	**Response**
Has the policy already been developed	Although the intention is to develop a policy, no policy has been developed to date. The policy will only be developed once all the comments have been considered.
Concerns were raised about the extent of consultation, there are areas around Lichtenburg where workers come from who are affected they are not represented. Would want to see officials from local government	Every attempt was made to invite all stakeholders. The NGO network was also invited and requested to identify stakeholders to attend. Where transport was required DEAT requested industry to provide transport. Transport was provided to community members where this was requested. Local Government officials were invited and there are Councillors represented at the meeting.
The community members were not invited to the meeting, they heard about the meeting from Groundwork. How were people invited?	The meeting was advertised in the local newspaper, Councillors who represent their communities were invited and individual invitations were sent to all stakeholders who were identified on the cement industry databases in the area. In addition the consultants conducting the EIA consultation process were also contacted and their databases of stakeholders requested. Representation was requested from Local Government, the Department of Health, Labour, DWAF and DME. In addition Groundwork was requested to invite community members that they knew would be interested in attending. Once the initial invitations were sent out, each stakeholder was called and confirmation of their attendance requested.
There are other government departments, who have a stake on the issues, who are supposed to attend the meeting, like the Department of Labour and Health, where are they?	Both the Department of Labour and the Department of Health were invited to attend the meeting. All matters that relate to the mandate of these two departments has been addressed to them, and they have been requested to respond directly to community representatives.
Lines of communication must be established. Documents and/or information could have been circulated before hand to allow people to think and strategise about issues.	Where documents were requested these were provided. All outputs of the project to date have been made available to the NGO groups attending the policy development meetings.
Resolution of forum:	
Want a clear explanation to government in terms of criteria used to monitor companies to ensure that social responsibility provided by cement industry to communities is adequate.	Government does not monitor social responsibility initiatives of industry. Communication between the community and the industry should be enhanced to address these issues. The matter has been raised in a letter addressed to the cement industry and they have been requested to respond directly to community leaders.

Comments	Response
Engage ourselves before the policy is adopted for an exchange of minds about where this is operating nationally and internationally. Want to be given a chance to go there and exchange with other communities	DEAT is not in the position to organise visits to countries where co-processing is being undertaken, however the presentation provided many examples. The presentation could be made available to community representatives. Once the draft policy has been developed, it will be gazetted and there will be a period of 30 days in which further inputs can be made which will be considered before finalisation.
Request the private sector who will use this technology to propose a plant employment equity plan. Skilled and unskilled to get rate of employment	This matter has been raised with the cement industry and they have been requested to respond directly to community leaders with respect to employment issues.
Not going to participate now, want the meeting to be postponed	The policy will be drafted on the basis of comments provided to date. The comments of this meeting will also be considered. Once the draft policy has been developed it will be gazetted and an additional period of 30 days will be allowed for additional inputs to be made before finalisation.
There must be an explanation on issues of social responsibility. Have three communities. Want to see a training policy, it will not work for industry to make profits and not give back to the community	Although representatives of the cement industry located in the area are present at the meeting and would have been able to address the community members directly. The issues of social responsibility have been communicated formally to the cement industry.
Want document for proposed policy, so that some will know about the background. Want to reconvene meeting after 7 working days	All the outputs of the policy development process were sent to community who requested the documents prior to the meeting. The issues raised by the community members will sent to the relevant departments or the cement industry where DEAT has no mandate to respond or to address the issues.
About dust control the Department must take strong steps to inspect the plants to check dust	Limits for allowable dust emission from the various cement plants to the atmosphere are controlled in the Air Pollution Control Licences that are issued to the company through the Air Pollution Prevention Act. The companies are required to report to the Chief Air Pollution control officer on their measured emissions. Through this process the Department has made a commitment to inspect all cement kilns in the country and assess their compliance as a once off activity called “Operation Cement”. This inspection has been carried out in addition to the inspections already required.
Similar consultation area in Mafikeng area. PPC falls under Mafikeng sub-region	Three areas were identified for stakeholder consultation. Members of the Mafikeng community were invited to attend this meeting.
Issues of transport to the meeting	Transport was provided where requested. The Department received two requests for transport.
If PPC Slurry have meetings they must invite the Ward Councillor	This request has been communicated to PPC, however, it is usual practice to invite ward Councillors to community meetings, as they represent the community.

Comments	Response
Is there a chance to use tyres in the community differently	The use of tyres on a small scale to make mats, shoes and other second use items is common and is encouraged. However, these uses have a limited market which means that only small amounts of tyres can be ustilsed in these alternative uses. Please refer to the Basel web site at www.basel .int to gain access to the technical guidelines on environmentally sound management of used tyres for the disposal of waste tyres, which has a list of uses of tyres as well as the advantages and disadvantages.
Department is sending people who cannot take decisions	The Department has sent a Chief Director and two Directors to this meeting along with support staff. This meeting however, was a community stakeholder meeting to hear the issues that the community around the kilns have with the proposal to co-process AFR's in cement kilns. No decisions are to be made at this meeting.
Land rehabilitation – quarry people are drowning in the quarry (Lafarge)	The issue of mine rehabilitation has been raised with the DME and they have been requested to respond directly with the community representatives.
Want minutes of meeting with principles about coming back to community	The issues raised have been captured in the comment and responses document which will identify each input made through the consultation process. The comments and responses document will be made available on the websites of DEAT (www.environment.gov.za) and Environmental Science Associates (www.escience.co.za). In addition, a letter has been be written to community representatives identified at the meeting which will identify the follow up actions taken to address the issues raised.

25. Port Elizabeth Community Meeting; 21/04/2008	
Comments	**Response**
The community members were not invited to the meeting, they heard about the meeting from Groundwork. How were people invited?	The meeting was advertised in the local newspaper, Councillors who represent their communities were invited and individual invitations were sent to all stakeholders who were identified on the cement industry databases in the area. In addition the consultants conducting the EIA consultation process were also contacted and their databases of stakeholders requested. Representation was requested from Local Government, the Department of Health, Labour, DWAF and DME. In addition Groundwork was requested to invite community members that they knew would be interested in attending. The NGO sector was engaged with to request input on the advertising process and requesting names of stakeholders who should be invited. Once the initial invitations were sent out, each stakeholder was called and confirmation of their attendance requested.
It is not fair to have the small number of people attending the meeting of such importance. The meeting should have been a Public Meeting, taken to where people reside, and be broadly attended even by the people who are directly affected.	The people who are most affected by the proposed co-processing of AFR's in cement kilns are the people who have been invited to attend this meeting. In addition to this meeting another policy development consultation process has been initiated. The larger consultation process was advertised in all major newspapers and people who had an interest in the proposals were requested to register and be part of the process.
The local people must be involved in the policy formulation process.	The policy development process is an open process. Should people wish to be involved they are able to register at any time. This will mean that they will be sent all outputs of the project as well as be invited to all stakeholder meetings. The process is however coming to an end now.
Smoke damages cars	This comment is noted and would improve with stricter emission limits.
What was the buffer zone policy with respect to the location of industries in relation to communities	Zoning is a local government function. Zoning is informed through the Integrated Development Planning process. This process is open for public input. Additional consideration is given to buffer zones when permission is granted for a specific activity licence. Usually what is required is a air dispersion model and then a health risk assessment. This is done to ensure that the emission that are expected to be emitted do not exceed limits which could adversely affect the health of the community surrounding the plant.
The community was suffering from a high rate of sinus problems and TB. There was a request for government to come house to house to see what the community is experiencing	This comment is noted and has been relayed to the local municipality for their consideration.

Comments	Response
The community cannot get upliftment because of PPC. Want PPC to move out of the area	This matter cannot be addressed at the policy development process, however, the concern has been taken up with the local municipality and the provincial authority who will assess the EIA application.
This has been called a policy development process, but it sounds like a re-write of European Policies.	The Department is not aware of a European Policy on co-processing. In addition no policy has been drafted to date. The research done to date has however, drawn from the experience of other countries that have used the technology, this includes Europe, Brazil, and African countries for example Egypt.
What chemicals will be emitted or released in burning tyres? Are these the same as in burning the coal?	Very similar due to similar composition of coal and tyres (see next page 69).
Of the 5m tons of coal currently utilized, how much will be substituted by this process (AFRs).	Internationally between 40 to 60% of coal substitution has been obtained through the use of AFR's.
Shame on DEAT and Industry for not considering the impact of cement kilns on the health of the community.	The acceptability of impacts from the co-processing of AFR's in cement kilns has been the core focus of the research undertaken.
If burning coal and tyres is the same, what is the incentive for changing?	Waste tyres have a higher calorific value than coal, tyres have a heat value of 32.6MJ/kg and coal 18 to 28 MJ/kg and therefore become attractive for use as a fuel in firing cement kilns, in addition, due to the global increased demand for energy there has been an increase in the demand for South Africa to export coal. This has made the cost of local coal more expensive. There is also a decrease in CO2 emissions through the reduction of coal use as well as the disposal of organic waste to landfill. In addition to the above benefits there will be a direct commercial incentive for the cement industry as they will be providing a waste management service for which they will be paid.
The community member felt that the communication on the EIA had not been done properly , Groundwork had invited them to the EIA meeting	The Provincial Department of Environment is responsible for the approval of the EIA process. This matter has been raised with them for consideration through the EIA review process.
What is the chemical composition of a tyre?	See next page for recent tyre analysis and emission test results (CEMEX, 2008).
Health Impact study is important , community want to know if this is a safe environment	This matter has been raised with the Provincial Environmental Department for consideration through the EIA review process.

Coal and Tyre Analysis

Substance	Concentration	
	SA Coal	Tyres
Antimony, Sb (ppm)	<10	<10
Arsenic, As (ppm)	<10	<10
Cadmium, Cd (ppm)	<10	<10
Chromium, Cr (ppm)	<10	<10
Cobalt, Co (ppm)	<10	<10
Copper, Cu (ppm)	<10	<10
Lead, Pb (ppm)	<10	<10
Manganese, Mn (ppm)	70	<10
Mercury, Hg (ppm)	<10	<10
Nickel, Ni (ppm)	<10	<10
Thallium, Tl (ppm)	<10	<10
Vanadium, Va (ppm)	<10	<10
Zinc, Zn (ppm)	15	395
Total S as S03 (%)	7.56	1.36
F (%)	0.02	0.01
Cl (%)	<0.01	<0.01
Br(%)	<0.01	<0.01
I (%)	<0.01	<0.01
Gross CV (kJ/kg)	25 721	37 855
Net CV (kJ/kg)	24 796	36 305

Emission Monitoring

CONTINUOUS EMISSION MONITORING (CEM)			
Substance	Baseline Average	Tyre Trial Average	ELV (mg/Nm3)
Particulates	2	4	55 (hourly) 30 (daily)
Nitrogen Oxides	469	349	800 (daily)
Carbon Monoxide	86	82	600 (hourly)
Sulphur Dioxide	12	35	600 (hourly) 250 (daily)
Total Organic Carbon	6	5.7	75 (hourly) 50 (daily)
Hydrogen Chloride	0.3	0.4	10 (daily)
PERIODIC MONITORING			
Substance	Baseline Result	Tyre Trial Result	Periodic ELV (mg/Nm3)
Particulates	8.8	15.5	55
Nitrogen Oxides	718	342	800
Carbon Monoxide	43	77	200
Sulphur Dioxide	6.0	31	600
Total Organic Carbon	9.6	7.3	75
Hydrogen Chloride	3.75	3.65	10
Hydrogen Fluoride	0.07	0.04	1
Dioxins and Furans as ITEQ 2 (ng/Nm3)	0.002	0.0013	0.1
Dioxins and Furans as WHO-TEQ 2 (ng/Nm3) Humans & Mammals	0.002	0.0015	0.1 ng/Nm3
Dioxins and Furans as WHO-TEQ 2 (ng/Nm3) Birds	0.0034	0.002	0.1 ng/Nm3
Dioxins and Furans as WHO-TEQ 2 (ng/Nm3) Fish	0.002	0.0015	0.1 ng/Nm3
Total PCBs	0.0001	0.000009	--
Total PAHs (as measured)	0.0026	0.0021	--
Cadmium & thallium	0.023	0.011	0.05
Total Metals	0.16	0.1	0.5
Mercury	0.0006	0.00032	0.05
Benzene	0.1	0.0000004	--
1,3 Butadiene	0.15	0.004	--

Comments	Response
International models are not the same as SA, they don't have industry in communities	Over 2000 emission samples have been undertaken through the world, it has been shown that the co-processing of ARF's in cement kilns has very limited or no impact on the emissions of the kilns. In South Africa the emission values for a kiln wanting to co-process AFR's will be significantly more stringent that industries not co-processing.
Noise of the machinery at PPC affects hearing	PPC response - With regards to noise, the gentleman who raised it has been taken to the company to view how the company is mitigating the noise.
Tyres are already being burnt at the plant	This matter has been sent to the cement industry for their response, they has been requested to respond directly to the community.
What was the policy direction that was suggested	To date, no policy on HTTT or the use of AFR's in cement kilns has been presented. However, based on the outcome of the technical review of the technologies, the Department did feel it necessary to share the initial thinking on the policy direction with stakeholders. In this regard, during a workshop in January 2008 the Department communicated the initial policy direction to stakeholders, following the presentation of the initial findings of the literature reviews and the initial policy direction representatives of MinTech in November 2007. The policy direction proposed, indicating the thinking of the Department, was that the regulated incineration of waste and regulated co-processing of waste in cement kilns should be options for consideration for the treatment of waste in South Africa.
Company has not discussed job opportunities	This matter has been raised with the cement industries involved directly and they have been requested to respond to the community directly.
What are the plans for social responsibility	PPC response – there is a committee at the plant for corporate social investment
Had many meetings with PPC on social responsibility issues don't get good answers	PPC's response – Do have community consultation meetings, labour, Health, DME and Councillors are present. Councillor must take back the message, minutes are also sent out of all meetings. Issues raised here will be put on the agenda. Also have a complaints register, which is made available to the Councillor at meetings
What is going to be done about the damage which has been done already	The policy development process will not address remediation issues. Areas that need remediation should be identified through the EIA process.
If DEAT does compliance monitoring why have they only been measuring dust – no health reports, does DEAT have the capacity to enforce. The Fisheries do enforce why can environment not	Compliance can only be monitored against requirements set in permits or authorisations. If dust has been the only emission required to be monitored, compliance can only be measured against this parameter. DEAT is developing its Inspectorate Unit and in the past two years this unit has demonstrated is effectiveness with non-compliance cases being brought to the counts and convictions being secured.
The community wants TB treatment and home based care	This comment is noted and has been relayed to the local municipality for their consideration.

Comments	Response
Don't trust the industry they have made promises before that they have not delivered on	This comment has been noted and has been relayed to the cement industry for their consideration and action.
Councillor are overstretched so community should propose representative for the meetings	The Ward Councillor structure has been put in place by local municipalities as their preferred method of consulting with communities. The Ward Councillor for the area is present at the meeting, should assistance be required the offer has been heard.
Transformation company is still not doing enough – want change	This issue has been relayed to the industry and they have been requested to respond to the community directly.
This matter must be looked into within the context of transformation as the company was established in the old-apartheid era. Its zoning is the problem.	The issue of zoning has been raised with the provincial and local government representatives.
The company will benefit from burning tyres (savings), will job opportunities come through tyre recycling?	The co-processing of tyres is not regarded as recycling, but rather as waste recovery as the energy is recovered as fuel in the kiln. Job opportunities will be presented by the fact that two new industries will be developed through co-processing should this be a technology found to be acceptable in the country. The blending facility will provide new jobs in the waste industry, and the development of the infrastructure required collect and transport tyres to the kilns is also a new industry which will produce job opportunities for small entrepreneurs.
The cement industry promised to control dust but has not adhered to the promise or standard. What are the guarantees that they will adhere to the set standards in the incineration process	Stricter emission requirements have been proposed for kilns co-processing AFR's should this technology be found to be acceptable for use in the Country. This will improve dust emissions substantially. Emission monitoring for a number of parameters which includes dust will be required to be monitored continuously. This will allow the communities to police dust emissions themselves, however, DEAT has also committed to ensuring that monitoring and auditing of the cement kilns co-processing AFR's will be a priority.
The projected job creation is not real; instead redundancy in the car-wash environment has been noticed. Due to dust, car wash employees have to re-wash people's cars and the car wash owners sometimes fire them thinking that they are inefficient (instead of blaming the dust).	As mentioned above the dust emissions from kilns co-processing AFR's will be reduced substantially which will contribute to decreasing the levels of cement dust being experienced in the areas surrounding kilns. Job opportunities will be created through the development of two new industries, one associated with the blending facility for the AFR's and the other with the development of the infrastructure required to bring waste tyres to the kilns for co-processing.
The community is sick and needs meaningful social responsibility from the company.	This matter has been directed to the industry for discussion directly with the community.
We hear that EIA and public consultation has already happened, which comes first policy or EIA?	The EIA process for the majority of kilns wanting to co-process AFR's have been initiated, however, the industry has agreed to wait for the outcome of the policy development process before pressurising the provincial Environmental Departments for decisions on their EIA, provided that the policy development process takes an undue amount of time to reach a final policy decision.

Comments	Response
Groundwork	
What is DEAT doing about recycling of waste, burning is not the only option	DEAT is presently in consultation with industry with respect to several waste streams in the bid to promote recycling.
There has never been a dedicated study done on health effects of mercury in the environment. If this was done here the plant would close down	This is an alarmist statement. Mercury is not an emission which is generated from the cement making process but rather from the burning of coal for energy for the process and the use of some raw materials (shale, limestone, clay etc. where mercury is found in trace amounts). The world has to date not found and alternative to the use of cement in large scale construction.
Need to look where waste is coming from, need bigger waste management solutions, was a tyre buy back policy considered	The waste that would be used for co-processing is presently being accepted at hazardous waste landfills in the country. The co-processing of this waste will offer the waste industry and industry in the country an alternative waste management options which are considered environmentally sound internationally if managed correctly. The tyre levy is in fact a waste tyre buy back policy, as a levy will be paid for waste tyres that will support the waste sustainable and environmentally sound management of this waste stream.
The 600 jobs mentioned will be created via the incineration process will be exceeded by the 20,000 jobs that can be created if recycling of waste option is followed.	DEAT is pursuing a waste management strategy which supports the waste hierarchy. Should environmentally sound recycling options become available for any waste stream which would potentially be co-processed in a cement kiln regulations or incentive schemes could be put in place to divert this waste stream to the recycling option. The Waste Bill also makes provision for the identification of priority waste steams for which specific management plans can be put in place to deal with the waste. The wastes that are being proposed for co-processing are presently being landfilled and no recycling options are available for the waste. Recycling options to a limited extent for waste tyres are available and are supported by the waste tyre regulations currently being finalised.
DEAT has made up its mind about the policy on incineration. In previous meetings DEAT mentioned that it will recommend that incineration and use of AFRs be considered by the country.	The policy formulation process was explained as starting with presentations to MINMEC (where the provinces and local government are represented), issue would go to cluster committee, cabinet and would culminate with a gazetting process and public comments.

