



**DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM**

**Environmental Quality and Protection**

**Chief Directorate: Air Quality Management & Climate Change**

**AQA IMPLEMENTATION: LISTED ACTIVITIES AND MINIMUM  
EMISSION STANDARDS**

**OUTPUT B.3**

**Review of**

**Input from priority industries**

## **REPORT AUTHORS**

Gerrit Kornelius

## EXECUTIVE SUMMARY

S.21 of the National Environmental management – Air Quality Act requires the Minister or MEC to identify these industries for regulatory control by publishing a list of activities which the Minister or MEC reasonably believe result in atmospheric emissions that have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage. Once identified, these activities are known as “listed activities”. S 21 also requires the setting of minimum emission standards for specified pollutants emitted by the identified industries and the manner in which the emission must be measured.

The scope of this output is to review the input received from those sectors that may be affected by the listing of and setting of emission standards for activities in the sectors.

### Conclusions

- Formal responses were received from 7 of the 9 sectoral associations that presentations were made to. These differed considerably in format, approach and level of detail.
- The principle of listing activities and setting standards was generally accepted, although one sector association pointed out that the criteria for the inclusion of sectors and/or activities that were provided in the initial Terms of Reference for the project are in some cases ambiguous and not necessarily applicable to local conditions. Some of these concerns have already been met by Output B2 of this project.
- Respondents pointed out that a risk-based approach to the listing of activities, setting of standards and the measurement of compliance is preferable. (The wording of section 21 of the AQA would seem to indicate that both activities posing actual risk and those posing potential risk should be included) The use of templates from other countries was however in principle accepted by a number of the sector associations. All of those indicating acceptance pointed out that the applicability to local conditions should be carefully considered.
- Time frames proposed for implementation ranged from 5 years onwards and included proposals amounting to special consideration for equipment installed before a certain date.

### Recommendations.

- The responses received indicated a considerable difference in approach to the listing activities and emission standard setting. However, all respondents indicated willingness to cooperate further with the Department of Environmental Affairs and Tourism. It is recommended that cooperation be continued through the setting up of “sector teams” as recommended in output B1 (International Review) of this project. Such teams may include more than one industry association.
- The first task of such a sector team would be to further refine the activities proposed for listing in Output B2 (Review of Interim Project). This could include a form of risk analysis based on existing data, as proposed by some sector associations.
- The process flow diagram proposed by FAPA (consisting of the identification of primary pollutants per sector, a survey of overseas standards, analysis of local applicability and modification if necessary) could then be followed.

## **1. INTRODUCTION**

One of the tools for controlling industrial emissions to the atmosphere is the traditional permit or license which identifies activities that may only operate if they are correctly permitted to do so by the regulatory authority, and only if the conditions set in the permit or license are met. This form of regulation was the basis for regulatory control of industrial emissions in terms of the Atmospheric Pollution Prevention Act (Act No. 45 of 1965) (hereinafter “the APPA”) and has been repeated, with some significant modifications, in the National Environmental Management: Air Quality Act (Act No. 39 of 2004) (hereinafter “the AQA”) as described below.

The objective of the AQA is to provide ambient air quality not detrimental to the wellbeing of South African citizens or the environment. Only industries that materially impact on ambient air quality need therefore be regulated.

To this end, S.21 of the Act requires the Minister or MEC to identify these industries for regulatory control by publishing a list of activities which the Minister or MEC reasonably believe result in atmospheric emissions that have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage. Once identified, these activities are known as “listed activities” .S 21 also requires the setting of minimum emission standards for specified pollutants emitted by the identified industries and the manner in which the emission must be measured.

The Listed Activities/Minimum Emission Standards Project has as its purpose the production of a draft regulation containing a list of activities, emission standards for those activities and monitoring methods for testing compliance. This report reviews the comments received from priority industrial sectors affected by the proposed regulation.

## **2. SECTORS INCLUDED FOR COMMENT**

In a previous report (Kornelius and Scorgie 2007) the provisional list of activities proposed under the 2005 interim project (Hietkamp and Nkhwashu 2005) was reviewed and amendments proposed. Based on the latter list and on the list of industry sectors for which a review of APPA certificates was proposed, industrial sectors were selected for solicitation of comment. This approach replaced the proposed Affected Industry Group meeting with approval of the Project Steering Committee.

In all cases, an initial meeting was held with the sector association. In some cases, these initial meetings were followed up with further meetings or workshops as detailed in Appendix A. The sectors were requested to produce written input by 18 May; all responses received up to 25 May were taken into account and are reproduced as received in Appendix B. All sectors except power generation provided response in some form by that date. The Refinery managers’ Environmental Forum did not respond directly to the process questions but instead produced a draft regulation for the refinery sector, which is not included here. The cement sector indicated that individual companies in that sector would respond; one company did so.