26. Mr R Euripidou, groundWork; 17/04/2008	
Comments	**Response**
Letter to DEAT regarding "Stakeholder Workshop on National Policy Development Process for High Temperature Thermal Waste Treatment and Cement Kiln Alternative Fuel Use Project at the Oribi Gorge Hotel on the 12th April".	
We welcome the initiative the DEAT has taken in addressing communities living in close proximity to cement kilns proposing to burn waste, although we consider that these community visits should have occurred prior to the DEAT HTTT policy which we believe has already been completed.	The Department has from the onset of the public consultation process indicated that a draft policy will be gazetted for public comment once the Minister has applied his mind to the work prepared by the Department. To date, no policy on HTTT or the use of AFR's in cement kilns has been presented to the Minister for consideration and subsequent publication should the content be supported. The policy will only exist once the gazetting process has been concluded, and the Minster has considered all views on the matter and has similarly considered the decision support information provided.
Communities around the country who live in close proximity to the cement works that are proposing to burn AFR have environmental concerns and justice issues dating back many years. The farming community at this particular NPC cement works have long considered the works to affect their livelihoods through the deposition of dust on their crops, affecting the health of their children at the school on the fence line, which has subsequently been closed down, and they have even tried to litigate to address their environmental issues. Furthermore, the rural communities who live close by are particularly affected by unemployment and consider that NPC does not fairly employ local people and contribute to the local economy.	Noted.
All of the above issues were raised at this meeting and the community people take the position that all of these concerns are important and need to be addressed as a priority before they can engage in the debate about whether NPC should be granted a license to use AFR in their processes.	Although not all of the issues raised at the community meetings are within the mandate of DEAT to deal with, each issue has been recorded, and each addressed to the appropriate institution or government department best suited or mandated to deal with the particular concern. This approach of cooperative governance is required in terms of the Constitution and is the most effective manner of resolving problems.
Worryingly, at this meeting it became apparent to me and the community people we work with that the DEAT does not consider that these issues have any bearing on the DEAT HTTT Policy Process and that in fact these community concerns should be entirely de-linked from the HTTT Policy process.	DEAT has been taking the issues raised by the communities living in the vicinity of cement kilns very seriously. In fact, the work being undertaken to address the issues is the reason why some delay in the policy development process has been experienced. In response to specific issues raised, the following:

Comments	Response
	• Regarding farmers around the NPC cement works being concerned about the effect of the deposition of dust on their crops and affecting the health of their children at a school, which has subsequently been closed down, note that the concern about cement dust affecting crops was not specifically raised at the Port Shepstone meeting. DEAT has however raised the issue with the KZN Provincial Department of Agriculture and Environment for consideration through the review of the Environmental Impact Assessment process. The matter of cement dust affecting the health of children at a school in the area has been raised with the Provincial Department too, as well as the cement industry generally and the NPC/Cimpor management specifically, for a response. • The allegation that NPC does not fairly employ local people and contribute to the local economy has been communicated to the Provincial Department of Agriculture and Environment for consideration through the review of the EIA process, and with the NPC/Cimpor management specifically. NPC/Cimpor's management has been requested to respond directly to Ward Councillors and the two community leaders who were present at the meeting to allow feedback to the community. • Addressing the issues raised by the community as a priority before engaging in a debate about whether NPC should be granted a license to use AFR's in their process is noted. The EIA process allows for matters that affect or are affected by any proposal to be thoroughly considered prior to decision making. The EIA process will reach the decision regarding the application from NPC/Cimpor to co-process AFR's. The issues raised by the community will therefore be carefully considered before a decision is made. • It is alleged that DEAT is not considering that the issues raised have any bearing on the HTTT policy process and that the issues should be de-linked from the HTTT policy process. Government has however provided several tools to encourage debate around certain matters. In this instance, the community concerns have been heard at the public hearings on the Waste Bill, and have been included in the EIA process, which will consider the concerns raised by the community. DEAT has also undertaken three community visits and heard the community concerns, which were also highlighted at the policy stakeholder workshop in January 2008. Concerns that could not be addressed were reverted to the Departments that are mandated to deal with the particular issue/s. These activities have been undertaken prior to any work being done to submit a draft policy to the Minister for consideration, and therefore all issues have been considered through the HTTT policy development process.

Comments	Response
groundWork takes the position that one cannot separate what has occurred, and what is currently occurring around cement works and their neighbours, and the HTTT Policy Process and are very concerned about the DEAT position for the following reasons. 1. All stakeholders (including the cement industry themselves and the DEAT) categorically accept that the cement industry has historically been very poorly regulated. The industry therefore does not have a culture of compliance to strict environmental regulation which is imperative if it were to incinerate AFR, and the community position is that only when it can demonstrate a culture of environmental compliance should it be allowed to incinerate AFR. Currently these kilns emit mercury and other metals freely without any mitigation devices. Why should the community believe that when they burn AFR this will change. This must be demonstrated over time.	Regarding the regulation of the cement industry, note that Inspectors from all spheres of government undertook a national compliance audit of cement kilns through the month of June 2008. Mercury is not a metal that results from the cement making process, but rather from the burning of coal and raw materials used for cement making, as trace amounts of mercury are present in the coal, limestone, shale etc. The substitution of a portion of the coal with AFRs will therefore reduce the mercury emissions to the atmosphere. This has been proven to be the case in a study undertaken by Cemex in Rugby where they substituted tyres for coal. The baseline measurement for mercury was on average 0.001 mg/Nm^3. When substituting a portion of coal with tyres, the emission concentration of mercury decreased to 0.00033 mg/Nm^3. The mercury content in South African coal used in the trial was measured to be less than 10 ppm (also see p.69 of this report).
2. The cement industry personnel are not qualified to transport, handle, store and use waste, especially hazardous waste, because they have never been trained to do so. The DEAT state that the strictest standards and practices will be used on site, but this claim can only come with experience and a successful track record in environmental compliance.	It is proposed that waste is blended off-site to pre-determined specifications. The blended waste will be stored in tanks and fed into the cement kiln as any other fuel. There is therefore no handling of waste. The management of the waste will therefore still remain with the waste industry who is experienced in waste handling should the technology be found to be acceptable. The cement industry currently does handle solid waste.
3. Many communities living in close proximity to cement works (particularly in Pretoria, Port Elizabeth, De Hoek and Port Shepstone) have long standing environmental issues with the industry dating back many years and these have never been addressed!	The issues have been raised with and are being addressed by the various mandated government departments and the management of the kilns involved.
4. Furthermore, the waste will be imported from far away places, over long distances, not without accident, risk or environmental impact. It is also evident that cement kilns are not specifically designed to burn alternative substitute fuels.	The importation of waste is controlled by the Basel Convention on the transboundary movement of waste, and South Africa is a signatory to this convention. The convention requires that waste be treated as close to its source as possible and is not supportive of the trade in waste. With respect to the transportation of waste, it is noted that presently there is only one H:H landfill site in South Africa, which is the Holfontein Hazardous waste site. The site is situated in Gauteng, and hazardous waste is presently transported to this site from all over the country. The proposed blending platform that has received a positive EIA and will be developed should the technology be accepted, is also to be located in Gauteng. In this instance no additional transportation of waste would occur.

Comments	Response
5. Detailed responses to our community concerns have never been provided by the DEAT. This in itself is particularly worrying as the DEAT projects an attitude that it does not have to respond to community submissions outlining their concerns.	GroundWork's view is unfounded, it was stated at each meeting that responses would be provided. A comprehensive comments and responses document has been prepared and will be distributed to all community leaders once it has been signed off by the DG. There are accordingly no grounds for the view held by groundWork.
The cement industry as it currently exists is not without very real concerns regarding environmental pollution, deposition and regulation. The industry is historically very poorly regulated and poorly monitored and would generally better place itself by cleaning up its current operations (especially in the context of mercury and heavy metals emissions which constitute a very real current public health risk) before it even considers the very complicated business of waste, including hazardous waste, management, handling and disposal.	The issues of mercury and heavy metals have been dealt with above as have the issues of non-compliance.

27. Mr R Euripidou, groundWork; 24/04/2008	
Comments	**Response**
Following from yesterdays meeting in Pretoria (and the 3 community meetings over the last 2 weeks) it has become increasingly apparent that the DEAT and the office of the Deputy Minister have not really understood our particular concerns around the use of waste tyres as AFR in cement kilns. This particular debate centres around the waste tyre regulations and the Green Levy currently in place to make provision for the disposal thereof.	There is no green levy currently in place. The levy that is proposed by the tyre industry is at voluntary level, which will be implemented by the tyre industry. The levy will only be put in place once the tyre regulations have been promulgated and the waste tyre plan approved.
Basically the community groups and civil society sector are saying is that we can find more constructive end uses for waste tyres rather than incineration and that the Green Levy is the ideal mechanism with which to do this.	The placing of a levy on new tyres to ensure the environmentally sound management of waste tyres will promote recycling initiatives. The existing tyre recycling industry will also be incentivised as they currently pay for tyres and with the implementation of the tyre plan they will be paid for tyres used. Once the regulations are promulgated and the system to implement the levy is in place, lending institutions will be able to provide loans to new recyclers. No loans will be provided without the certainty of a supply of tyres.
All we need is some sort of co-operative governance from the DEAT, DME, DTI, Science and Technology to facilitate waste tyre Recycling and Reuse FUNDED by the Green Levy which we believe will have enough Capital for at least 5 recycling plants and many local community job creation initiates if it is given the chance.	The only restriction to the number of recycling plants that can be built is the market for using the recycled material. Until the market exists for the use of all the material that can be recycled from waste tyres there will need to be a mix of options. Government is supporting waste tyre recycling by ensuring that all tyre producers and importers are required to belong to a waste plan, and requiring that the waste tyre recycling market be saturated before tyres are used for energy recovery. This means that if all the waste tyres produced in the country can be recycled they will be.
However, this will not happen if the SATRP people (present yesterday) are to be believed. Basically they said yesterday that only R30 million will be available over the next 5 years as Capital, but our calculations below based on their own figures show that this statement is untrue! In order to promote the Waste Tyre Industry, "an incentive based approach will be adopted by the SATRP Company to encourage the establishment and sustainability of the Waste Tyre Industry and to this end the Waste Tyre User will:- a) be paid a maximum establishment subsidy of R0.38/kg of waste tyres received from a Waste Tyre Transporters for the period of the contract as awarded [through the tender process] to a maximum period of five years, and b) be paid a maximum disposal fee of R0.14/kg of waste tyres received from a Waste Tyre Transporters for the period of the contract."	Noted.

Comments	Response
In the United States it is generally thought that budgeting one used tyre per head of the population per annum is a reasonable way of estimating the potential number of waste tyres. The figure that SATRP have been using is 10 million tyres per annum because this is what has been published. 10 million is probably a conservative estimate. 10 million tyres apparently equates to 75 000 tonnes (or 75 million kilograms) of waste tyres. So, 75 000 tonnes x 38c = R28.5 million per annum is available for the establishment subsidy. 75 000 tonnes x 14 c = R10.5 million per annum is available for the disposal fee, although tenders may be at a lower rate and less may be paid out. Passenger tyres can weigh between 6 and 10 kilograms. Let us average it at about 7.5kg per passenger tyre. If we assume that new tyres are bought at the same rate as tyres become waste, there will be 10 million tyres purchased each year. The Green Levy being bandied about in the press is R15 (R2 per kg) while the levy mentioned in the draft MOA is R20 (R2.67) per tyre. 10 million tyres x R15 = R150 million. Take away the R28.5 million and the R10.5 million for establishment subsidies and disposal fees, and we're left with R111 million for administration and transport (R151 if we assume a R20 per tyre green fee), which seems rather a lot.	Noted.
Forgetting that, for the moment, let us make the following assumptions: a) According to Etienne Human of SATRP Co, only 4% of tyres are currently being recycled, and this through one established and one new tyre crumbing facility. He maintains that the market for crumb is completely saturated (although we have some conflicting stories here) and that it is too expensive to export it. In other words, he does not see this as a growing market. He suggests that there are no other markets for used tyres. So it would appear that the assumption that SATRP Co and their friends the cement industry are working on is that the cement industry will have access to at least 96% of the tyres available. This means that the industry is probably banking on receiving R27.4 million rand in establishment subsidies each year, over five years, which is almost R137 million over this period. This is sufficient to upgrade nine kilns (if we use the figure of R15 million to upgrade a kiln, which was published in Risk Management). In other words, potentially the consumer is going to subsidise the shareholders of PPC, NPC and Holcim to the tune of nine free kiln upgrades and R137 million.	The information that Groundwork has on this issue would be very interesting to view, however, the system being proposed by the SATRP does not seem to restrict any recycling facilities. The requirement for the recycling industry to be saturated before recovery will ensure that any recycling initiatives that require tyres will receive them.

Comments	Response
b) If the cement industry were to receive the maximum disposal fee of 14c, they would receive R50.4 million in disposal fees over five years. This on top of an about equal saving on coal itself. In other words, over a five year period the cement industry's net input costs will be R100 million less or, all other things being equal, their net profits should increase by R100 million, at zero capital cost. Which is all very nice for the cement industry but I feel very unsure as to why you and I should be subsidising their shareholders.	The interpretation is noted.
c) The memorandum hardly addresses the issue of the Waste Tyre Transporters, who nevertheless plays quite an important role in the whole and also stands to share in the R111 million of green fees not yet disbursed. All we really know about them is that they are "any person or institution, contracted as such to the SATRP Co, who collects, transports, prepares for delivery or stores waste tyres". The manner in which they store the tyres is precisely regulated through the Waste Tyre Regulations.	The interpretation is noted.
d) The Effective date of the agreement is the date of promulgation of the Waste Tyre Regulations.	The Minister is to approve the plan, and prior to approval the plan will be gazetted for comment.
In summary, major concerns and questions relating to the MOA are: a) The agreement is a private one between DEAT and SATRP Co, which represents the waste tyre industry, a component of which is, it appears, the cement industry. While the MOA impacts on a large number of citizens, the public do not (as far as we are aware) get a chance to participate in the process.	DEAT has opted not to enter into the MOA with the tyre industry but rather to develop more detailed regulations. No MOA is therefore intended to be signed.
b) In terms of the MOA, the SATRP Co Board get to make all the decisions regarding the extent of the green levy as well as how it gets shared out. Once again, despite the fact that they are paying for everything, there is no place for public input or comment.	The levy is a voluntary level. The amount of the levy has been determined by the tyre industry on the basis of the amount required to implement their waste management option.
The members of SATRP Co elect six directors to represent them on the board of the company. The representation on the board is in relation to the levy contributions by each sector to the waste tyre collection fund. At present the representation on the board is in the ratio three from the manufacturers, two from the importers and one from the retreaders. Additional directors are appointed to represent the the Tyre Dealers (TDAFA) and one from organised labour (NUMSA). Finally a CEO is appointed bringing the total number of directors to eleven. This means that the public are not even represented by government, even though it is the public's money that is at work here.	Information noted.

Comments	Response
c) While it is the stated intention of the parties to the MOA to promote the reduction and re-cycling of waste tyres in South Africa, there is nothing in the MOA which indicates that there is any commitment to genuine recycling rather than energy redemption. Certainly, from SATRP Co's point of view, to have a couple of large cement kilns happily burning up all the waste tyres in South Africa is probably a far more attractive idea than attempting to help set up many small recyclers.	
d) There are no safe-guards, such as a quota system, to ensure that tyres are distributed on a basis other than a commercial one, which means that the cement industry (assuming their EIAs are passed) is going to burn up as many tyres as they possibly can, reducing the possibility of more meaningful recycling initiatives.	The plan will be published for comment prior to being considered by the Minister for approval. These issues can be raised through the comment period.
e) Given the availability of the establishment levy, this could be a wonderful opportunity to create small sustainable businesses. The agreement, however, places no obligation upon SATRP Co to develop any new business or to create any new jobs. The attitude of SATRP Co, as evidenced in the newspapers and through e-mail correspondence, certainly appears to incline towards "there's not much else we can do but burn".	Small business will be encouraged as the users of tyres will be paid should they have a use which is environmentally sound.
f) One has to question whether incineration, even if energy is a by-product, can be equated to recycling. It takes 120MJ (megajoules) to produce one kilogram of rubber. When we burn a tyre as fuel, we recover about 30MJ per kilogram - in other words 90MJ is lost forever. When we make a kilogram of rubber crumb from the tyre, however, this costs us about 2.2MJ which could be regarded as the loss, and the recovery would be about 118 MJ, which is quite a substantial difference.	The use of tyres in cement kilns is not regarded as recycling by the Department but rather as energy recovery.
From the above 39 million Rand will be available each year for 5 years in disposal and set up fees. This money should be reserved for genuine recycling and job creation initiatives and not be available AT ALL to the cement industry. If the DEAT and the Provinces were to allow the cement industries to burn waste tyres they must do so at their own refurbishment cost as they will be making large savings on fuel costs anyway. For these reasons we compel the DEAT to exempt the cement and other coal burning industry from being a beneficiary to the waste tyre green Levy! I look forward to your responses.	See comment above.

28. Mr E Otterman, ACMP; 12/05/2008	
Comments	**Response**
Comment on Guideline for Treatment of Hazardous Wastes and Co-processing of AFRs in Cement Kilns – Version 2 (SINTEF, 25/03/2008):	
The members of the ACMP would like to congratulate the policy development team with the compilation of a comprehensive and well structured guideline document for the co-processing of waste in cement kilns in South Africa. The guideline will provide a good starting point for any cement kiln implementing the co-processing of waste. A few general comments on the guideline and the policy are important to mention. Other comments are specific to sections in the report.	Noted.
1. The guidelines reflect the best practice for cement kiln co-processing of waste. However, it is important to note that different cement kiln do have operational differences that make it impossible to formulate a single policy method for each kiln to operate under. These guidelines must therefore be seen as a guideline only. Cement Kiln co-processing conditions will be determined on a case by case basis, using these guidelines as a reference.	The Guideline has been developed to provide a general framework for the development of site specific operational, management and monitoring plans. These plans would be developed based on each particular kiln's characteristics, the wastes to be co-processed etc.
2. It is important to note that the guideline currently refers to "the co-processing of alternative fuels" as the activity to be guided in the document. The members of the ACMP recommend that the policy document be titled, to reflect a synchronicity with international terminology, as follows: "NATIONAL POLICY ON THE HIGH TEMPERATURE TREATMENT OF WASTE AND THE CO-PROCESSING OF WASTE IN CEMENT KILNS"	The policy title considered now would be: "POLICY ON WASTE INCINERATION AND THE CO-PROCESSING OF WASTE AS ALTERNATIVE FUELS OR RAW MATERIALS IN CEMENT PRODUCTION".
<u>Chapter 3</u> The introductory statement gives the impression that all waste must be pre-processed before introduction into a cement plant. In fact, there are many waste streams that are introduced into the cement kiln with no pre-processing, for example tyres.	Accepted that many wastes would not require pre-processing.
3.2 Drums arriving at a pre-treatment facility are sampled and analysed differently than bulk loads. Drums may have to be off-loaded before being analysed, and then collected again by the customer should they be rejected.	Noted. Any operational plan developed in terms of the guideline would have to reflect appropriate site specific procedures.
3.3 Figure 7 on Page 31 shows an example of a decision tree used to accept or reject a waste for co-processing in a cement kiln. Although the flowchart indicates, correctly, the principles to be used when developing a decision tree for accepting/rejecting a waste for co-processing, the properties mentioned in the flowchart may change from kiln to kiln. This means that, as correctly stated in the report, each kiln operation must develop it's own accept/refuse decision chart to guide the introduction of waste into the cement plant for co-processing.	Agreed. Any operational plan developed in terms of the guideline would have to reflect site specific procedures that would ensure only appropriate wastes are accepted.

Comments	Response
Chapter 5 5.2.4 The cement industry, internationally, has found that the use of handheld Geiger counters is the best method for the detection of possible radioactive contamination in arriving waste materials.	Noted. Any operational plan developed in terms of the guideline would have to reflect appropriate site specific procedures that would ensure any radioactivity is effectively detected.
Chapter 7 7.2 The ACMP supports a limit on the storage times for hazardous wastes especially at pre-processing facilities. However, cement operations do have down periods of up to 4 weeks during which maintenance is performed During this time the waste materials must be stored somewhere in the supply chain from the waste generator to the cement kiln. Also cement kilns need a consistent supply of material at the factory to ensure continuous stable operation. Therefore it is recommended that the maximum storage times are extended for special occasions, like a kiln shutdown, to ensure that the supply chain can be effectively managed. Limiting the storage times to those indicated in the guideline document will make the effective management of the supply chain difficult. All these times will cause is the establishment of another storage site.	This matter was discussed at the Provincial meeting and a decision taken that the timeframes should remain.
7.3 Although ACMP supports the enclosed storage of solid waste in general there are specific cases where this is not required, for example for tyres open storage is perfectly acceptable, according to the Basel Technical Guidelines.	Noted. Any operational plan developed in terms of the guideline would have to reflect appropriate site specific procedures that would ensure waste is stored in compliance with relevant legislative requirements and does not pose a significant risk to the environment.
Chapter 8 8.2 Cement kilns around the world use waste oil, as a start up fuel, to heat the kiln prior to the introduction of coal. The ACMP recommends that this be accepted in the guideline.	The requirement not to allow wastes to be fed into the kiln at start up and shut down would be retained.
8.3 The members of the ACMP feel that the percentages inserted at the end of the paragraph; “The main fuel (65% to 85%) …..remaining 15%-35%.....” must be removed. The percentages give a false impression that the conventional fuel must always deliver more than 65% of the heat need of a kiln. This is not true as there are many kiln that deliver much more than 35% of their heat need from the co-processing of waste.	Noted.
Figure 9 indicates suggested feed points for the co-processing of solid waste materials. The figure omits the main burner as a feed point. Many fine, solid wastes can be fed to the kiln from the main burner.	Agreed.

Comments	Response
Chapter 9 9.1 The ACMP recommends that the statement "No waste should be fed as part of the raw mix feed if it contains organics" Is replaced with; "No waste should be fed as part of the raw mix feed if it contains volatile organics and has an organic carbon content of more than 10%" Many traditional raw materials used in the cement industry contain volatile organics and also organic carbon. To make this guideline, for the organic content zero, will be very difficult for it to be maintained. In addition the limit for organic content in the raw materials should be determined separately for each cement kiln.	Noted. Any operational plan developed in terms of the guideline would have to reflect appropriate site specific procedures that would ensure waste feed is regulated according to organic carbon content to ensure complete destruction thereof and compliance with emission standards.
9.2 Under point b of this section the author recommends that alternative raw materials with organic components should not be introduced with other raw materials into the process, unless tests have shown that the undesired emissions at the stack to not occur. The ACMP supports this recommendation from Dr. Karstensen	Noted.
Point d describes feed point selection for mineral additions. It is recommended to modify the statement as follows: "Mineral additions such as granulated blast furnace slag, fly ash from thermal power plants or industrial gypsum, can be fed to the cement mill and also to the raw mix of a kiln" This reflects that the materials mentioned are also suitable as raw material additions to the kiln process, in addition to being suitable for use as mineral additives.	The policy and guideline is considered relevant to co-processing of AFR in cement production, which includes the use of certain waste streams as mineral additions, and/or co-processing as alternative raw materials in the kiln.
9.3.1 The ACMP agrees with the recommendation that the feeding of waste to the kiln should only take place when the kiln is operating at normal temperatures (1100℃ to 1600℃ in the burning zone). Although it is difficult to measure these temperatures directly, various process parameters can be used to ensure that these temperatures are maintained. With regard to the exampled mentioned in page 71, The ACMP recognises that these are examples of conditions for the co-processing of waste in a kiln and will be adapted to the kiln under consideration.	Noted.
The ACMP recommends that the words "automatic shutdown" be replaced with "the initiation of a shutdown procedure" in the top paragraph of page 71. This reflects the thinking that, for safe operation of a cement plant, all shutdowns are to be done following a defined procedure, whether automatic or manual or a combination thereof.	Noted. Any operational plan developed in terms of the guideline would have to reflect appropriate kiln specific procedures that would ensure shutdown is effected as required in the most efficient manner so as to eliminate any significant impact.

Comments	Response
Chapter 11 11.5 Activated carbon technology has not been extensively used by the cement industry. There are only 3 known cement operations that use activated carbon technology, one in Europe and two in the USA. Currently The EU BAT reference documentation does not consider activated carbon technology as BAT. The members suggest that this reference is removed.	The guideline provides some information on pollution abatement, but is not prescriptive in this regard. Air pollution control equipment must however ensure that the emission standard requirements are complied with.
Chapter 14 — Suggested Permit Conditions 14.1 The detailing of the organisational structure of a plant in the permit document is deemed to be excessive. The name and contact details of the general manager of the operation should be sufficient. Otherwise the permit would have to be amended with each organisational change at the operation, thus many times per year. This would place an excessive administrative burden on the state. Product quality control routines are normally part of the operational control of a cement factory and remain company privileged information. It is recommended that this is removed from the document. The expected lifetime of a quarry is considered as company privileged information. It is recommended that this is removed from the document.	Relevant contact details, e.g. General Manager, Environmental Manager etc. needs to be included, but it is agreed that the whole company structure may be excessive. Conditions for authorisation would reflect any specific requirements in this regard. Quality control procedures needs to be included to the level that authorities are satisfied that the product is adequately controlled in terms of any effects AFR co-processing may have. The quarry operations would to a large extent be regulated through mining legislation. The lifetime of a quarry is key in determining continuous rehabilitation options and financial provision for rehabilitation.
14.4 The recommended information and conditions for each AFR in the permit are very prescriptive and will make the permit very difficult to enforce. Although the ACMP supports tough and well written regulation of it's operations, these need to be written so that they can be implemented and managed. It is recommended that the information requirements in the permit recommendations be simplified, with the following removed; Information on the origin and suppliers. This may have a drastic effect on the customer/supplier relations. Information on the type, volume, mass etc to be restricted to the type of waste and to a table of maximum and minimum values for the characteristics of the material. 14.5 The operational conditions described in these recommendations will make the permits very difficult to manage. Operational information about a cement plant, including the quality of the clinker and cement, are company privileged information and. To include these would require the dissemination of information that can not be divulged for competitive reasons- As most of these requirements have been designed to ensure that the emissions from the cement plant remain unaffected it is recommended that the permit focus on the emissions from the cement kiln, rather than focusing on the operational parameters.	Noted. Detailed pro-forma conditions have been developed taking these comments into consideration.

Comments	Response
Annex 1 Page 99 The limits suggested by the EcoScan report are general guideline limits, and cannot be used as absolutes for the input of certain elements into the cement kiln. The input tolerances for different elements in cement kilns depend on the characteristics of a particular kiln and have to be determined through technical investigation. Thus the input limits for each kiln will be different.	Agreed. Input limits are however not specifically prescribed, and any operational plan developed in terms of the guideline would have to reflect appropriate kiln specific waste feed procedures that would ensure relevant standards and conditions are complied with.
As stated before the ACMP remains supportive of the policy development process and appreciates the co-operation between government, industry and stakeholders during the development of this policy.	Noted.

29. Mr P Botha, AfriSam (Holcim); 07/05/2008	
Comments	**Response**
Referring to our discussion regarding the terminology used in the naming of the "National Policy of High Temperature Thermal Waste Treatment" (document 66011-XX and 66011-02), we suggest the following: • The word "use" to be replaced by "co-processing" in the title. Co-processing is an internationally accepted term. • "Alternative Fuel" to be replaced by "Alternative Fuel and Raw Material" as co-processing entails the usage of the minerals in the waste and not only the recovery of calorific value as Fuel. • In the sub title the word "hazardous" should be removed as not only hazardous waste can be co-processed but other "non hazardous waste" as well These suggestions might be seen as semantic but in a legal framework it can close or open various doors.	Information reference and literature review documents developed to inform the policy process consulted numerous resources and international literature, which use different terminologies. The final policy document and other regulatory documents (e.g. emission standards) would however use standardised terms as suggested.

30. Mr S Prithiraj, Thermopower Process Technology; 15/05/2008	
Comments	**Response**
Please find attached the information on Thermopower Process Technology as discussed. As per the issue raised at the last stakeholder meeting by Dr.Christos about Thermopower not being included in the write-up on waste incineration plants, I have thus far compiled information on our company which you can include in your report before the final draft is published. As per our conversation you did indicate that the 13 page document is fine. You have Thermopower's permission thus far to use all the information provided in this document, therefore it can be published in the public domain. Thank you very much for your time and consideration in this regard. Please can you forward the final document to us once Thermopower's information has been included in the document.	Noted. Please be advised that the current policy development process considers the high temperature thermal treatment of waste, and does not attempt to evaluate specific thermal treatment technologies (e.g. incineration, pyrolysis, gasification etc.). Through future projects in DEAT, specifically the African Stockpiles Programme (ASP), an assessment of particular treatment technologies will be conducted, which would consider and assess existing treatment technologies in the country, including that of Thermopower.

COMMENTS ON THE DRAFT POLICY: February–March 2009

31. Vhembe District Municipality; 18/02/2009	
Comments	**Response**
Inputs on draft policy on waste incineration and the co processing of selected hazardous and general wastes as alternative fuels or raw materials in cement production	
Polluter pays principle Is a principle in environmental law where the polluting party pays for the damage done to the natural environment? To be included in page **11**	The introductory paragraph to the existing regulatory framework has been amended to clearly indicate that the policy is drafted in line with the current legislative framework which includes the principles embodied in NEMA including the polluter pays principle.
ENVIRONMENTAL AUDITING Page **12** It is a systematic examination or assessment of environmental data about an organization or company to verify what extent the organization complies with specified environmental standards. However there was no mechanism to verify whether companies will comply with this regulation. This is a management tool for verifying and helping to improve environmental performance of an organization. The money paid is used for environmental Restoration. The principles were developed to keep the environment sustainable for the benefits of present and future generation.	The monitoring and auditing of operations and management of the facility, is a condition of authorisation and will therefore be a compliance requirement.
AIR EMISSION MONITORING INSTRUMENTS Page **17** Regular servicing and calibration of equipments should be done and register to that effect to be available	The calibration requirement is included in point 4 (8) of Schedule 4. The reporting requirement in section 6 requires reporting on compliance of all conditions which includes 4 (8).
GENERAL 1. Periodic medical examination to all employees handling waste should be conducted, considering the heath risks involved. 2. Pre employment examination should be taken into consideration also.	The requirement for the management of occupational exposure is included in Schedule 4, Section 3(2) & (10).
OPERATIONAL MANAGEMENT Page **20** Competency certificate of those involved and managing must always be available not with standing that copies can be acceptable.	Competency requirements and record keeping are covered in Schedule 4, Section 3 (2) & (3).
MONITORING AND REPORTING Page **26** Internal Audits should be monthly and bi-annual considering health risks involved.	Emission monitoring for most parameters is online and constant feedback on the operations of the technology is available at all times to identify any undue risks.

32. Jenny Knobel (Professional Nurse); 17/02/2009	
Comments	**Response**
Notice 105 of 2009 Draft policy on waste incineration and the co-processing of waste as alternative fuels or raw materials in cement production	
One of the classes of waste you describe as being suitable for this process if hazardous waste. Does medical waste fall into the hazardous waste category	Healthcare risk waste is included under the broad definition of hazardous waste. However a new schedule (schedule 3) has been added to indicate the waste types not suitable for co-processing in cement kilns and healthcare risks is included in this schedule.
Will foetuses (human remains) from abortion clinics form part of this waste? It is the practice of many healthcare institutions to merely put foetuses into the medical waste, presuming that they will be adequately destroyed, but not actually checking what happens after that	Pathological waste is included in the definition of healthcare risk waste. Healthcare risk waste is not suitable for co-processing in cement kilns.

33. Plastics Federation; 23/02/09	
Comments	**Response**
We have reviewed the draft policy and comment as follows:	
1. The policy is well presented and is easy to support, which the PFSA does. We believe that DEAT knows that the PFSA is a firm supporter of energy recovery from plastics waste, and also that when all else fails and waste cannot be processed in any other way prior to landfill, that incineration is an acceptable waste management process. This aspect is covered in the draft policy.	Support is noted.
[2.1] We understand that a corner stone of the policy development is the use of AFR for cement production. Fair enough, except that focus is somewhat on using tyres as the AFR. Our viewpoint is that the policy has too great an emphasis on cement production without enough coverage of other possible processes including fuel for power stations, as a reduction medium in steel making plants, for generation of electricity and for generation of superheated steam in pulp and paper mills. Electricity generation is surely much more pressing than cement kilns fuel. The cement kiln emphasis may not have been meant, but it reads that way. We are not convinced that the cement kiln option is a better "low hanging fruit" than electricity generation. From the point of view of an Industry Plan for plastics – electricity generation would be our emphasis. So one suggestion is to revise the document headers and inclusive general comments to read not only " *….as AFR in Cement production …*", but to read something like "*….as AFR in Cement production and similar processes including electricity generation".* There are many instances that we think the understanding would be improved throughout the document, including but not limited to for	The policy supports energy recovery in all forms. The introductory paragraph has been reworded to reflect this more specifically. The policy covers thermal waste treatment in general and sets a specific management framework for incineration and co-processing in cement kilns.

example Section 6, items 2 and 4 and 11. In Section 9 item 1, and item 2, again the understanding would improve if one includes the addition ".. and other energy recovery process " alongside the cement kiln reference. Knowing how poorly some folks attend to such important documentation there is a possibility that many folks may see "incineration and cement production" and not realise that there are further and maybe better opportunities. In the "Purpose of the Document", the "Scope" of the document, and Section 1 of the policy ("Introduction") – there is no mention of electricity generation for example. One other suggestion is too include the term "energy recovery, or waste to energy" as often [as is practical] as the term "incineration". We would want to see an item [iii] in the "Purpose" to include resource conservation and energy recovery. Perhaps others may think that this is covered in item [i], but it is not clear enough. We have a real concern that some readers of the policy will challenge it solely on their anti-stance to incineration, without realising that part of the waste management approach is to utilise the calorific / heating value of waste carbon based materials as fuel. Perhaps not everybody knows that plastic has a heating value of 43 MJ/kg compared to that of fuel oil of 43 and coal at around 28. All other fuel media are less than plastic.	Energy recovery per definition includes electricity generation.
[2.2] In the Glossary of Terms: under "*alternative fuels and raw materials*", for further clarity we would add into the last line the phrase: "…, or Solid Recovered Fuel (SRF)" – as this is a term often used in Europe and elsewhere. Suggestion is to add another term being: "*Waste to Energy*" -- defined as – "*A solution that conserves resources, saves energy, helps limit the effect of climate warming and encourages the choice of economically viable treatment of waste. Diverting high calorific waste from landfill offers significant potential regards climate improvement and aids decoupling from fossil fuels.*"	Suggestion is accepted the definition has been added. Energy recovery from waste is supported in the policy, but Waste-to-Energy plants (one form of energy recovery) as specific technology is not mentioned in the document, and a definition is therefore not required.
[2.3] Somewhere it may be worth commenting that "*Co-processing AFR / SRF requires high quality SRF for conversion efficiency and this demand supports the role of post consumer collection of recyclables in support of the high quality trade and industry collections."*	The level of detail is not warranted in a policy document.
[2.4] Somewhere it may be worth commenting that the waste to energy approach or incineration approach offers a solution to dealing with bio-mass based products [plastics an especially good example] that cannot be recycled along with normal petro-based products. Also that these solutions reduce the amount of methane generated by biodegradable materials in landfills [methane being 21 times more destructive as a GHG than CO]. This is partly covered in item 12 of section 4.	The waste to energy option in the policy is not focused on any particular waste stream. The reduction of green house gases is included in the objectives of the policy.

[2.5] Section 4 – Policy Objectives. We suggest an addition as item 12, to read something like: …"*Maximize the heating value of available fuel resources, for example plastics having some 54% more heating value than coal."* In item 11, is it useful to comment that "the less coal used, the less the sulphur emissions as well".	The use of the energy potential of waste is identified in objective 4 (Section 4). The objective relates to the reduction of the countries carbon footprint and not pollution generally i.e. SO_2

34. City of Cape Town; 26/02/2009	
Comments	**Response**
I am responding o.b.o. the Director: Solid Waste Management in the City of Cape Town who has requested me to comment on this draft.	
In general, the City's IWM Policy makes an allowance for the use of alternate technologies as long as it does not have adverse environmental or health effects (p 8/103). Without repeating the detail, the City's policy implicitly sees incineration as a last resort to minimise resource impacts, but also allows for this as an option. In terms of the IWM Policy principles (p. 12/103) the following principle supports the intent of the National Draft Policy: "Dispose the remaining waste responsibly by utilising processes and methods that will conserve air space to lengthen the life of landfill sites, and methods that will impact minimally on water, ground water, soil or air."	The alignment of the Policy on waste incineration and co-processing of waste as AFR in cement production and the City's IWM Policy is noted.
The City's comments do not address the numerical values in the schedule regarding emissions, but the mitigation of flue gas effects through technology should ideally be one of the key issues that should receive strong attention in terms of policy to make sure that technology suppliers and service providers are under no illusion of what would be tolerated at the local level.	Support for the inclusion of emission schedules noted.
Scope - This creates a contradiction – see definition of "waste". While it is understandable that there is a dedicated policy for health care risk waste, this policy is about the technological options related to "thermal treatment". The statement should be amended to put a proviso in that indicates that thermal treatment may be one of the applicable technologies for HCRW, and this policy only covers this aspect of waste for waste management technology purposes.	The explicit exclusion of healthcare risk waste from the scope of the policy has been deleted. In order to deal with problem of co-processing healthcare risk waste in cement kilns, an additional schedule (schedule 3) has been included which lists the waste not acceptable for co-processing in cement kilns. This list identifies healthcare risk waste. For the purposes of incineration, the incineration of healthcare risk waste is therefore included in the scope of the policy.
Pg 10 of 27, 1st paragraph - There is a trend to deviate from incineration due to limitations on feedstock that will keep waste incinerators viable	The comment is noted, however literature from the EU indicates that incineration is expected to increase by 8% by 2020.
Pg 10 of 27, 4th paragraph – Disagree: there is very little plastics recovery for recycling due to the high calorific value (if these materials are excluded, incineration becomes non-viable). General background like this does nothing for the policy other than create confusion.	Recent evaluation of the waste management practices in 25 EU countries indicates that countries with the highest levels of incineration also have high recycling figures. The preference for recovery vs recycling often relates to cost benefits.
Pg 11 of 27, point 4 - Cape Town's policy already allows for this, even though it does not specify incineration.	The support for the variety in technology is noted.