## **3. SCOPE OF THIS REPORT**

Sectors were first requested to respond on specific matters:

- The applicability of emission standards and monitoring methods produced elsewhere (e.g. under the European Union Integrated Pollution Prevention and Control (IPPC) Directive or the US Clean Air Act, and listed on the respective websites.
- The possibility of including standards for non-point sources
- The implementation schedule proposed if internationally accepted emission standards (Best Available Technology (BAT) standards were to be set in SA.

The sectors were then also requested to include any other comment they might wish to include, in addition to the specific matters above.

## **4. SUMMARY OF RESPONSES**

The detailed responses from the sectors are included as Appendix B and range widely with respect to format, the matters included and the level of detail addressed. In general, the principle of listing activities and setting emission standards seems to be accepted in principle, although serious reservations about the process followed so far to select activities to be included were expressed by the Chemical and Allied Industries Association (CAIA). A summary of responses with respect to specific points follows:

### **4.1 Principle inputs (inclusion of activities in list and setting of standards)**

- Listing of activities: All the sectors that were approached implicitly accept the principle of listing of activities. The Chemical and Allied Industries Association (CAIA) has reviewed the criteria for listing used in the Transition Project and appearing in the Terms of Reference for this project, and has noted that these criteria are not consistent and in some cases illogical. (It must be noted that some of these concerns have been addressed in output B2 of the present project, which due to the extremely tight schedule of the project was not available to participants) The Association would prefer to see a risk-based approach to the inclusion or exclusion of activities on the list. This sentiment is shared by the Paper Manufacturers Association of SA (PAMSA) in the context that impacts and risks will differ dependent on location.
- Setting of standards: The setting of standards per sector is again implicitly accepted by all sectors, with the exception of CAIA. This Association does not want different standards applied to the same pollutant emitted from different sectors or activities. It does however recognise that sector-specific pollutants may have to be listed.

### **4.2 Inputs on specific questions raised by the contractor:**

- The use of EU/US/other guidelines and legislative documents and guidelines is accepted by four of the sectors, but with some reservations on application to (for instance) plant of a specific size or age. In all cases, consultation with the sector before application of these templates is requested. The Ferro-Alloy Producers Association (FAPA) suggests a risk-based approach where appropriate templates can not be sourced.
- The setting of standards for non-point sources: the South African Iron and Steel Institute (SAISI) has indicated that it would find such standards difficult to apply. The Clay Brick

Association (CBA), on the other hand, has implicitly accepted a non-point standard, but measured as an ambient concentration at the fence line.

- Measurement and monitoring methods: The use of international methods is accepted by most sectors, but CAIA feels that the methodology for conformance assessment needs to be developed through the national standards authority. Cautionary statements on the cost of monitoring were raised by some of the sectors viz. PAMSA and SAISI.
- Time frames for implementation were proposed by a number of sectors, ranging from concrete proposals (5-7 years from CAIA, 10 years from the CBA) to periods based on economic considerations (PAMSA, SAISI) or special standards for equipment installed before a certain date (PAMSA)

#### **4.3 Further specific responses.**

- Both SAISI and PAMSA express concern about the potential cost impact of the proposed regulation and would like to see standards and regulation subjected to regulatory assessment (a form of cost-benefit analysis).
- PAMSA requested that standards be unambiguous to ensure uniform application in all spheres of jurisdiction. There is also a request that the standards should only become effective when the necessary capacity and procedures have been provided to the regulatory authorities.
- A company in the cement sector requested special attention to cement operations that use alternative fuels, some of which are regarded as waste in other sectors.
- The Clay Brick Association has in effect already produced a draft standard, with monitoring methods included. This is based on fence-line ambient monitoring of sulphur dioxide and particulate matter, the two pollutants which are of the most concern in this sector. This is in effect a risk-based approach accepted by the sector, but applied per site.

## **5. CONCLUSIONS**

- Formal responses were received from 7 of the 9 sectoral associations that presentations were made to. These differed considerably in format, approach and level of detail.
- The principle of listing activities and setting standards was generally accepted, although one sector association pointed out that the criteria for the inclusion of sectors and/or activities that were provided in the initial Terms of Reference for the project are in some cases ambiguous and not necessarily applicable to local conditions. Some of these concerns have already been met by Output B2 of this project.
- Respondents pointed out that a risk-based approach to the listing of activities, setting of standards and the measurement of compliance is preferable. (The wording of section 21 of the AQA would seem to indicate that both activities posing actual risk and those posing potential risk should be included) The use of templates from other countries was however in principle accepted by a number of the sector associations. All of those indicating acceptance pointed out that the applicability to local conditions should be carefully considered.
- Time frames proposed for implementation ranged from 5 years onwards and included proposals amounting to special consideration for equipment installed before a certain date.