Pg 11 of 27, point 11 - *Demonstrate the country's commitment to reducing its GHG emissions, such as methane from landfills and from the use of coal in cement production* What are the stats re methane from coal in cement production. It is very unlikely that any methane will survive the kiln combustion process that causes the sintering of materials that require a combustion agent such as coal or other oxidation agents (that will include coal). Coal in its natural state should release methane and sulfur based gases due to natural oxidation processes. Mining of it will exacerbate it, but then the dilemma comes with the production of energy.	Comment is accepted, the objective has been reworded.
Pg 12 of 27, last paragraph - Statements on statutes should be reviewed in terms of current status (e.g. if a law has been promulgated with the repeal of a previous law, the statement or paragraph should be amended accordingly). The AQMA and APPA are a case to consider.	The comment is noted, however the point is made about the systematic repeal of the Atmospheric Pollution Prevention act in the preceding sentence.
Pg 13 of 27, 1st paragraph - The NEMA Waste Management Bill has not been mentioned – why not?	NEMA Waste Bill (now an Act) is mentioned in paragraph 2 page 13 of 29.
Pg 19 of 27, schedule 3, point 3 - Add and storage	Comment is noted and storage is added.
Pg 19 of 27, point 9 - What would constitute "qualified and skilled"	Where a meaning has not specifically been provide the dictionary definition applies.
Pg 19 of 27, point 14 - Related to storage, transfer and disposal of remnant wastes	Comment noted and provision has been made to accommodate this comment in Schedule 4, 5(4).
Pg 20 of 27- Add "and Environmental".	Comment noted and "environmental" added.
Pg 22 of 27, point 6 **-** Don't specify filter type – this creates a loop hole. Bag filters at best are inadequate to control the types of emissions expected.	Comment noted and reference to filter types deleted.
Pg 22 of 27, point 8 **-** Why only bi-annually? Accredited specialist" will have to be defined	It is deemed to be sufficient as there is on line monitoring of other indicative parameters. SANAS is currently determining the criteria for accreditation.
Pg 23 of 27 - Will have to be appended as a Schedule to avoid tedious cross-referencing	The websites of the various conventions will be linked to the DEAT website to allow for cross referencing.
Pg 24 of 27, point 2, bullet 1 - In vessels designed in accordance with specifications in regulations or adopted standards	Comment noted and incorporated.
Pg 24 of 27, point 2, bullet 1 - Storage vessels or containers shall be clearly marked per standard	Comment noted and incorporated.

35. ACMP; 27/02/09	
Comments	**Response**
The ACMP appreciates the co-operative approach adopted in the development of this draft policy document and commends the Department in its initiatives to align the policy to international environmental best practice in integrated waste management.	Comment on acceptability noted.

Intent of policy The members of the ACMP understand the intent of the policy to be · the regulation of the thermal treatment of waste, including · the co-processing of waste in cement kilns. However, the details of the policy and associated guidelines are very specific to incineration and the co-processing of waste in cement kilns, and **not** in other thermal industries. There is a definite distinction between cement kiln co-processing, incineration and the co-processing of waste in other thermal industries. The recovery of materials and energy value of the waste in cement kiln co-processing is complete because no ash is generated from cement kiln co-processing. The ACMP thus recommends that, in addition to the guidelines for the co-processing of waste in cement kilns, sector specific schedules for the co-processing of waste in other industrial manufacturing processes must be finalized before co-processing of waste is allowed in those industries.	The comment is noted. The sector specific application of this policy was influenced by cement industry due to the need for consistency in decision making on a number of EIA applications on co-processing of AFRs in cement kilns. If the same need is identified in other sectors, guidelines will be similarly considered. In the interim site by site EIA applications will form the basis for decision making.
General recommendations It is recommended that the Department 1. Ensure sound and efficient implementation of this policy by ensuring · formal co-operative governance agreements between different authorities, and · formal monitoring and evaluation procedures with industrial role players. 2. Publish all procedures and protocols to ensure sound governance between the roleplayers 3. Implement a compulsory tracking and monitoring system for waste in South Africa and establish a "National Waste Information System". 4. Review the track changes reflected in the original draft policy document attached herewith with regards to grammar and editorial amendments 5. New kilns should be defined as kilns being commissioned after the date of promulgation of the policy.	Cooperative governance is an existing requirement in terms of the Constitution. Monitoring procedures are specified in Schedule 4 of the policy. The Constitution requires cooperative governance in the implementation of the policy (see Section 41 (h)). A National Waste Information system has been established and regulations are being developed. The implementation will be phased, and it is intended that all waste producers will be identified in time. Track changes have been reviewed and incorporated where appropriate. The date related to the interpretation of a "new kiln" has been removed and "after the date of promulgation" substituted.
General comments **Definitions and Terms** The members of the ACMP suggest that all definitions and abbreviations in this document be aligned with the Waste Bill and International norms and standards. Some of these have been highlighted include: Definition of Alternative Fuels and Raw Materials (AFR) The term *"secondary product"* needs to be removed from the definition of AFR. The intent of the policy was to regulate the co-processing of waste.	"Secondary products" has been removed from the definition

Definition of energy recovery The definition should be changed to read as follows: *The controlled extraction or retrieval of heat energy from the combustion of waste materials for use in an industrial process.* **BAT** The abbreviation must be reflected as "*Best Available Technology*" and not *"Best Available Technique"*	The current definition is more than what is being proposed by the ACMP in line with the inclusion of incineration in the policy. The comment is therefore not accepted. By using "technique" the element of process management and monitoring is included. BAT is defined in the EU Directive (96/61/EC) on integrated pollution prevention and control (IPPC). The comment is therefore not accepted.
Scope We recommend that the following statement be removed: *"The policy does not cover health care risk waste, its management or the treatment thereof"* As this draft policy document does not mention health care risk waste anywhere else in the document, nor defines health care risk waste, the statement should be removed. The types of waste streams to be used can be regulated through the NEMA authorization processes as well approval of the Industrial waste plan.	The explicit exclusion of healthcare risk waste from the scope of the policy has been deleted. In order to deal with problem of co-processing healthcare risk waste in cement kilns, an additional schedule (Schedule 3) has been included which lists the waste not acceptable for co-processing in cement kilns. This list identifies healthcare risk waste. For the purposes of incineration, the incineration of healthcare risk waste is therefore included in the scope of the policy.
Introduction The members of the ACMP appreciate the acknowledgment of the DEAT of the cement industry as a proven option for the effective treatment of selected general and hazardous wastes, and a means for the recovery of energy and raw materials.	Support for the regulated co-processing of waste noted.
Background Proposed amendments have been highlighted Appendix 1.	Grammatical and format track changes have been considered and addressed where appropriate.
International Situation The members of the ACMP agree that this section reflects the international situation.	Support for the content of the international section noted.
Policy Objectives Proposed amendments have been highlighted Appendix 1.	Grammatical and format track changes have been considered and addressed where appropriate.
Regulatory Framework The members of the ACMP appreciate the recognition of co-processing as a recovery activity in the context of the NEMA: Waste Bill.	Support for the regulatory section noted.
Policy Objectives 3. Should be amended to read as: *Advance the implementation of an integrated waste management system for the country in line with the waste management hierarchy, by facilitating the move away from single waste management solutions towards the integration of cement kiln co-processing, incineration and co-processing in other industrial manufacturing processes.*	The ACMP focus on industrial manufacturing processes is not accepted. This policy intends to comment on thermal waste treatment generally with co-processing considered to be a form of thermal treatment.

4. Replace *"and co-processing of waste as AFR "* with *"cement kiln coprocessing"*	The terminology has been amended to include thermal waste treatment broadly.
5. Proposed amendments have been highlighted Appendix 1.	Editing comments have been considered.
6. Replace "*Best available Techniques"* with *"Best Available Technologies"* and insert the following statement at the end of the paragraph: *"Provide the opportunity to include sector specific schedules for coprocessing in other industrial manufacturing processes after the publication of the policy."*	BAT is defined in the EU Directive (96/61/EC) on integrated pollution prevention and control (IPPC). The intention of this comment is captured under "Policy Implementation" point 7.
8. The paragraph should be amended to read as follows: *"Facilitate the use of existing, or new, cement operations, and other industrial manufacturing processes, for the effective treatment of selected general and hazardous waste through cement kiln co-processing, with the associated recovery of energy and raw materials. Schedules must be developed where they do not exist after the publication of the policy."*	The word existing has been deleted from the objective. The comment on other industries is captured in point 7 above. The comment regarding other schedules is captured in point 7 of the section on Policy Implementation.
9. The paragraph should be amended to read as follows: *"Promote the advancement of technology and the development of skills through international transfer of technology and experience to the South African context."*	The comment is noted and the sentence amended accordingly.
10. The paragraph should be amended to read as follows:: *"Contribute to meeting the international commitments of South Africa in terms of the Stockholm and Basel Conventions and other applicable requirements"*	The comment is noted and the sentence amended accordingly.
11. The paragraph should be amended to read as follows; *"Demonstrate the country's commitment to the reduction of GHG emissions, such as methane from landfills and CO2 from calcination and coal combustion in coal combustion.*	The sentence has been amended to reflect the proposed wording.
Policy Implementation 3. The word *etc* must be deleted from the text to avoid future implications to its interpretation	The sentence has been amended as requested.
8. The paragraph should be amended to read as follows: *"Cement Kiln Co-Processing shall primarily be used for recovering energy and materials from waste as part of the cement manufacturing process"*	The comment is accepted and the sentence amended accordingly.
9. This section of the policy needs to be excluded completely based on the letter sent by PPC to the Department on 13 October 2008. For ease of reference, the letter is attached as Appendix 2. Internationally, the pre-processing of waste on site at cement kilns is best practice as it optimises logistical costs of the co-processing solution as well as monitoring	The comment has been considered and accepted. The policy document has been amended as appropriate.

and evaluation. To prohibit all pre-processing at cement kilns would make the efficient preparation of waste for co-processing impossible and severely restrict the impact of cement kiln co-processing on waste management in South Africa. Furthermore, its management can be well managed through the EIA process. Approval of waste plans by the competent Authority must be a prerequisite thereby addressing any environmental concerns regarding processing and blending	
10. The guidelines must be made available to the public on the DEAT Website to ensure accessibility and transparency.	The guidelines will be available on the DEAT web site.
11. The wording "as applicable" should be included as follows: "*The requirements in Schedules 1, 2 and 3 of this policy as applicable for waste incineration and cement kiln co-processing must as a minimum be complied with at all times."*	This sentence has been deleted as it is now incorporated into point 4.
Schedule 1 – Air Emission Standards for Incineration The ACMP recommends that the emission standards for incineration in the policy be superseded by the minimum emissions standards as soon as they are published. In the interim, the standards proposed in the draft NEMAQA must be included in this policy. This will avoid a duplication of standards and will ensure that emissions standards from incineration plants are aligned.	The standards developed through the NEMAQA will be the definitive emission standard for incineration and co-processing once the process has been concluded. However, until this time the standards as presented in Schedule 1 and 2 will be applicable.
Schedule 2 - Air Emission Standards for Cement Kiln Co-Processing If the draft policy is implemented with the following statement: *"All other emission standards apply immediately to existing and new kilns that practice cement kiln co-processing"* in it's current form, all kilns that currently co-process waste as part of permitted activities will be in violation of the policy. The ACMP recommends that cement kilns that currently co-process hazardous waste should be allowed a compliance timeframe after the publication of this policy. There needs to be a transitional arrangement for cement kilns that currently co-process waste to allow them to achieve compliance to the provision of the policy within realistic timeframes. The intent of the policy is not to immediately shut down operations that currently co-process hazardous waste, but to improve environmental best practice at existing facilities.	The comment is noted, and a provision has been incorporated to reflect that the requirements would apply to kilns commencing with AFR co-processing after the date of promulgation of this policy.
PM Emissions The compliance timeframe for existing kilns to achieve 80 mg/Nm3 is only 36 months from now. If the policy is published in April 2009 existing kilns would only be given 2 years to comply with the standard. This timeframe is considered to be short, given the implementation timeframes, in terms of capital expenditure, procurement procedures and EIA regulatory requirements for projects of this nature. The ACMP recommend that this date be amended to **June 2013.** The general PM standards agreed to through the STANSA process should be	The comment is noted and the date will reflect a period after promulgation of the policy.

considered in this policy. The draft standard currently considered is 150 mg/Nm3. Furthermore, the 80 mg/Nm3 is generally exceeded ***only*** during upset conditions when using AFRs.	The STANSA process will determine the final emissions standards, however it is noted that the emission limits in policy have been discussed extensively through the policy development process.
NOx emissions The draft policy recommends the following NOx standards: • NOx limit for new kilns (commissioned after June 2008) co-processing AFR.500 mg/Nm3 • NOx limit for existing kilns co-processing AFR (excluding POPs waste) afterJune 2018, provided that current NOx emissions (as established through baseline monitoring) are not increased by the introduction of AFR. 800 mg/Nm3	
The ACMP would like to highlight the following to the department: 1. The proposed NOx limit for new kilns co-processing waste is not achievable in the South African context without the application of very expensive secondary NOx control measures. The quality of locally available coal is such that equipment vendors for recently commissioned cement kilns in South Africa have refused to guarantee NOx emission levels of below 800 mg/Nm3. Thus the NOx emissions standard of 500 mg/Nm3, proposed in the draft policy document, would effectively exclude the most modern cement kilns in South Africa from co-processing waste. The immediate *unintended consequence* would be to exclude cement kiln co-processing as a technology/ methodology from supporting some of the key principles of integrated waste management in South Africa. Since the co-processing of waste in cement kilns generally results in a slight decrease in the emissions of NOx, this provision actually detracts from effective environmental management in South Africa by prohibiting the co-processing of waste in many South African cement kilns, and so removing important waste management options. The ACMP recommends increasing this proposed standard to 800 mg/Nm3 and to change the date of application to the date of publication of the final policy.	The STANSA process will determine the final emission limits. In the interim the emission limits proposed in the policy will apply. The comment is noted and the emission limits has been amended to 800 mg/Nm3. This will be reviewed through the STANSA process.
2. The NOx limit for existing kilns, postponed to June 2018, will exclude all cement kilns without pre-heaters from the co-processing of waste after 2018.	Achieving Improvements in cement technology to reach BAT is part of the intention of the policy. This requirement is only related to kilns that wish to co-process AFR's and would not apply should the technology not be able to meet the requirements.
It is recommended that the NOx emission standards agreed through the NEMAQA process be included in policy. The draft - NOx emission standards agreed to are: • NOx limit for new kilns (commissioned after June 2008) co-processing AFR.1200 mg/Nm3 • NOx limit for existing kilns co-processing AFR (excluding POPs waste) after June 2018, provided that current NOx emissions (as established through baseline monitoring) are not increased by the introduction of AFR. 2000 mg/Nm3	Please refer to the above comment.

Provision 4 The members of the ACMP recommend that Manganese and HCL emissions must be noted as ***exclusions*** in Provision 4 due to South African raw materials considerations. Many South African limestone sources contain elevated levels of manganese and chlorides, affecting the emissions of these elements from the stack. In this instance, it is important to note that the Manganese is present in the dust and is not a product of thermal emissions.	This issue has not been raised previously by the ACMP or any stakeholder through the process. These requirements will only apply to kilns wishing to process AFR's and the highest level of public protection must be applied. The emission results for HCl reported by the industry indicate a high level of compliance, were manganese has been measured these limits are also well within the requirements.
Conditions of Environmental Authorisation **General** 6 The ACMP recommend that the inlet temperature of the air pollution control device should not be a preventative condition to the co-processing of waste at a cement kiln. The temperature window is only one of the many conditions required simultaneously to achieve dioxin formation through the De-Novo synthesis. The origin of the rule is found in the USEPA rules on hazardous air pollutants from Hazardous waste combustors, FR 40 CFR Part 60 pages 52874 to 52890 published 30 September 1999 to be found at the following website: http://www.epa.gov/fedrgstr/EPAWASTE/1999/September/Day-30/f20430a.htm However, a subsequent update of this rule in 20051 confirmed that it is not correct to apply this rule in an exclusionary context. In this document it is clear that the origin for the rule is statistical and not based on scientific argument. The ACMP draws the attention of the Department to the letter sent on October 13 (Appendix 2) where further explanation of this is given. It is appropriate that, where the temperatures at the inlet to the APCD are higher than 200℃, a proof of performance be applied to verify that the emissions are below the standard required, before co-processing is permitted. This view is supported by the newest research from the Portland Cement Association in the US. A recently commissioned, independent report concluded that there is not a marked increase in dioxin emissions from kilns that have APCD inlet temperatures in excess of 200 ℃. 2 In our view the proof of performance would suffice to manage the pollutant in question, where APCD temperatures exceed the noted 200 ℃.	The limiting of inlet temperature is considered BAT and provides first level control of undesired emissions. Information provided by the industry indicates that all but two kilns in the country can meet the inlet temperature. The controlling of inlet temperature to the pollution control device is seen as a precautionary approach and is considered BAT for kilns processing hazardous waste.
Air Quality Management 3. The ACMP would like to point out that only emissions monitored continuously can be reported in terms of Average concentration expressed as mg/Nm3. The paragraph should be split to separate online and dis-continuous monitoring, as suggested below:	The comment is accepted and the paragraph will be amended accordingly.

• *All continuous online emission monitoring results must be reported as a Daily Average concentration expressed as mg/Nm3 and at 'normalised' conditions of 10% O2, 101.3 kPa, 273 K / 0 ºC, dry gas.* • *Discontinuous emission monitoring must be reported as mg/Nm3 or ng/Nm3 I-TEQ for PCDD/PCDF, and at 'normalised' conditions of 10% O2, 101.3 kPa, 273 K / 0 ºC, dry gas*	
4. Please refer to the comment on APCD inlet temperatures in the previous section.	The controlling of inlet temperature to the pollution control device is seen as a precautionary approach and is considered BAT for kilns processing hazardous waste.
9. The sampling period for metal emissions must be changed to 60 minutes in order to ensure a proper representative sample. The sampling period for dioxins and furans of a minimum of six hours is not practical. The USEPA method 23: • "Determination of Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans" refers to the sampling technique as defined in USEPA method 5, wherein section 8 point 2.4 states that the sample time is to be a minimum of 2 minutes per point with a minimum of 8 sample points. We recommend that the sampling time for dioxins and furans be for a minimum of 60 minutes.	The comment is noted and the paragraph has been be amended accordingly.
Waste Management 2. The ACMP recommends the last part of the paragraph: *(as relevant to co-processing considering that pre-treatment, pre-processing or blending etc., mechanical or otherwise, of hazardous waste is not allowed at co-processing cement plants)* to be removed.	The comment is noted and the paragraph has been be amended accordingly.
The second bullet point is recommended to be amended, with the insertion of "Non compatible", as follows: *Flammable liquids shall be stored separately to substances with a high oxidizing potential.* ***Non compatible*** *waste streams with toxic components (such as metals, PCB's) shall be stored separately from other toxic waste streams.*	The comments are noted and the necessary amendments have been made.
The comment on fire fighting in storage halls is recommended to be changed to reflect that water is not always the best fire fighting medium. A recommendation for the change is as follows: *Storage halls must be fitted with* ***suitable fire fighting systems*** *and be vented to control accumulation of solvent vapors.*	The comments are noted and the necessary amendments have been made.
Storage tank safety must include a reference to SABS codes for low flashpoint liquids. Also not all tanks will require explosion safety, only those tanks with low flashpoint liquids. A recommendation for the change is as follows: *Tanks containing low flashpoint material must be fitted with an explosion safety*	The comments are noted and the necessary amendments have been made.

device. Additional devices may be required such as atmosphere control (e.g. 'nitrogen blankets') and temperature control (e.g. shell cooling). SABS codes for storage of hazardous liquids must be consulted.	
Material storage will not always take place in warehouses, but also sometimes in purpose made vessels. A recommendation for changing the relevant paragraph is as follows: *All material must be stored in fit for purpose facilities in accordance with their characteristics such that they prevent environmental pollution or degradation. In particular, transfer of wastes from the transporter must occur within an enclosed or bunded area.*	The comments are noted and the necessary amendments have been made.
3. & 4. Please see proposed amendments in Appendix 1.	Editorial comments have been considered and amended where appropriate.
5. There is no specific reference to the storage or supply of drummed wastes, only to storage halls and tanks. Although fully enclosed storage halls are not necessary for drummed waste (roof and open sided warehouse are suitable) firefighting and safety equipment must be determined by the material being stored.	The comments are noted and the necessary amendments have been made.
6. Please note further specific comments and proposed amendments as track changes in Appendix 1.	Editorial comments have been considered and amended where appropriate

36. LRC; 02/03/2009	
Comments	**Response**
This is the second comment submitted by Legal Resources Centre on the proposed National Draft Policy Development Process for High Temperature Thermal Waste Treatment (hereafter referred to as "the Draft Policy"). It is submitted on behalf of the Coalition for Environmental Justice, Captrust and the Habitat Council.	Noted that comments were submitted on behalf of Coalition for Environmental Justice, Captrust and the Habitat Council.
1. Lack of Draft Policy on suitable waste streams for incineration in cement kilns. In our initial submission we stated that South Africa list of waste streams to be excluded from cement kilns does not meet the standards expected by the BAT-BEP guidance nor even those established through the industry guidelines driven by Holcim GTZ, as set out in the Holcim-GTZ Public Private Partnership Guidelines on Co-processing Waste Materials in Cement Production" Final Draft March 2005. ("Holcim GTZ Guidelines").	We note that the list of excluded waste as discussed through the participation process was not added to the policy. Taking into consideration other comments received the exclusion list based on international best practice has been included in the policy as schedule 3.
Many of the concerns raised in this current submission cannot be addressed without limiting the permissible waste streams. The Draft Policy does not give a comprehensive list of permissible waste streams, aimed at reducing the risk of toxic emissions. The Draft Policy is in fact less specific than industry guidelines for	Covered in the comment above. A list of permissible waste will not be included. Each kiln has its own specific characteristics and the input for various wastes steams will be

co-processing, for example the Holcim-GTZ Guidelines set out typical air emissions from cement production and co-processing as well as appropriate reduction techniques. In respect of dioxins, furans, benzene and mercury the guidelines state: *"No reasonable abatement technique. Input limitation with raw materials is the option.* This statement highlights the importance of ensuring that there are proper regulatory controls over the waste stream proposed for use in cement production.	different for each kiln. The focus has therefore been on excluding certain waste streams (see above) and meeting specified emission standards.
The Holcim-GTZ guideline states that certain wastes are not suited for co-processing and by implication should be prohibited from being used in co-processing as well as suggesting that general permits for waste groups should not be allowed.	A list of wastes to be excluded from co-processing has been included as schedule 3.
The GTZ Holcim guidelines state: "The main objective of the permission and controlling process is to ensure that only suitable waste will be used and the AFR operations run properly. Regulators and kiln operators should be able to track the progress of the waste through the waste treatment path either directly from the waste generator or through collecting/pre-treatment companies. The quality of the material designated for co-processing is crucial. Quality data and emissions monitoring data form the basis of scientific discussions with external stake-holders. They will also be helpful tools for reducing local concern and the notion that cement plants are misused as trash bins for uncontrolled disposal of waste. " "The product (clinker, cement, concrete) shall not be abused as a sink for heavy metals and the concentration of trace elements in the final cement product shall statistically not be higher than that of cement produced with primary energy and virgin row material". "General permits for waste groups (plastics, sorted household waste, high heating value liquid waste and mineral waste as AFR) should not be issued. They are too generic and it is hard to track these wastes from generator to kiln. It is important to know the origin of each type of waste and its composition in order to ensure safe co-processing. "	The comment above addresses this issue.
It is submitted that the Draft Policy should also follow this approach and limit the use of waste that can be incinerated in cement kilns to such waste which does not contain precursors to dioxin formation, It should also give proper guidance to limit the inappropriate proliferation of waste streams which may give rise to the increased emission of heavy metals. For example sewage sludge can contains a wide range of chemicals and heavy metals. The role of continuous monitoring in the detection and mitigation of heavy metal emissions such as mercury is not mentioned it should be included.	A list of permissible waste will not be included. Each kiln has its own specific characteristics and the input for various wastes steams will be different for each kiln. The focus has therefore been on excluding certain waste streams (see above) and meeting specified emission standards.

Our clients submit that the incineration of POP's should not be permissible.	The destruction of POPs through incineration and co-processing has proved to be a successful treatment technology internationally and in developing countries. POPs are destroyed while meeting stringent air emission standards. In over 2200 trials all across the world demonstrate compliance with the international emission standards.
2. Startups, shutdowns and poor operating conditions In our initial submission we raised concerns that start-up, shutdown and transient abnormal operating conditions can lead to significant emissions. We referred to the fact that such elevated emissions could reach almost a thousand times the European Union limit and maintain high levels even 18 hours after injection of activated carbon. Studies had shown that such emissions from start ups of incinerators could be up to two times larger than a whole year's normal operations. In our first submission to this Draft Policy process we mentioned that in Europe incinerator operators are regularly out of compliance with the permit conditions. One unreliable cement kiln (Castle Cement at Padewsood, Wales, UK) emitted dioxins in excess of the entire European cement industry for the year 2004, This kiln was similar to the long dry kilns operating in South Africa and was using alternative raw materials. The Draft Policy fails to address prevention and mitigation of abnormal emissions comprehensively by suggesting sufficient proactive regulatory measures which could reduce the incidence of failure to comply with permit conditions and the regularity of upset conditions. Start up and shutdowns and transient conditions were not initially proposed to be regulated according to the new proposed emission standards, under the National Environmental Management Air Quality Act. This issue has not yet been resolved in the consultative process for these standards. It is therefore for the necessary for the Draft Policy to provide guidance for the drafting of regulations and the contents of permits which would spell out how to mitigate and control abnormal emissions from these events, However the Draft Policy fails to give guidance as to regulations which should be passed or guidelines that should be established in order to regulate the permitting of cement plants which incinerate waste, so as to adequately control emissions of dioxins and metals during startups and shutdowns and poor operating conditions. It is submitted that the requirement that there be a "reliable and adequate power supply" is insufficient to address this concern.	The comment is noted and the policy has been updated to specifically indicate that waste may not be fed through start up, shut down and upset conditions.
3. Dust from the demolition of and abrasion of cement derived from the burning of alternative fuels. The Draft Policy does not address the possible dangers that are posed when cement which uses alternative fuels is finally liberated into the atmosphere during demolition of buildings built using such cement, or through abrasion of cement in building operations etc. Concerns have been raised as to the possibility of toxic metals such as cadmium leaching into water through cement pipes carrying water. It is submitted that the broad range of waste which is envisaged to be burnt in cement kilns will give rise to an unnecessary risk of these chemicals and metals finding their way into the final cement product. For this reason it is submitted that only a very limited stream of waste which limits heavy metals and does not contain	The quality of cement is strictly controlled. Tests have been conducted on cement manufactured while using alternative fuels and additional impacts were noted.

precursors to dioxin formation should be permissible for burning in cement kilns.	
4. Monitoring: It is submitted that the proper compliance with emission standards is dependent on proper monitoring of pollutant emissions and in particular those of highly toxic emissions such as dioxins and heavy metals, and therefore the Draft Policy should mandate that sufficient capacity is developed in South Africa to enable the proper monitoring of these emissions to take place in this industry. The Draft Policy should also address the following related issues: 1) provisions for monitoring performance of air pollution control devices 2) automatic waste feed cut off	To date there has been a limited need for the monitoring of dioxins in South Africa. However with the requirement for dioxin and heavy metal monitoring being proposed by various guidelines and legislation the demand for dioxin and heavy metal monitoring should result in the development of monitoring capacity over time. This is covered in Schedule 4 and the waste feed will be dealt with in each industry's operational and environmental management plan.
4.1 Provisions for monitoring performance of air pollution control devices Section 4 of Schedule 3 on page 24 of the Draft Policy (Air Quality Management): Paragraph 6 of this section seems to require continuous monitoring of several important pollutants (PM, CO, NOx, S02, HCl, HF) but also other important parameters such as flow rate, exhaust temperatures, internal process temperatures and pressure and "availability of air pollution control equipment (exit gas cooling and ESP/bag filter)". It is often assumed that monitoring the performance of a polluting facility means monitoring pollutant emissions as frequently as possible (if not continuously). However it is submitted that this approach fails to address the problem comprehensively, and in order to do so it is just as important to monitor, directly and continuously, the performance of the facility's air pollution control devices. For many pollutants, such as dioxin, it is impossible to monitor emissions continuously. Therefore, an important way of establishing whether a facility is controlling emissions of these pollutants is to obtain real-time information about the performance of relevant air pollution control devices. For example, if a fabric filter is functioning properly, then air pressure upstream of the filter is much higher than the air pressure downstream of the filter. However, if there is a tear or rupture of the fabric filter, then this can be detected by a sudden drop in the difference between air pressures on both sides of the fabric filter. It is relatively straight forward to obtain real-time information about air pressures on both sides of the fabric filter and if these indicate a sudden drop in the difference between the air pressures, then it can be inferred that there is breach in the integrity of the fabric filter and that excessive emissions are occurring — without the need to measure these emissions. Similarly, if a facility is relying on rapid cooling of exhaust as a means to control dioxin emissions, then measuring the temperature of the exhaust prior to the air pollution control device becomes the most reliable means of telling whether the facility is adequately controlling dioxin emissions. For an example of this approach from another jurisdiction we refer to the US EPA regulation (see Annexure A). applicable to cement kilns burning hazardous waste which have numerous	We note the comment and agree that dioxin emissions will not be monitored continuously. The technology is currently not available, and periodic monitoring internationally applied. The policy used the precautionary approach and requires the on line measurement of most parameters to give immediate notification of upsets. The policy requires that the exit temperature to the pollution control device is below 200^{o}C and is continuously monitored.

monitoring requirements that focus not only on pollutant emissions, but on the performance of a facility's air pollution control devices. It is therefore submitted that the Draft Policy provisions should he strengthened by a clarification of the meaning of the term "availability of air pollution control equipment." It is suggested that this term should encompass parameters that would continuously inform the company, the authorities and even the general public that a hazardous waste cement kiln's pollution abatement technology (e.g. ESP, bag filter, scrubber, etc.) is functioning optimally. For example DEAT should indicate that "availability of air pollution control equipment," means monitoring data sufficient to determine that air pollution control equipment properly functioning at all times.	The online monitoring of particulate will address this issue and identify if the air pollution control device is not functioning.
4.2 Automatic waste feed cutoff With respect to this issue: Paragraph 8 of Section 3 of Schedule 3 on page 23 of the Draft Policy mentions the requirement for "interlocks and set points for shutting off waste feed." However, the Draft Policy lacks provisions imposing a requirement for when these "interlocks and set points for shutting off waste feed" should be engaged. It is obvious that these automatic waste feed cutoffs should be engaged if the plant, or any of its air pollution control technology, is malfunctioning. Therefore, we recommend the inclusion of the following requirement : "that any facility must operate the hazardous waste combustor with a functioning system that immediately and automatically cuts off the hazardous waste feed when any of the following are exceeded: specified operating parameter limits; an emission standard monitored by a CEMS; and the allowable combustion chamber pressure; when the span value of any CMS detector, except a CEMS, is met or exceeded; upon malfunction of a CMS monitoring a specified operating parameter limit or an emission level; or when any component of the automatic waste feed cutoff system fails"	The policy now provides for the requirement for the cut off of hazardous waste feed to the kiln in times of upset and start up and shut down. This issue is therefore address with this inclusion.
5. The Draft Policy fails to promote recycling before combustion of waste The Draft Policy fails to give guidance as to how incineration will be integrated into waste management so as to promote recycling and the waste management hierarchy. It makes unsubstantiated references to "imitational experience" which is alleged to show that incineration does not reduce volume of and incentive for recycling. As a result the Draft Policy fails to make recommendations which would define the appropriate place for incineration in the waste hierarchy, and promote alternative waste management strategies. As stated in the GTZ Holcim guidelines for use of the waste as fuel in cement kilns: "wherever possible the concept of cleaner production (CP), recycling and re-use must be given first priority. " and "AFR use should respect the waste hierarchy and be integrated into waste management programmes, and not hamper waste reduction efforts. It should never be used if it might increase harmful emissions or impact to human health." South Africa does not have detailed policies and regulations addressing waste hierarchy, and therefore it is submitted that this issue should be pertinently addressed in the Draft Policy.	The policy is drafted on the principle of the waste hierarchy.

37. Enviroserv; 26/02/2009	
Comments	**Response**
We have studied the document submitted as part of the NATIONAL POLICY DEVELOPMENT PROCESS FOR HIGH TEMPERATURE WASTE INCINERATION AND AFR CO-PROCESSING IN CEMENT PRODUCTION, namely the: Draft POLICY ON WASTE INCINERATION AND THE CO-PROCESSING OF WASTE AS ALTERNATIVE FUELS OR RAW MATERIALS IN CEMENT PRODUCTION Our comments and suggestions with regard to this document are detailed below under the relevant subsections using the page numbering as reflected in the Government Gazette, Vol. 523 of 30 January 2009, No. 31831.	
1. Page 3 of 27 - Alternative Fuels and Raw Materials (AFR) Reads — “to substitute conventional or primary fossil fuels and/or virgin raw materials in cement kilns and other industrial manufacturing processes”. We propose that the term and other industrial manufacturing processes” be removed as the Policy (for AFR use) was developed in consultation with the cement industry and focussed predominantly on cement kiln technology as indicated in the title of the Policy document, namely “POLICY ON WASTE INCINERATION AND THE CO-PROCESSING OF WASTE AS ALTERNATIVE FUELS OR RAW MATERIALS IN CEMENT PRODUCTION”. We agree that the use of waste derived fuels is possible in “other industrial manufacturing processes” but contend that this should be investigated in a similar fashion to the process that resulted in the Draft POLICY ON WASTE INCINERATION AND THE CO-PROCESSING OF WASTE AS ALTERNATIVE FUELS OR RAW MATERIALS IN CEMENT PRODUCTION.	The definition has been amended to indicate “in industrial processes”.
2. Page 3 of 27 - Best Practicable Environmental Option Reads — “The option that provides the most benefit or....” We propose that the term “most” be replaced with “optimal” but acknowledge that “most” is currently used in NEMA.	NEMA definitions are preferred therefore the comment has not been accepted.
3. Page 3 of 27 - By-product Reads — “A substance that is produced as part of a process that is primarily intended to produce another substance or product and that has the characteristics of an equivalent virgin product or material”. We propose that the term “as part of’ be replaced with “in” and that the wording “and that has the characteristics of an equivalent virgin product or material” be removed. Sentence would then read — “A substance that is produced in a process that is primarily intended to produce another substance or product”	The definition as per the Waste Act has been used. The comment is therefore not accepted.
4. Page 3 of 27 - Co-Processing Reads — “Utilisation of alternative fuels and/or raw materials in manufacturing processes for the purpose of energy and/or resource recovery and resultant reduction in the use of conventional fuels and/or raw materials through	The inclusion of cement processes will limit the definition and is therefore not incorporated.

substitution." We propose the inclusion of the wording "the cement". Sentence would then read — "Utilisation of alternative fuels and/or raw materials in the cement manufacturing processes for the purpose of energy and/or resource recovery and resultant reduction in the use of conventional fuels and/or raw materials through substitution".	
5. Page 3 of 27 — Disposal Reads — "The burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land." We propose the replacement of the wording "or onto, any land" with "the environment" as being more inclusive and covering dumping into water sources such as rivers, lakes, sea, etc. Sentence would then read — "The burial, deposit, discharge, abandoning, dumping, placing or release of any waste into the environment"	The definition is as per the Waste Act. The comment is therefore not accepted.
6. Page 3 0127 — Energy Recovery Reads — "Controlled extraction or retrieval of heat energy from the combustion of waste materials to use the heat either directly, or to generate steam or electricity." We propose that the wording "to use the heat either directly, or to generate steam or electricity" is unnecessary and should be removed. Sentence would then read — "Controlled extraction or retrieval of heat energy from the combustion of waste materials".	The comment is noted and the definition has been amended accordingly.
7. Page 4 of 27 — Fossil Fuel Reads — "Non-renewable, decayed organic materials that over time have formed geological deposits of carbon, such as oil, natural gas and coal, which are combustible and releases energy through burning." Should read — "Non-renewable, decayed organic materials that over time have formed geological deposits of carbon, such as oil, natural gas and coal, which are combustible and release energy through burning."	The "s" from release has been removed as requested.
8. Page 4 of 27 — General Waste The meaning of the term "inert waste" is unclear and needs clarification or should be removed.	The definition is as per the Waste Act. The comment has therefore not been accepted.
9. Page 4 of 27 — Incineration Reads — "Any dedicated method, technique or process to convert waste to flue gases and residues by means of thermal oxidation." We propose that the wording be changed to read — "Any dedicated method, technique or process to destroy waste by the conversion to flue gases and residues by means of thermal oxidation."	The definition has been changed to that reflected in the Waste Act.
10. Page 5 of 27—Re-use Reads — "To utilise articles from waste stream again for a similar or different purpose without changing the form or properties of the articles." Should read — "To utilise articles from a waste stream again…"	The definition is as per the Waste Act. The comment is therefore not accepted.
11. Page 5 of 27 — Waste Reads — that is identified as a waste by the Minister by notice in the Gazette, but a	The definition is as per the Waste Act. The comment is therefore not accepted.

by-product is not considered waste, and any portion of waste… We propose that the wording be changed to read — "that is identified as a waste by the Minister by notice in the Gazette. A by-product is not considered waste, and any portion of waste…" Paragraph would then read — "Any substance, whether or not that substance can be reduced, re-used, recycled and recovered (i) that is surplus, unwanted, rejected, discarded, abandoned or disposed of (ii) which the generator has no further use off or the purposes of production, (iii) that must be treated or disposed of, or (iv) that is identified as a waste by the Minister by notice in the Gazette. A by-product is not considered waste, and any portion of waste, once re-used, recycled and recovered, ceases to be waste."	
12. Page 6 of 27— BAT: Reads — "BAT: Best Available Techniques" There appears to be inconsistency in the use of the term "BAT" and it is proposed that the word "Techniques" be replaced with "Technology".	The use of the term Technique provides for management measures as well as technology. BAT is defined in the EU Directive (96/61/EC) on integrated pollution prevention and control (IPPC).
13. Page 8 of 27 — Background — 4th line Reads — ". for waste management in the county. Thermal waste treatment options provide…" The word "county" needs to be changed to "country" We propose in addition that the sentence should read — 'for waste management in the country. Existing thermal waste treatment options currently provide…"	The comment is noted and the word has been amended. The use of the word currently will be included.
14. Page 8 of 27 — Background — last line Reads — " cement production, often provide a more environmentally sustainable solution" Should read — "cement production, often provides a more environmentally sustainable solution"	The "s" has been added as indicated.
15. Page 9 of 27 — 1st paragraph Reads — "South Africa has several notable waste management policies, plans and strategies that support the waste management hierarchy concept. However, the development and implementation of certain waste management alternatives, which would allow waste to be managed within." We propose the deletion of the word "concept" and that the paragraph should read — "South Africa has several notable waste management policies, plans and strategies that support the waste management hierarchy. However, the development and implementation of certain waste management alternatives, which would allow waste to be better managed within…"	The comment is noted and the word concept will be deleted, and the word better will be added.
16. Page 9 of 27 — 2nd paragraph Reads — "The lack in policy direction has resulted in or contributed to a number of constraints. These include poor environmental performance related to waste management in the country". The sentence would appear to imply that all waste management by all companies or organizations has been poorly done and we propose that it should read - The lack in policy direction has resulted in or contributed to a number of constraints. In	The comment is noted and the sentence amended to reflect the comment.