## **7. RECOMMENDATIONS**

- The responses received indicated a considerable difference in approach to the listing activities and emission standard setting. However, all respondents indicated willingness to cooperate further with the Department of Environmental Affairs and Tourism. It is recommended that cooperation be continued through the setting up of “sector teams” as recommended in output B1 (International Review) of this project. Such teams may include more than one industry association.
- The first task of such a sector team would be to further refine the activities proposed for listing in Output B2 (Review of Interim Project). This could include a form of risk analysis based on existing data, as proposed by some sector associations.
- The process flow diagram proposed by FAPA (consisting of the identification of primary pollutants per sector, a survey of overseas standards, analysis of local applicability and modification if necessary) could then be followed.

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## **8. REFERENCES**

Hietkamp, S and Nkhwashu, V (2005): The national air quality management programme: The phase II transition project. Report 86 DD/HT. CSIR, Pretoria

Kornelius, G. and Scorgie, Y (2007): AQA Implementation: Listed Activities and Minimum Emission Standards Output B.2 Review of Transition project



Appendix A: Particulars of sector associations

<b>Association</b>	<b>Dates &amp; Venues of the Meetings</b>		
Association of Cementitious Materials Producers (ACMP)	4th April - DEAT offices Pretoria		
Chemical and Allied Industries Association (CAIA)	22nd March 2007 - DEAT offices Pretoria	18 May 2007 - CAIA offices Johannesburg	
Ferro Alloy Producers Association (FAPA)	1st March 2007 - DEAT offices Pretoria	28th March 2007 - Samancor, Middelburg	11th April 2007 - Xstrata Wonderkop

Clay Brick Association (CBA)	27th March - CBA Offices in Midrand	5th April 2007 - CBA Offices in Midrand	19th April 2007 - CBA Offices in Midrand
Refinery Managers Environmental Forum (RMEF)	12th April 2007 - Garden Court, Kempton Park		
Paper Manufacturers Association of South Africa (PAMSA)	18th April 2007 - SAPPI Tech Centre, Pretoria		
Chamber of Mines Environmental Committee (CMEC)	5th April 2007 - CoM Offices in JHB		
South African Iron and Steel Institute (SAISI)	21 May 2007 - SAISI offices Pretoria		
Eskom (Power Generation)	19th April 2007 - Airshed Offices, Midrand		

## APPENDIX B: DETAILED RESPONSES



### **SOUTH AFRICAN IRON & STEEL INSTITUTE**

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**23 May 2007**

Dr Gerrit Komelius  
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1685

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Dear Dr Kornelius

#### **COMMENTS: AQA IMPLEMENTATION – LISTED ACTIVITIES AND MINIMUM EMISSION STANDARDS**

Your presentation to SAISI members on behalf of DEAT on 21 May 2007 refers.

SAISI appreciates the opportunity granted by the Department of Environmental Affairs and Tourism to comment on the proposed way forward regarding the setting of emission standards as part of the new air quality legislation. There are specific issues on which you requested feedback from our members and after further discussion we can comment as follows:

##### **Use of EU and US guideline and legislative documents**

SAISI in principle does not object to the use of the EU IPPC, USEPA or Australian guidelines as a reference. We do caution however that such reference material could be interpreted wrongly (especially EU IPPC) which requires that you do consult our industry sector periodically in order to prevent the adoption of unrealistic standards. We foresee that one would need to consult a combination of the above reference documents and at times use other standards as well in order to achieve the required result.

##### **Standards for Non-point Sources - Implementation of Management Measures**

SAISI does not object to such measures being adopted, but we are of the opinion that such measures would often be site specific and that it would be difficult to define national standards for this aspect. Such standards at national level could be too generic and the risk is that conditions could be imposed that do not add value towards achieving our common goal.

##### **Measurement and Monitoring Methods**

Within our sector the bulk of monitoring procedures are based on SANS and/or USEPA techniques/guidelines. Should the industry have expensive monitoring equipment based on other determination methods than what is proposed, we request that reasonable timelines are specified to replace such equipment.



##### **MEMBERS:**

Cape Gate (Pty) Ltd; Cape Town Iron and Steel Works (Pty) Ltd; Columbus Stainless (Pty) Ltd;  
Highveld Steel and Vanadium Corporation Ltd; Mittal Steel SA Ltd; Scaw South Africa (Pty) Ltd



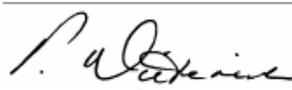
Data trends from non-compliant equipment could still be of value to monitor progress.