many instances these include poor environmental performance related to waste management in the country".	
17. Page 9 0127 — INTERNATIONAL SITUATION — 1 paragraph — 2 sentence Reads — "Internationally, the management of hazardous waste specifically is a growing concern, as the long term impacts and costs of improper disposal of this waste can be very high." We propose replacing the word "this" with "such" and that the sentence should read — "Internationally, the management of hazardous waste specifically is a growing concern, as the long term impacts and costs of improper disposal of such waste can be very high.	The comment is noted and the word has been amended to "such" waste.
18. Page 9 of 27 - INTERNATIONAL SITUATION — 2nd paragraph — 2nd sentence Reads — "In the European Union (EU), which comprises both developed and developing nations, the move from landfilling towards more integrated waste management solutions that reduce GHG methane emissions from landfills We propose replacing the word "emissions" with "generation" such that the sentence reads — "In the European Union (EU), which comprises both developed and developing nations, the move from landfilling towards more integrated waste management solutions that reduce GHG methane generation from landfills...."	The comment is noted and the word "generation" will be included.
19. Page 9 of 27 - INTERNATIONAL SITUATION — 2nd paragraph — last sentence Reads — "The EU landfill directive sets targets for the diversion of organic waste from landfill, and the packaging directive set targets for recycling". We propose inclusion of the wording "of packaging" such that it reads — "The EU landfill directive sets targets for the diversion of organic waste from landfill, and the packaging directive set targets for recycling of packaging".	The comment is noted. The sentence has been amended to omit packaging.
20. Page 10 of 27 — 1st paragraph — 2nd sentence Reads — "In 2004, only 47 % of the total EU municipal waste generated was landfilled, and it is expected to decrease further to approximately 35 % by 2020 through increased recycling and incineration." We propose that it read — "In 2004, only 47% of the total EU municipal waste generated was landfilled, and it is expected to decrease further to approximately 35 % by 2020 through increased recycling and incineration initiatives".	The comment is noted and the word "initiatives" will be added.
21. Page 10 of 27 — 3rd paragraph— 2nd sentence Reads — "In addition, current emission standards for incineration and co-processing that are set in line with best environmental practice are extremely high, and effective to ensure the protection of human health and the environment". We contend that the wording "low" can be incorrectly interpreted w.r.t. the world standards being "extremely low", (i.e. as in being very poor) rather than to the emission limit values which are "extremely low". We propose that the paragraph should read — "Monitoring of facilities that co-process selected general and hazardous waste as AFR around the world has shown that emissions from properly designed and operated cement plants are not substantially different from those burning conventional fuel. In addition, current	The comment is noted and the sentence has been amended to indicate that emission standards are stringent.

emission limits for incineration and co-processing that are set in line with best environmental practice are extremely low very low emissions to atmosphere, and effective to ensure the protection of human health and the environment.	
22. Page 10 of 27 — last paragraph Reads — "International experience has also shown that waste incineration and co-processing do not reduce the incentive for, or actual volumes and success of recycling programmes. Records from developed and developing countries have indicated that those with the lowest level of landfilling often have the highest levels of recycling incineration, and visa versa, which is indicative of the move towards increased waste recycling over time as integrated waste management systems develop." We propose that the paragraph should read — "International experience has also shown that waste incineration and co-processing do not reduce the incentive for, or success of recycling programmes. Records from developed and developing countries have indicated that those with the lowest level of landfilling often have the highest levels of recycling and visa versa, which is indicative of the move towards increased waste recycling over time as integrated waste management systems develop." The proposed change in wording is to avoid the accusation that thermal "end-of-pipe" solutions discourage recycling initiatives.	The comment is noted and the sentence has been amended to read "international experience has also shown that waste incineration and co-processing do not reduce the incentive for or success of recycling programs". The comment has been noted but it is felt that the meaning is clear, the reference to volumes has been deleted but the reference to incineration has been maintained.
23. Page 11 of 27 — POLICY OBJECTIVES — bullet 3 Reads — "Advance the implementation of an integrated waste management system for the country in line with the waste management hierarchy, by facilitating the move away from single waste management solutions towards the integration of incineration and other suitable thermal technologies" We propose that it should read — "Advance the implementation of an integrated waste management system for the country in line with the waste management hierarchy, by facilitating the move away from single waste management solutions towards the integration of incineration, co-processing and other suitable thermal technologies"	The comment has been noted and the sentence has been amended accordingly. Objective 3 has been moved to one.
24. Page 11 of 27 — POLICY OBJECTIVES — bullet 6 Propose that the word "techniques" be replaced with "technology"	The word "techniques" includes management issues. BAT is defined in the EU Directive (96/61/EC) on integrated pollution prevention and control (IPPC). The comment is therefore not accepted.
25. Page 11 of 27 — POLICY OBJECTIVES — bullet 11 Propose that the words "generation" and "CO2 generation" be included such that it reads — "Demonstrate the country's commitment to reducing its GHG emissions, such as methane generation from landfills and CO2 generation from the use of coal in cement production.	The comment has been noted and the sentence amended accordingly.
26. Page 13 of 27 — 3rd paragraph — 1st sentence Reads — "The White Paper on the Renewable Energy Policy (2004) is intends to...." The word "is" should be deleted such that it reads — "The White Paper on the Renewable Energy Policy (2004) intends to..."	The comment is noted and "is" has been deleted.
27. Page 13 0127 — last paragraph — 9 line	

<table>
<tr><td>Sentence reads — “The Convention also aims to clean-up existing stockpiles, dumps and equipment containing POPs, and includes several recommendations for the treatment of waste through incineration or co-processing”.
We propose that it should read - “The Convention also aims to clean-up existing stockpiles, dumps and equipment containing POPs, and includes several recommendations for the treatment of POPS containing waste through incineration or co-processing”.</td><td>The comment is noted and the sentence has been amended accordingly.</td></tr>
<tr><td>28. Page 15 of 27 — bullet 8
Reads — “Cement kilns shall primarily be used for recovering energy and materials, i.e. for co-processing alternative fuels and raw materials, which can substitute parts of conventional fossil fuel and/or virgin raw materials”.
We contend that the wording “...kilns shall primarily be used for recovering energy and materials” is confusing as the cement kilns are primarily used for the production of cement clinker.
We propose that the wording be altered to read — “Cement kilns may be used for recovering energy and materials, i.e. for co-processing alternative fuels and raw materials, which can substitute parts of conventional fossil fuel and/or virgin raw materials”.</td><td>The comment is noted and the sentence has been amended accordingly.</td></tr>
<tr><td>29. Page 15 of 27— bullet 10
The Policy document makes reference to “the DEAT “Guidelines for the Co-Processing of Alternative Fuels and Raw Materials and Treatment of Organic Hazardous Wastes in Cement Kilns “.
This DEAT document was not included with the Policy document for review and comment and this omission is seen to be a significant flaw in the process of providing comment on the Policy document.</td><td>The document is on the website and has been distributed and discussed through the consultation process.</td></tr>
<tr><td>30. Page 16 of 27
The table of emissions and the emission limit values are not in alignment with the limit values being reviewed and proposed under the Stansa process for point source emissions governed by NEM:AQA. These limit values and the proposed criteria pollutants are as shown in the amended table below:
<table>
<tr><th>EMISSIONS</th><th>AIR EMISSION STANDARD [1]</th></tr>
<tr><td>PM (Total Particulate Matter)</td><td>25</td></tr>
<tr><td>CO</td><td>100</td></tr>
<tr><td>HCl</td><td>30</td></tr>
<tr><td>SO_2</td><td>50</td></tr>
<tr><td>Hg</td><td>0.05</td></tr>
<tr><td>Cd + Tl</td><td>0.05</td></tr>
<tr><td>Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V (Sum total)</td><td>0.5</td></tr>
<tr><td>PCDD/PCDF (ng/Nm^3 I-TEQ)</td><td>0.1</td></tr>
</table></td><td>The STANSA process will determine the final emission standards in the interim the standards proposed in the policy will apply. These standards apply to new incinerators. All new technology should be able to meet international standards.</td></tr>
</table>

31. Page 16 of 27- SCHEDULE 2: AIR EMISSION STANDARDS—AFR CO-PROCESSING Last sentence reads — “All other emission standards apply immediately to existing and new kilns co-processing waste as AFR”. Propose that this should read - “All other emission standards apply immediately to existing and new kilns co-processing AFR” as the definition of AFR already indicates the origin to be waste.	The comment is noted and the sentence has been amended accordingly.
32. Page 21 of 27 — bullet 12 Reads — “Procedures and frequency for the continuous review and update of the Operational and Management Plan f required to ensure it remains up-to-date, relevant and effective “. Propose that word “continuous” be replaced with “regular”.	The comment has been noted and the sentence has been amended accordingly.
33. Page 23 of 27 — bullet 14 — 2nd last sub-bullet Reads — “Extension of monitoring regime to include Chlorobenzenes, HCB, Benzene, Toulene, Xylene, PAHs, and NH3;” Should read — “Extension of monitoring regime to include Chlorobenzenes, HCB, PCBs, Benzene, Toluene, Xylenes, PAHs, and NH_3”.	The grammatical and formatting changes have been amended.
34. Page 24 of 27 — 2nd paragraph Reads — “Possible incompatibility of secondary materials during handling and transport in accordance with SANS 10232-], Annexure F. Liquid streams shall be stored separately to solid wastes. Flammable liquids (i.e. hydrocarbon sludges) shall be stored separately to substances with a high oxidizing potential. Waste streams with toxic components (such as metals, PCBs) shall be stored separately from other toxic waste streams”. We recommend that the wording “hydrocarbon sludges” be removed as they are not a good example of flammable liquids. We would also contend that as most hazardous waste streams would contain “toxic components” the condition that they be stored separately “from other toxic waste streams” is impractical and would result in multiple, costly storage containers. We propose the paragraph to read — “Possible incompatibility of secondary materials during handling and transport in accordance with SANS 10232-1, Annexure F. Liquid streams shall be stored separately to solid wastes. Flammable liquids shall be stored separately to substances with a high oxidizing potential. Non-compatible waste streams are to be stored separately’.	The example will be removed.
35. Page 25 of 27 — 5th paragraph Reads — “Storage halls must be fitted with water sprinkler systems and be vented to control accumulation or destruction of solvent vapours”. We propose that this should read — “Storage halls must be fitted with suitable fire fighting systems and be vented to control accumulation of solvent vapours “.	The comment has been noted and the sentence amended accordingly.
36. Page 26 of 27 — 7th bullet Reads — “Any pre-processing or preparation of waste prior to treatment” This statement is not understood as the Policy specifically prohibits pre-treatment	These general conditions also apply to incineration.

or pre-processing at the cement plant (Pg 15 of 27 — bullet 9).	
37. Page 26 of 27 — bullet 5 Reads — "Detailed records must be kept of waste not accepted and turned away from the site, as well reasons for non-acceptance ". Should read — "Detailed records must be kept of waste not accepted and turned away from the site, as well as reasons for non-acceptance." As part of the review process for the Policy, we requested our environmental lawyers, Cliffe Dekker Hofmeyr Inc., to review the Policy documentation. Their comments in this respect are provided as an Appendix to this letter for your consideration. We trust the comments and suggestions provided will be useful in the drafting of the revised version of the final POLICY ON WASTE INCINERATION AND THE CO-PROCESSING OF WASTE AS ALTERNATIVE FUELS OR RAW MATERIALS IN CEMENT PRODUCTION.	The comment is noted and the sentence amended accordingly.
Comments by Cliffe Dekker Hofmeyr Inc. **Prepared for and on behalf of: EnviroServ Waste Management (Pty) Limited**	
1 INTRODUCTION 1.1 We have been offered the opportunity to comment on the Draft Policy on Waste Incineration and the Co-processing of Waste as an Alternative Fuels or Raw Materials in Cement Production (the draft policy). 1 .2 These comments are submitted by EnviroServ Waste Management (Pty) Limited. 1 .3 We applaud governments commitment to investigating alternative waste management options, more particularly that of waste incineration and co-processing. Worldwide, landfill can no longer be seen to be the primary waste management option and alternative options must urgently be considered and consistently implemented. The approval and implementation of these alternative options in South Africa has thus far been inconsistent and a national intervention and policy statement is urgently required. 1 .4 Save for our general comments which appear at the outset, our specific comments are set out in accordance with the subject headings of the draft policy.	The support is noted.
2 GENERAL 2.1 While we understand the need for simple and concise policies, the draft policy is perhaps too simple and concise and it is unfortunately lacking in a number of material respects (as set out below). 2.2 It is clear from the various documents published by DEAT that extensive research has been conducted in drafting the draft policy. Arising out of that research a number of extremely useful and apparently objective documents have been prepared. However, it is not clear what the relationship between the draft policy and those documents is Do they, for example, form supporting documents which may be relied upon by, among others, officials making decisions? 2.3 Although it is obvious to most people which officials would be required to refer to the policy, in our view this needs to be stated explicitly. It should be clear that	Comment noted. The studies undertaken are reference documents used to support the drafting of the policy and a list of the documents generated have now been included in the policy. The guideline on co-processing will be published in the gazette as a sector guideline. A separate co-processing EIA review guideline has been developed to support decision making by government officials.

the policy will guide all officials involved in a decision regarding such alternative waste management options. In our view, this should foster co-operative governance, prevent fragmentation in the manner in which pollution and waste management is dealt with and facilitate integrated waste management.	
2.4 The National Environmental Management: Waste Bill (Waste Bill) awaits the Presidents signature. As it is near commencement as an Act, and because the draft policy and the Waste Bill regulate overlapping subjects, we suggest that the policy be vetted against the Waste Bill in order to ensure consistency with its provisions and where possible, that it refers back to the Waste Bill. In this regard, we note the following:	The provisions of the Waste Act have been extensively considered in the drafting of the policy.
2.4.1 Some of the definitions (such as incineration and waste) differ slightly to those in the Waste Bill. While there may be a reason for doing so, in order to avoid confusion, we suggest that the reason for a departure from those definitions be explained;	The definitions of the Waste Act has been used.
2.4.2 Some of the Waste Bills objects equally apply to the policy and these should be reiterated in the draft policy; and	There is no reason to repeat the provisions of the Waste Act and other legislation discuss in section 5 of the policy.
2.4.3 The Waste Bill places obligations on the holders of waste and these should be reiterated in the draft policy in order to encourage alternative waste management options.	See comment above.
2.5 Although we recognise that the draft policy demonstrates a measure aimed at solving inconsistency and what is apparently a regulatory deficiency, in many respects, the draft policy includes legal obligations which ought more properly to appear in regulations made under the Waste Bill. Examples of these are set out below.	The emission guidelines provided in the policy will be recommended to the STANSA process for gazetting and formalising.
2.6 Ordinarily policy documents do not contain an extensive set of definitions. As many of the terms included are already defined in the Waste Bill, a simple reference to words in that Bill/Act having the same meaning in the draft policy should suffice. We note further that the definition of incineration differs to that in the Waste Bill. In our view, unless explained, inconsistent definitions merely serve to create unnecessary uncertainty and confusion. If, in order to fulfil its objective, definitions are required, we would suggest that definitions for selected wastes, health care risk waste, thermal processes, integrated waste management and dedicated facilities be included.	It was felt that it was necessary to include certain definitions for clarity. The word thermal and dedicated will be removed from the policy definition of incineration to reflect the Waste Act definition. Healthcare risk waste has been removed, thermal processes will become thermal waste treatment which is defined, the remaining words are deemed to be self explanatory and the dictionary meaning will apply.
2.7 Given the potentially significant opposition to the draft policy itself and any project approved in terms of the draft policy, if the draft policy is to be read as a stand alone document, at least the following should be included:	Current environmental legislation requires that decision makers consider all relevant existing policies, legislation etc. when considering environmental authorisation applications. These requirements, together with the requirements for cooperative governance under the Constitution are deemed to be sufficient.
2.7.1 A reference (preferably under the section regarding the policy purpose and scope) to the draft policy being a document which must be referred to by applicants and decision-makers during the authorisation and implementation phase of a waste incineration and co-processing project;	
2.7.2 A clear indication of DEAT's support for these alternative waste disposal projects being implemented (when appropriate) as part of its obligation to achieve integrated waste management and provided that certain criteria are met (including	Amendments to the policy now provide clarification on thermal waste treatment.

those relating to environmental sustainability). In this regard, it would be useful to incorporate: 2.7.2.1 a description of what thermal projects are, 2.7.2.2 a summary of the waste management crisis in South Africa; 2.7.2.3 an analysis of the respective advantages and disadvantages of thermal projects (including environmental impacts and compliance with international and framework legislation environmental principles); and 2.7.2.4 a road map for the future regulation of these projects.	 Reference to thermal projects has been removed. This has been captured in supporting documents. It is felt a policy is not required to include technical detail.
3 PURPOSE OF THE DOCUMENT 3.1 We have already set out two further purposes which we believe should be included under the heading purpose of the document, namely that: 3.1.1 DEAT supports the implementation of incineration and co-processing as alternative waste management options provided that certain requirements are met (particularly those relating to environmental impacts). As presently phrased, it merely indicates that they may be implemented; and 3.1.2 An indication of when the draft policy should be referred to and by whom. 3.2 We note also that incineration and co-processing are defined for a second time under this heading and that the content of these definitions differs to that under the definition section.	Required waste management regulations have been identified in the Waste Act and the Waste Act implementation has set timeframes for the drafting of regulations. General support to thermal waste treatment is provided for in the policy. The policy then provides specific management frameworks for incineration and co-processing of AFR's in cement kilns. This is a national policy and therefore must be considered by all who are affected by it. The comment is noted and has been rectified.
4 VISION 4.1 Integrated waste management is required in order to achieve sustainable development and environmentally sound management. However, effective integration requires implementation. In our view, the vision must include the integration and implementation of a sufficient range of complementary waste management options in line with the waste management hierarchy.	This aspect is covered in the policy objectives.
5 SCOPE 5.1 Reference is made to selected wastes. It is not clear from either the scope or the remainder of the draft policy whether the Department intends to develop criteria for determining the nature and sorting requirements of these selected wastes. The selection of waste should not be seen as a further opportunity to delay the implementation of the draft policy and (although the listing of selected wastes would probably also more suitably be contained in regulations) it should not be excluded from the draft policy. 5.2 From the literature, it appears that there is some debate about whether general waste should be treated in the same manner as hazardous waste from a regulatory point of view. While it is clear that health care risk waste (unfortunately not defined) is excluded, if both hazardous waste and general waste are to fall under the scope of the draft policy, we suggest that this be stated explicitly.	The comment is noted and the Scope of the policy has been deleted. Selected will take the dictionary meaning. A list of waste excluded from co-processing has been added as Schedule 3.
6 INTRODUCTION 6.1 Reference is made to cement kilns representing a proven option for the effective treatment of selected general and hazardous waste. The evidence supporting this should be summarised and included (preferably under the background discussion) or at least referenced.	The comment is noted and the sentence has been reworded to indicate that this relates to international experience.

7 BACKGROUND 7.1 The waste management hierarchy should be included (and not simply referred to). 7.2 The policy is a response to calls from various stakeholders for a decisive communication on the application of alternative waste management technologies. We reiterate our concern that a decisive communication requires a less broadly sweeping document and that the rationale, processes, methodologies and risks need to be defined clearly and assessed in the policy document. We also reiterate our view that in order to promote the use of alternative waste technologies, a detailed analysis of the existing land fill that is available be performed and documented in this policy document. 7.3 In addition, somewhat bizarrely no reference is made to the rather extensive public participation process which was conducted prior to and informed the publication of the draft policy.	This is a known concept defined in the National Waste Management Strategy. An EIA review guideline and a co-processing guideline have been produce which provide the detail referred to. A comment and responses document has been generated which captures all the interactions with stakeholders. This document will be included in the list of documents generated through the policy process.
8 INTERNATIONAL SITUATION 8.1 The international context (and the comprehensive studies already conducted by DEAT) should be used to inform amendments and additions to the existing regulatory framework.	The document generated will be included in the list of documents generated through the policy drafting process.
9 POLICY OBJECTIVES 9.1 The draft policies objectives are admirable. We suggest that, amongst others, the following objectives also be included: 9.1.1 Providing a reference source and guideline document for applicants and officials making decisions regarding alternative waste management technologies; 9.1.2 Serving the objectives of existing framework legislation; 9.1.3 The co-ordination and integration of existing legislation regulating air emissions and waste; 9.1.4 The promotion of efficient decision making and process implementation; 9.1.5 Promoting fiscal (and other) incentives to encourage more environmentally sound waste reduction and disposal; 9.1.6 Investigating the use of alternative waste management technologies as a source of energy; 9.1.7 The sustainable development and growth of the waste management industry in line with environmentally sound management; and 9.1.8 The co-operation of stakeholders in the development of alternative waste management technologies.	Objective 6 includes informed decision making. Objective 5 covers this issue. This is covered under point 5 of the Policy Implementation section. Provided for in objective 6. Incentives are the mandate of the Department of Trade and Industry and the Treasury. This is the mandate of the Department of Science and Technology. This is the mandate of the Department of Trade and Industry. This is encouraged through the EIA process.
10 POLICY IMPLEMENTATION 10.1 Governments commitment to promoting the waste management hierarchy is commendable. However, in order to be effective, we propose that the commitments made in terms of policy implementation be made subject to reasonable time frames. 10.2 While there is no doubt that further regulatory tools are required in order to manage the implementation of an integrated waste management system in South Africa, in our view those tools must be included in existing legislation rather than	The implementation of the policy objectives are ongoing. The alignment of procedures is addressed in point 5 of the section on policy implementation.

further fragmenting the existing environmental legal framework. Already for example, waste incineration and co-processing presents a possible conflict between the National Environmental Management: Air Quality Act and the National Environmental Management: Waste Bill. Sound environmental management requires an informed and integrated approach.	

38. groundWork; 02/03/2009	
Comments	**Response**
1. groundWork's position We wish to categorically state at the outset that we in no way endorse the incineration of waste or hazardous material in cement kilns and that any discussion of mitigating techniques brought up are purely for technical clarity and do not suggest that groundWork would find incineration of any substance acceptable under any circumstances.	groundWork's position is noted.
2. General comments This document is described as "a proposed policy direction which would support both technologies for further consideration in the country ". And that "A regulatory framework within which these technologies could be acceptably implemented in the country has been completed. Emission standards and technical guideline documents have been developed and have been discussed with Provincial Stakeholders..." However it is not clear whether the intention of this document is just as a policy guideline for Provincial Environmental Departments or whether the intention is for it to be gazetted as regulations for the purpose outlined in the title. What is the legal standing of this document? If the purpose of this document is to provide regulations for HTTT (high temperature thermal treatment) of waste in cement kilns and garbage incinerators then it must speak to the Waste Bill and be gazetted as such. In its current "policy" formulation it does not have any legal standing it is merely a guideline. As such, Provinces can ignore it and issue ROD as they see fit.	The policy states Government's position (policy level) on thermal waste treatment, and provides the framework within which incineration and cement kiln co-processing shall be implemented, which will guide provinces on policy level in their decision-making. In terms of the Constitution's co-operative governance provisions, confirmed through MINMEC agreement on the policy, provinces must consider the policy's provisions in their decision-making. Emission standards have been recommended for inclusion in the StanSA process The requirements attached as schedules to the policy will form conditions of authorisation, becoming legally binding.
3. The National Environmental Waste Management Bill In November 2007 various community organisations were afforded an opportunity to give evidence to the PORTFOLIO COMMITTEE ON ENVIRONMENTAL AFFAIRS AND TOURISM regarding their concerns on the Waste Management Bill (the Bill). During the public hearing the community people and the NGO representatives who attended felt positive that the information in our presentations would be critically considered by the Committee in their deliberations on the Waste Bill. We felt especially comforted and assured by the manner in which the Portfolio Committee responded to our concerns, especially on the following serious issues: • That incineration of waste will have negative consequences to peoples' health • That incineration of waste will undermine good waste management practices like recycling, composting and the spirit of zero waste. • Special mention focused on health care waste incineration which is currently in a	The proposed policy states Government's position (policy level) on thermal waste treatment, and provides the framework within which incineration and cement kiln co-processing shall be implemented. The policy is not a regulation, and therefore not subject to the specific provision in the Waste Act.

crisis state in South Africa • The burning of hazardous waste in cement kilns is a serious concern as the cement industry are ill equipped to do so safely • The reality that life cycle analysis is not more firmly mentioned in the Bill and the concept of Zero Waste is absent; The Portfolio Committee Chair on Environmental Affairs and Tourism concluded the public participation process on The National Environmental Waste Management Bill by reassuring community and NGO representatives that no decision on incineration on waste in South Africa shall be undertaken without a prior review and approval by The Portfolio Committee Chair on Environmental Affairs and Tourism. Furthermore, the political intention is there that regulation on incineration needs to be considered in a manner that allows not only bureaucratic oversight but considering the heightened debate on incineration in South Africa, that there needs to be political oversight as per the following: The Portfolio Committee Amendments to the National Environmental Management: Waste Bill [B 3 9—2007]; CLAUSE 69; stipulates the following criteria: "(6)Any regulation which pertains to the treatment of waste by means of incineration must be submitted to the National Assembly 30 days prior to publication." While the Waste Bill is has yet to be assented to by the President of South Africa, the intention is clear and that waste incineration cannot be considered until this process is dealt with. Your statement that: "*A regulatory framework within which these technologies could be acceptably implemented in the country has been completed*" is clearly in contradiction to the intent of the Bill.	
4. Vision The vision of this document is described as the "*Environmentally sound management of general and hazardous waste in South Africa through the integration of a sufficient range of complementary waste management options in line with internationally accepted principles of best environmental practice* ". There has been a failure to collect proper data on waste arising and redistribution and composition thereof. Until there is proper information about the quantity and characteristics of available wastes, waste management options cannot be properly considered and waste arising in South Africa cannot be properly managed. Without such data it is not possible to have any confidence whatsoever about the proportion of the waste stream which may be suitable for incineration. Please see a detailed analysis on the lack of credible information on waste production in the country in Wasting the Nation, Chapter 2. [1] Furthermore South Africa has failed to develop and implement a waste minimisation policy and appropriate implementing framework before rushing to develop an incineration based strategy which is most likely to be in competition and undermine a waste minimisation strategy. This is very sad because we have an ideal policy foundation in the Polokwane Declaration for the development of waste	The Department is currently managing a number of projects to address recycling and waste minimisation**.** This policy does not prescribe the technologies which must be used to treat different types of wastes, and therefore a waste inventory is not a prerequisite. It provides the management framework that apply, should a thermal treatment technology be used in treating waste. The policy does not specifically favour thermal treatment, but provides for it to form part of the country's waste management options.

reduction, re-use and recycling, and furthermore the intention of the Bill is that incineration is a last resort. This process weights waste management in favour of incineration and contradicts the Waste Bill. *1 http://www. groundwork.org.za/Publications/gWReport2008 .pdf*	
5. General comments on the Introduction and Background In the introduction to this policy document the DEAT describes the network of cement kilns around the country as "assets" which present an opportunity to "recover resources" and "facilitate a move away from landfill disposal" for "particularly organic waste". This justification and logic is totally flawed in the context of globally accepted waste management practices underpinned by the waste hierarchy. These policy documents propose a "cradle to grave" approach to waste management when ideally policy documents should aim for a "gold standard" instead such as a "cradle to cradle" approach and if not immediately implementable, then something to aim for in the future. Meaning must be given to the waste management hierarchy.	Internationally co-processing in cement kilns is an accepted waste treatment technology that allows for the recovery of energy and raw materials from waste. The integration of a sufficient range of complementary waste management options in line with the waste management hierarchy is central to the vision of the policy.
Box 1: Reducing vs. Incineration Recycling saves more energy than incineration recovers: the amount of energy needed to produce products from raw materials is far greater than the energy needed to produce products from recycled materials. For example, the amount of energy wasted by not recycling aluminum and steel cans, paper, printed materials, glass, and plastic in the United States equals the annual output of 15 medium sized power plants. [2] In the U.S. alone, the current level of recycling conserves an equivalent of 11.9 billion gallons of gasoline, and reduces greenhouse gas emissions equivalent to taking one fifth (40 million) of all U.S. cars off the roads every year.[3] The U.S. only recycles 30 percent of municipal solid waste — only the tip of the "wasteberg". The growing disposal of resources is unsustainable for communities and the climate. Incinerating, instead of recycling and composting these materials, releases high levels of greenhouse gases into the atmosphere and wastes large amounts of energy *2 RISE bill, 2007 bill in the US. Senate.* *3 US. Environmental Protection Agency. "Solid Waste Management and Greenhouse Gases, A Life-Cycle Assessment of Emissions and Sinks 3rd edition,"September, 2006*	The statistics from the United States are noted. Incineration and recycling are waste management technologies that are both applied as part of integrated waste management systems, as appropriate, to ensure the environmentally sound management of waste.
Furthermore incineration does not in fact facilitate a "total move" away from landfilling as suggested in the introduction because there will always be a residue that will have to be disposed of. This residue of fly and bottom ash will contain the concentrated toxic components of the waste, including metals and persistent organics pollutants such as dioxin and furans, which are in turn hazardous waste. Similarly incinerating a product does not mean that the resource is being	This policy aims to ensure the environmentally sound management of waste in the country. It does not prescribe the use of incineration or co-processing for treatment of waste. The policy does not attempt to ban landfilling, which is also a technology required as part of an integrated waste management system. The reduction in the volume of waste to landfill through incineration equates to waste minimisation.

recovered. The decision making process on how to use a product at the end of its life cycle must be a product of how much energy was used to produce the good as well as the energy cost of re-producing it compared to the energy cost/recovery of using it differently for something else, e.g. if you compare the energy costs/recovery of burning tyres compared to recycling and reusing them to build roads instead of burning them you will find that the energy recovered from burning is much less than that gained from building roads and, furthermore, if you calculate the costs to society of burning tyres in terms of air pollution and associated health costs the option of reusing them to build roads becomes even more attractive. Burning waste also does not mean that less waste will go to landfill — this logic is flawed because, in terms of the proposed South African waste legislation and accepted international waste management practises, reduction and reuse of waste take priority in the waste hierarchy over disposal. If we as a society generate waste with the intention of either land filling or burning it then we will never meaningfully address the growing waste problem. An "incineration for waste policy" cannot be considered an environmentally sustainable solution by any stretch of the imagination, what the DEAT should have done instead is developed a waste reduction, recycling and reuse policy first — as the intention of the Bill — and then considered the gaps needed to address a whole suite of different technologies to address the problem. However there is no evidence that this approach has been adopted in the current consultation documents nor is there any obvious recognition of the fundamental importance of the range of policy instruments that are required if a holistic waste strategy, with emphasis on reduction and elimination is to be implemented.	
The likely outcome of adopting the current policy document would be piecemeal approval and authorisation of incinerators and cement kilns without any coherent strategy for optimising regulatory control or minimising environmental impacts. A more sensible strategy would be to develop the country specific framework for the implementation of the full range of necessary policy instruments focussing on collecting useful and reliable waste data and minimising any residual wastes for treatment. An ideal policy foundation for the development of these tools arose in 2001. The South African, Polokwane Declaration on Waste Management of September 2001 set a goal, to 'Reduce waste generation and disposal by 50 and 25%, respectively by 2012 and develop a plan for ZERO WASTE by 2022. This provides a great opportunity to divert the Policy thrust away from this history of failure of 'command and control' regulatory and legislative developments. The Polokwane Declaration also reaffirmed a commitment to the Integrated Pollution and Waste Management Policy, the National Waste Management Strategy and the principles of waste minimization, reuse and recycling for sustainable development. The essential difference in this approach to that promulgated previously is that it is	This policy provides a management framework, guidelines and minimum requirements which must be met if such a technology were to be implemented. It will ensure that equal standards will be applied across the country and that applications will not be dealt with by a piecemeal approach. Zero waste is the ultimate goal of all waste management, however this is not an event but rather a process which takes many years to achieve and has not been achieved anywhere in the world to date.

intrinsically sustainable, safe and precautionary. Instead of promoting an ultimately futile programme of risk management with inadequate resources the vision encapsulated in the Polokwane Declaration is to eliminate 'hazard' and thus reduce residual risks to near zero. This is an ambitious goal but, given the failures to implement an effective regulatory policy to date, it is probably the only option which can be truly protective and consistent with the requirements of the Constitution. Furthermore it promises to allow South Africa to avoid the expensive and damaging mistakes of Europe and the USA.	Waste recovery is higher on the waste hierarchy than landfill which is currently the predominant waste management method in the country. Therefore any diversion of waste from landfill is moving towards achieving the objectives of the waste hierarchy which would have as it ultimate goal zero waste.
The development of any strategy for Hazardous Wastes treatment and disposal should, in any case, be in accordance with the provisions of the National Implementation Plan ('NIP') for the Stockholm Convention. Unfortunately South Africa has not yet submitted such a plan even though the deadline was 17th May 2006. This is another powerful reason to delay the development of this incineration-oriented strategy.	The South African NIP is in progress and the fact that the plan is not in place will not hinder the development of the policies on incineration and the co-processing of alternative fuels and raw materials in cement kilns.
In the context of what is outlined above the statement that "*South Africa has several notable waste management policies, plans and strategies that support the waste management hierarchy concept. However, the development and implementation of certain waste management alternatives, which would allow waste to be managed within the waste hierarchy, have been restricted partly due to the absence of decisive national policy related to waste treatment and recovery through thermal processes, including dedicated incineration and co-processing in cement production*" is totally flawed, a policy process addressed at the whole waste hierarchy with an emphasis on the waste management options at the top of the waste hierarchy is the approach the DEAT should have taken! We don't urgently need a waste incineration policy in South Africa, what we do however need is proper management of the landfill sites we currently have and an urgent need to reduce, reuse, recycle and information to give the waste hierarchy meaning.	As the authority mandated to deal with waste management issues in the country DEAT have identified the need to develop the policy. There are other initiatives ongoing with the department which address other aspect of waste management, all in line with the waste hierarchy. It is impractical for no action to be taken until the full range of policy instruments are in place. The development of the policy directly responded to a call from NGO's, Provincial government and industry for a clear policy direction from DEAT on incineration and the co-processing of hazardous waste in cement kilns. Groundwork in their press release dated 27 February 2008 indicated that groundWork has pushed government for many years for a clear policy on incineration of waste, especially hazardous waste.
6. International situation and policy objectives There is the historical fact that regulators have consistently and repeatedly underestimated the risk of pollutants and toxic chemicals from industrial processes. This has been true for asbestos, lead, DDT, PCBs, dioxins and CFCs. Often it has taken decades for regulators to acknowledge these risks and take proper regulatory action and in some cases ban or restrict the use of these substances. In addition recent scientific evidence has shown alarming evidence of body burdens of chemical contamination in the general population and more worryingly shows that newborns are being born with their bodies already polluted. This again shows how present regulations are failing to protect the public from toxic exposure. There is also a glut of important new evidence that pollutants can cause genetic changes that can be passed on through subsequent generations — the implications of this research are as yet unknown but demonstrate how little we understand about the dangers of toxic chemicals and just how serious they can be.	The development of the policy and associated requirements pertaining to thermal waste treatment technology have been based on international best practice, which would ensure protection of health and the environment.

All these facts should serve as a red flag to us all. It is disappointing that DEAT have not grasped these points in the context of waste incineration but this is not surprising as regulators and government bodies have rarely been correct about the risks from chemical pollution in the past and have usually only acted after considerable harm has been done. The role of NGO's is different however: it is to look at emerging evidence and to warn about these dangers long before this point occurs. This we believe we have successfully done in our participation in this policy process. Our experience of participating in this incineration policy process and the responses we have received from the DEAT to answer all of the questions raised by our participation and report we submitted [5] have not answered the crucial point of why the DEAT should favour a method of waste disposal which has the greatest health costs, that gives the least amount of energy (after landfill) and produces potentially the most health risks. Incineration discourages recycling and therefore moves waste management away from the highest priorities recommended at International and European level (waste reduction, recycling, re-use) and towards the lowest priorities (landfill, incineration). This is a retrograde step. Furthermore the DEAT have not responded to our alarms of abundant evidence that there are very serious inadequacies in present monitoring systems in South Africa (for both emissions and environmental health outcomes). This current lack of knowledge about the vast majority of pollutants from industrial activities makes it foolish to assert that incinerators are safe. If we look at the international situation of "monitored" pollutants for PCDD/PCDF the situation is no more reassuring. Dioxins are considered one of the most dangerous pollutants and there are now significant levels of dioxins in the body of every man, woman and child. During a critical period of development the foetus is exquisitely sensitive to hormone fluctuations of a few parts per trillion, and yet dioxins and other organochlorines are routinely found at just this concentration in the serum. *5 Response to the Consultation on a National Policy Development Process For High Temperature Thermal Waste Treatment By Public Interest Consultants, Wales, UK; For GroundWork South Africa December 2007*	This policy does not prescribe incineration or co-processing as a method of waste disposal. Stringent standards have been set that must be met by the industry. One of the requirements is continuous monitoring of a number of pollutants. This will ensure that monitoring is conducted.
7. Schedule 1: Air Emission Standards — Waste Incineration In this section of the DEAT policy document they have stated that all general and hazardous waste incinerators would have to comply with the air emission standards listed, however they fail to state the emission monitoring criteria clearly stating the method and frequency for monitoring. A modem incinerator in Rotterdam was found to be bypassing its air pollution control 10% of the time producing emissions of dioxins that were 5 times the limit set for the whole country [6]. Similarly levels of dioxins from an incinerator near Nottingham were recently found to be nine times above the upper limit. Even this figure may be a considerable underestimation of the risk.	The frequency of air emission monitoring is included in Schedule 4, section 4 – Air Quality Management. These conditions will be included in the relevant environmental authorisations. Stringent standards and monitoring requirements have been set that must be met by the industry.

Recent research has indicated that spot monitoring can underestimate the levels of dioxin by 30-50 times. It should therefore be obvious to the DEAT as it is to everybody else that without continuous monitoring of dioxins there will always be a serious risk to nearby populations from incinerators. The foetus is especially vulnerable. And for this reason groundWork consider that continuous monitoring of dioxins from all incinerators should be mandatory. This situation of bypassing emissions controls could just as easily happen in South Africa if dioxins are only measured every 3 to 12 months and then only for 7 hours. In other words for over 99% of the time levels of dioxins are unknown. To regard non continuous emissions monitoring as safe practice would simply be preposterous. Many would consider that after dioxins, heavy metals emissions represent one of the most dangerous emissions from incinerators. Some are known carcinogens. Here again we find the same unsatisfactory situation where monitoring frequency and method is not stated (pollutants are typically measured every 6 months), however this would mean that concentrations would be unknown for 99% of the time and populations can be exposed to dangerous levels for prolonged periods of time. We therefore maintain that only continuous monitoring would be acceptable were this practise to be allowed. However, probably the most dangerous pollutant of all is the PM2.5 (particulate matter below 2.5 micron), partly because of its known strong association with heart attacks and lung cancer and partly because it is produced in such large quantities by incinerators. Extraordinarily it is not listed in the emissions limit standards nor is it routinely monitored in South Africa at all (in both the stack and the ambient air). The research within the WHO Air Quality Guidelines show beyond question that increasing levels of these particulates are associated with increased mortality and also increased deaths from cardiovascular diseases, and suggests that there would be 27,500 years of life lost every 15 years around incinerators for each 1µg/m3 rise in PM25 particulates. This loss of life is from particulates alone and does not take into account loss of life from other pollutants. In fact Schwartz[7], one of the leading researchers in this field states that “The magnitude of the association between fine particulates and mortality suggests that controlling fine particulates would result in saving thousands of lives each year”. For the DEAT to promote a waste management method that does the exact opposite and leads to an increase in the levels of these particulates, in the full knowledge that early deaths will occur, is cynical, irresponsible and at odds with current scientific knowledge. Another question that needs answering is why the DEAT is deferring the decision to bring in PM2.5 monitoring when this has demonstrated to have such huge health benefits and savings in health costs in the USA. The old argument that PM2.5 particulates are just a fraction of PM 10 and measurements are equivalent is no longer tenable. It is misleading to state that PM2.5 particulates are simply a fraction of PM10s and for this reason monitoring of PM10 is equivalent to monitoring of PM25. However this is a fallacious argument which has been favoured by the	Fine particles can be efficiently removed from the flue gases with baghouse filters. Even though approximately 40 % of the incinerated waste in Denmark was incinerated at plants with no baghouse filters, estimates based on measurements by the Danish Environmental Research Institute showed that incinerators were only responsible for approximately 0.3 % of the total domestic emissions of particulate smaller than 2.5 micrometers (PM2.5) to the atmosphere in 2006.

polluting industries. For instance a high reading of PM10 particulates could be due to a predominance of PM9 sized particles. This would be of relatively minor health significance, especially as regards heart disease. However a lower reading of PM10 but one which was made up of predominately PM1 sized particles would be far more significant and might be represent a serious danger for someone with a heart condition. PM2.5 monitoring would demonstrate this danger but PM10 monitoring would not. The DEAT have also failed to state plainly that any improvement in air emissions with modem incineration leads to an equivalent increase in those pollutants in the fly ash (air pollution residues). In other words toxic material is simply being transferred from one medium to another and worryingly to a less regulated medium in our current landfill sites. Fly ash contains very high concentrations of dioxins (over 98% of dioxins produced by an incinerator) and heavy metals making it some of the most toxic material on the planet. A modem 400,000 tonne per annum incinerator can produce half a million tonnes of this fly ash during its operative life. The dioxins and heavy metals do not break down over time. They are typically stored in hazardous waste landfill sites. But it is known that all landfills leak through their liners over time. This can lead to contamination of underground waters and aquifers. Once these are contaminated little can be done about it. Unlike surface water, groundwater and aquifers have no oxygen to speed up the breakdown of toxic chemicals nor open air to help the evaporation of pollutants. It is absolutely crucial to consider the serious consequences that this material could have in 50 to 100 years time or more and the impact on future generations. The foolishness of producing huge quantities of fly ash in this way is hard to comprehend. The production of large amounts of fly ash is a direct violation of the Stockholm Convention which specifically forbids the creation of large quantities of dioxins and furans. This treaty, to which South Africa is a signatory, was designed to make the world a safer place. *6 Thompson J; Honor A. The health effects of waste incinerators Journal of Nutritional & Environmental Medicine, Volume 15, Issue 2 & 3 June 2005 ,pages 115-156* *7 Schwartz J, Laden F, Zanobetti A. The concentration-response relation between PM2.5 and daily deaths. Environ Health Perspect 2002; 110(10): 1025-9.*	Thermal treatment of waste do not merely transfer pollutants to ash, but the high temperatures destroys a significant amount of these, and proper operation prevents reformation of organics, e.g. dioxins on fly-ash.
8. Schedule 2: Air Emission Standards — AFR Co-Processing The policy section on cement kilns is highly misleading. Cement kilns may be covered by the same EC directive as waste incinerators but emission limits are markedly different. Whereas the limit on particulates for incinerators is 10 mg/m3, the limit for cement kilns is between 30-50 mg/m3 depending on the type of fuel burned. The volume of emissions per second can be seven times higher in cement kilns and this means the amount of particulates released can be over 30 times greater. The DEATs statement that alternative fuels can reduce emissions of metal and dioxin is also untrue. They fail to state that burning tyres will produce emissions of	The EU standard are the strictest in the world for cement kilns co-processing waste, and based on many years' research and experience, are considered adequate for the protection of health and the environment. Site specific aspects and effects of total pollution load on ambient air quality are determined through air dispersion modelling, which can be reviewed based on monitoring data.

dioxins and zinc and burning petroleum coke will produce emissions high in vanadium and nickel. In addition mercury and arsenic are vapourised and there is no way of controlling these emissions. Most cement kilns do not have the activated charcoal needed to remove dioxins. But these problems are minor when compared to the huge dangers produced by the release of large quantities of PM2.5 particulates. When carbon monoxide levels are high, because of the risk of explosion, the electrostatic precipitators (ESPs) are shut off and emissions continue unabated. These unabated emissions also occur during start-up and shut-down and when the ESPs are not working and these episodes have been noted to happen over four hundred times a year in some plants. Few people realise just how serious a danger these unabated emissions are to the public. Whereas in an incinerator, particulate emissions must be kept to 10 mg/m3, in unabated cement kilns these particulate emissions can rise to 20,000 mg/m3 (two thousand times higher and also the highest level that can be measured). This is not just dangerous but it is insane. It is also inexcusable. The public is in very great danger from these unabated emissions and the statement that cement kilns are capable of extremely serious health consequences is absolutely accurate. Monitoring of cement kilns in South Africa is currently inadequate and minimal to say the least with PM2.5 particulates not being measured at all and dioxins not being sampled or not monitored and if they ever are at most every 6 months. Furthermore before any dioxin monitoring occurs the cement kiln operators are given 2 months warning making it possible for them to change the fuel they are burning and rendering the exercise pointless. The statement that there is no evidence that cement kilns have measurable impact on human health is of course meaningless if the studies have not been performed. But we should instead ask why haven't these studies been performed? Similarly we maintain that should this practise of waste incineration be allowed in cement kilns then at a minimum a standard for PM2.5 must be included and continuous monitoring must be an absolute minimum requirement to ensure the protection of public health.	Estimates based on measurements by the Danish Environmental Research Institute showed that incinerators were only responsible for approximately 0.3 % of the total domestic emissions of particulate smaller than 2.5 micrometers (PM2.5)
9. Participation We have on numerous occasions highlighted the failure of DEAT's public participation process. We will not repeat the process flaws here it is well documented and can be referred to in future when the need arises. groundWork will however like to make the following comments: - In all three public meetings that were held with communities living adjacent to cement kilns, the community people clearly indicated that they are not in favour of this process. - It is groundWork's belief that democratic participation is not easy, smooth and bureaucratically clean. Indeed many of the senior management in DEAT know how contentious and difficult the negotiations during the CONNEPP process were. This process however provided real spaces for democratic participation. The result was democratic consensus. The failure to consult with the community people living next to all the kilns in South Africa — which are only 10 such communities — highlights	The Portfolio Committee on Environment held public hearings at which it became apparent that communities living in close proximity of cement kilns were concerned about the possible impacts of using hazardous wastes in cement kilns and that these communities would need to be consulted on the policy more directly. DEAT therefore committed to have some direct consultation with communities in this regard. Based on the community representatives making submissions at these hearings, and in consultation with groundWork who on several occasions speak on behalf of communities, the decision was made to have meetings in these areas where EIAs for co-processing are in process and/or where specific issues were raised. No objection to the selection of the areas the meetings were proposed for and held in was submitted. All issues raised by communities have been

an undemocratic practice. Yes these consultations will be difficult but it is needed. - During the discussions on the Bill in National Parliament, it was clear that democratic consensus was reached. This Policy Process is actively disregarding this political directive from our highest political body in the country, our National Parliament. This is the height of undemocratic practice. We look forward to your response to our concerns.	considered and responded to, or referred to relevant authorities as appropriate if outside DEAT's mandate. It must also be noted that all potentially affected communities have had the opportunity and have been participating in EIAs in process for co-processing in specific cement kilns. A

39. CAIA; 04/03/2009	
Comments	**Response**
INTRODUCTION CAIA has actively participated in this policy setting process. It is therefore a matter of some concern that detailed comments on various aspects of the policy are not contained in this draft policy document.	Comments received from CAIA on 12 December 2007 on policy principle matters have been considered and incorporated as appropriate, and has been responded to accordingly in the *Comments and Response Report.*
This policy has been awaited for some time and there is no intention to delay the process. However there appears not to be common ground on what the policy must achieve.	The purpose and objectives of the policy is included in the document.
It is our understanding that this policy should provide the framework to guide the national approach to regulating the thermal treatment of wastes (both waste incineration and waste co-processing in cement production) in a harmonised and transparent way. The key element of this objective is that such treatment of waste should be permitted under specific circumstances. Until such time as when the Waste Act enters into force and hazardous waste is dealt with at a national level competent authorities at provincial level have a policy document to guide their decision making in a harmonised way.	The policy states Government's position (policy level) on thermal waste treatment, and provides the framework within which incineration and cement kiln co-processing shall be implemented, which will guide provinces on policy level in their decision-making.
COMMENTS Detailed comments are presented in table 1. In addition it is proposed that the issue of managing the residues from incineration should be dealt with and an approach to dealing with start-up, shutdown and unstable operating conditions should be presented.	The management of residues, as well as start-up, shut-down and unstable conditions have been included and will be included in the operation and management plan that must be developed.
Policy name Make a clearer distinction between waste incineration and the co-processing of waste as alternative fuels or raw material materials in cement production. The understanding was that a policy on co-processing wastes in cement kilns was to be developed and a policy statement on waste incineration which doesn't appear to be the case.	The policy statement is on thermal waste treatment broadly, with a focus on incineration and co-processing as thermal treatment technologies currently practiced in SA.

Glossary All definitions must be aligned with the Waste Bill (e.g. definition for hazardous waste). The definition of AFR (Alternative Fuels and Raw materials) is problematic as it doesn't clarify when (or how) a hazardous waste can be classified as an AFR? Suggest definition for AFR be removed and such material referred to as waste. This would be in line with the Waste Bill approach. The definition for waste management hierarchy is problematic in that it doesn't emphasise the order in which waste management is approached.	All definitions are in line with the definitions of the Waste Act and NEMA, including the definition of hazardous waste. A list of wastes which cannot be used in co-processing has been included in Schedule 3 to the policy. The definition of the waste hierarchy has been amended accordingly.
Abbreviations BAT (technology not techniques) NWMS – clearly define which NWMS is being referred to here. Check list of abbreviations to ensure completeness in respect of abbreviations used in the text.	BAT is defined in the EU Directive (96/61/EC) on integrated pollution prevention and control (IPPC) as 'best available techniques'. This definition goes further than just technology and includes elements of management – 'Techniques' include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned. South Africa's National Waste Management Strategy (1999). The list of abbreviations is complete in line with the policy text.
Purpose of document The context of the policy namely that it falls within the policy and principles set out in the Waste Bill i.e. waste management hierarchy must be made clear in this section	The purpose and vision provides a key statement on the main aim of the policy, which is further contextualised in the main body of the document. The waste hierarchy is mentioned in the first sentence of the main text.
Vision Vision doesn't align with the systematic, hierarchical approach to waste management adopted nor does it specifically mention the thermal treatment of wastes (either incineration or co-processing of waste in cement kilns)? revise	The vision has been amended accordingly to include the waste hierarchy.
Scope Would need to define, what is "selected"	The scope of the policy has been deleted to avoid confusion.
1 Introduction It is important to reflect that the approach adopted in the document is not just a move from landfilling to an activity that is preferred in the waste management hierarchy but also that if properly managed as contemplated in the policy provides an overall better environmental outcome.	Reference to the environmentally sound management of waste is included, which is based on the research done as part of the policy development process.
2 Background Reference must be made to the Waste Bill. The reference to more "environmentally sound solution needs to be substantiated	See above.

3 International situation Both waste volumes "and toxicity" can be minimised (paragraph 1), a pro Cleaner Production introduction would be welcomed. This policy is not about being anti-landfilling or pro recycling, it is about putting the case for thermal treatment of waste in the correct context. The context sketched is in many places unhelpful and incomplete. The waste incineration figures provided for EU is not given in context to the total quantities of waste generated, citing GHG reductions is very questionable without seeing the full picture, thermal waste treatment processes also generate GHG's. The discussion should separate hazardous from non-hazardous waste particularly domestic waste and the debate placed into some local context. The case for burning domestic waste is very different for the EU than it is in South Africa. Unless backed up with good scientific evidence the statements made on the effectiveness of the technology given in paragraph 5, should be avoided, similarly for statements made in paragraph 6 on incentives.	The section provides an overview of current practices elsewhere outside SA. Policy documents do not provide an effective mechanism for communicating detailed information, but this is included in the research documentation generated during the policy development process. A section referencing these documents has now been included in the policy.
4 Policy objectives Many of the policy objectives stated are not well aligned to the purpose of the documents, use of "support", "advance", "enable", "facilitate", etc. is weak. These objectives should be critically revised. Suggested starting point for example could be as follows: This policy provides a framework to guide the national approach to regulating the thermal treatment of wastes (both incineration and AFR co-processing in cement production) in a transparent and harmonised way. Objective 6 – align with NEMA and Air Quality Act – "use of Best Practical Environmental Option (BPEO) informed by BAT".	The policy objectives have been revised as appropriate to clarify the context in which policy level objectives are formulated.
6 Policy implementation Conflicting policy statements. This policy should strive to ensure consistency, transparency, support integrated licensing, simplification, etc. which this doesn't successfully achieve.	The statements on implementation have been amended as appropriate to avoid perceived contradiction.
Point 4: what does high standards related to health and safety mean? Compliance with health and safety standards is a given	Comment accepted and amended accordingly.
5. How and when is the Department going to do this. The document does not reflect this intention.	The development of an integrated system for consideration of environmental approval have been on-going, but is subject to an inclusive and participatory approach to ensure optimal outcome for all stakeholders and in line with legislation not yet promulgated (such as the Waste Bill), rather than meeting a specific time-frame.
6. What is the timeframe for the implementation plan and how will the absence of one affect implementation of the policy?	The implementation of the policy is not affected by the implementation plan. This plan refers to the implementation of the specific thermal treatment technologies in question (incineration and co-processing).

7. Same as above. How will this process affect implementation of the policy, which is understood to be an instrument to be used immediately. Point 9 (pre-treatment, pre-processing requirements) is overly prescriptive.-	Policy implementation is not subject to the development of these tools. The regulatory tools for incineration and co-processing exist and have been supplemented with the outcomes of the policy. The requirement is necessary in that it serves the purpose of setting the necessary management framework to ensure the environmentally sound implementation of waste co-processing.
7 Schedule 1: Air emission standards- waste incineration These standards are currently under discussion in the STANSA process to develop minimum emission limits and should not be included in this document. It is sufficient to cross reference the process so that a reader knows that emissions are being dealt with. The details should not be presented here. If as is understood the finalisation of this document is urgent then it must be made clear that this is an interim measure. **8 Schedule 2: Air emission standards- AFR co processing** As for schedule 1	The standards developed through the NEMAQA process will be the definitive emission standard for incineration and co-processing once the process has been concluded. However, until this time the standards as presented in Schedule 1 and 2 will be applicable.
9 Schedule 3: Conditions of environmental authorisation **9.1 Introduction** The way this is presented completely undermines the agreed approach to integrated licensing and needs to be redrafted to reflect that. It is not clear how this schedule will be used and this needs to be made clear. It appears as if the intention is for all the conditions listed to be applicable to all licenses which contradicts section 6.5	The intention is that conditions are included in specific authorisations/permits as appropriate.
9.2 General If it is intended as a guideline to be used by the competent authority then it needs to be clear what is required under each heading otherwise it will be too discretionary and we will not have achieved what we intended namely a nationally harmonised approach to licensing of such facilities. Many of the bullets would in fact would be included in other bullets or are prerequisites for others. In view of the fact that these authorisation conditions are used as a checklist for compliance by the green scorpions. The conditions must therefore be logically presented and not duplicated. Certification against an environmental standard should not be made mandatory. These are just a few comments on this text. It needs considerable work before it would be acceptable as a guidance document for authorisation. It would also be necessary to ensure that these requirements are aligned to the guidance document for EIAs. In addition the EIA regulations require that any guideline to be used in respect of EIAs has to be gazetted for comment.	The policy implementation has been clarified in that all Government Departments will consider the policy in their decision-making on matters pertaining to the thermal treatment of waste. Relevant provisions and the minimum standards set in schedules to the policy would form conditions of different approvals required in terms of South African environmental legislation as appropriate. Conditions have been amended as required to avoid duplication. References to specific standards have been removed. Based on the comments from stakeholders on the draft conditions of September 2008, it seems there is general consensus on the adequacy thereof, that it would be achievable, and that it would allow for efficient compliance monitoring. The regulations do provides the Minister with an option to publish so-called sector guidelines. The inclusion of the conditions in the policy fulfils the purpose.

9.3 Operational management Again no details are provided and it is therefore not clear what will be required. In addition many of these requirements form part of the Waste Bill to which no reference is made. These requirements are also not necessarily in line with the rest of the document. For example, the waste may only be stored and fed into the kiln on site. It is therefore not clear what selection and analyses are required on site. Health checks of employees are covered by other legislation and requirements should not be duplicated here. An operational plan is essentially the equivalent of an environmental management plan as required in terms of the EIA regulations where independent review is not required. It is therefore not clear whether this is an additional requirement or a reference to the EMP.	The development of the plan must be conducted in line with the provisions of the Guidelines for the Co-Processing of Alternative Fuels and Raw Materials and Treatment of Organic Hazardous Wastes in Cement Kilns" (DEAT, 2008), which includes the necessary details.
9.4 Air quality management This must be done in line with the relevant legislation and such detail should not be presented here.	The standards developed through the NEMAQA process will be the definitive emission standard for incineration and co-processing once the process has been concluded. However, until this time the standards as presented in Schedule 1 and 2 will be applicable.
9.5 Waste Management Same as 4 above. In particular requirements that are more stringent than the air quality legislation cannot be introduced in this way. The term High Level POPs containing waste is not recognised in waste legislation. It would need to be declared in terms of the Waste Bill.	No specific conditions appear under 'Waste Management' that could be considered "more stringent than the air quality legislation". In the development of new legislation, the prevailing rule is that the proposed provisions cannot be less strict than existing legislation. The policy refers to High Level POPs containing waste as being identified as such in the Stockholm Convention.
9.6 Monitoring and reporting The use of the term "audit" may not be intentional but is an extremely onerous way of reporting. It needs to be remembered that this aspect will be dealt with in line with the reporting and monitoring requirements of the Waste Bill.	The Waste Act provides a framework for monitoring and reporting, whereas the policy, and any other waste related monitoring and reporting requirements that may follow in policies, regulations etc., are detailed in terms of specific need (i.e. for thermal waste treatment).
CONCLUSIONS It is clear from the comments in the table that the document requires considerable work before it will serve the purpose for which it is intended , which is understood to be a guideline which can be used to facilitate decision making by the competent authority. CAIA is willing to work with the department to develop a document that will support the stated purpose. Of particular concern is the lack of resonance between this document and other environmental legislation	The policy purpose has been clarified in the document, and the intention is to support decision making. From the comments received to date, amendments have been made as appropriate, and based on the re-evaluation of all provisions in terms of CAIA's comments, the policy is considered to fulfil its purpose in line with government co-operation and priority, industry needs and existing and future environmental legislation.

ANNEXURE 1:

Detailed Comments from Mr A Watson o.b.o. groundWork (20/12/2007)