**Consideration of "Strict" Standards**

SAISI supports your proposal to set "rather strict" standards in order to prevent them from being reviewed every year or two. This will allow the industry to set clear long term targets in order to improve. It is our opinion though that the adoption of "rather strict" standards can only be practical if the DEAT would supply reasonable timeframes in which such standards should be achieved. Extreme caution should however be exercised that "too strict standards" are not adopted which could cause a shift of certain iron and steel processes to other countries – a phenomenon that is witnessed in certain European countries.

It can be concluded that SAISI will give its full support to your process that will facilitate the full implementation of the new AQA and a cleaner environment as the ultimate goal.

Yours sincerely



**Peter Dieterich**  
**Secretary General**

Copy to: Mr Silvestor Mokoena, DEAT

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17 May 2007

Dear Gerrit

Further to our meeting on 18 April, and our brief discussion on 16 May, I can confirm that the Pamsa Environmental Committee met on 14 May to discuss the Minimum Emission Standards Project. On the basis of these two meetings, Pamsa's position on the implementation of minimum emission standards is as follows:

1. **Ambient standards**

Pamsa accepts the use of WHO ambient air quality standards.

2. **Point source and non-point source**

Pamsa believes both are appropriate and, in all probability, mill specific. The following two examples will illustrate this point.

2.1 A mill has state-of-the-art point-source measurement and monitoring equipment. It has a sophisticated ambient air quality measurement and monitoring equipment in place. It is situated in a densely populated environment where air quality is compromised by a number of contributors such as other factories, high density of motor vehicles, large number of residences using coal and wood for heating and cooking purposes.

Under these circumstances, we believe it is relevant that both point source and ambient measurement and monitoring be done.

2.2 A mill has minimal point source measurement and monitoring equipment. It has no ambient air quality measurement and monitoring equipment in place. It is situated in an area with a low density of people and is the only operation in the immediate area.

Under these circumstances, we believe that, through actual measurements, material balance calculations or through modelling, the operation needs to demonstrate that it is in compliance with legislated ambient air quality standards.

3. **Design criteria of the scheduled activity (i.e. power boiler, lime kiln)**

In many instances, particularly more modern equipment, such equipment is designed to meet specified air emission standards. The consideration of the air emission standards which the equipment was designed to meet should play a significant role in the setting of point source emission standards.

4. **International best practice vs developing country**

The IPPC best available techniques are applicable to new and existing plants. Pulp and paper mills are characterized by the fact that machinery is rebuilt rather than replaced. This means each site is a unique product of its location and history. In the South African context, we believe the following are appropriate:

4.1 Technology age

Pre 1980 and post 1980 technology would be a useful consideration.

4.2 Geographical location

Rural vs urban; or alternatively, a demonstrable high impact or low impact on affected areas.

4.3 Size/scale of the mill

The larger the mill, the greater is its potential impact on air quality and, relatively speaking, the more affordable it becomes to implement air quality abatement equipment (scrubbers, ESPs etc.).

We suggest at this stage of our discussions that mills be grouped into two categories – large (greater than 350000 tons of product per annum) and small (less than 350000 tons of product per annum).

4.4 Design criteria

See 3 above.

5. **Cost of measurement and monitoring**

One of our small mills is considering the fundamentally uneconomic conversion of its coal fired boilers to electro boilers primarily because of the cost of measurement and monitoring of the air emissions from its own boilers. When considering measurement and monitoring programmes, the costs of such a programme must be taken into account when setting conditions for an atmospheric emission licence. Calculated emission levels should suffice when it is uneconomical to use costly measurement and monitoring systems.

6. **International guidelines/standards**

The appropriateness of international guidelines or standards must be considered in relation to costs for implementation:

- size/scale of the mill
- extent of emission sources (eg small and separate emission sources may only require periodical measurements).

In addition, whether it is ambient or point-source, our members feel that compliance must be maintained 96% of the time. This allows for both predicted exceedences (such as start up operations) and unpredicted (accidental) exceedences.

7. **Implementation schedule**

Implementation of any *new* conditions or standards attached to an atmospheric emission licence must take cognizance of

- *existing* conditions or standards in the registration certificate;
- actual emission levels achieved;
- whether or not ambient air quality standards are being exceeded by actual emissions;
- costs and affordability of meeting the new standards (in terms of abatement equipment such as scrubbers, ESPs)

8. **Other principles**

As a general statement, we wish to make the following points:

- All regulations and standards should be subjected to regulatory impact assessments to evaluate the development trade-offs, as well as impacts on other associated legislation, regulations or standards.
- All standards should be simple to apply; the methods should yield consistent and repeatable results, and should be enforced by all national, provincial and local regulatory authorities with minimum interpretation.
- The standards should only become effective when capacity and procedures within the regulatory authority are functional.

Please do not hesitate to contact me should you require points of clarity or any additional information.

**DR JOHN S.B. SCOTCHER**  
**ENVIRONMENTAL CONSULTANT**



## Pretoria Portland Cement:

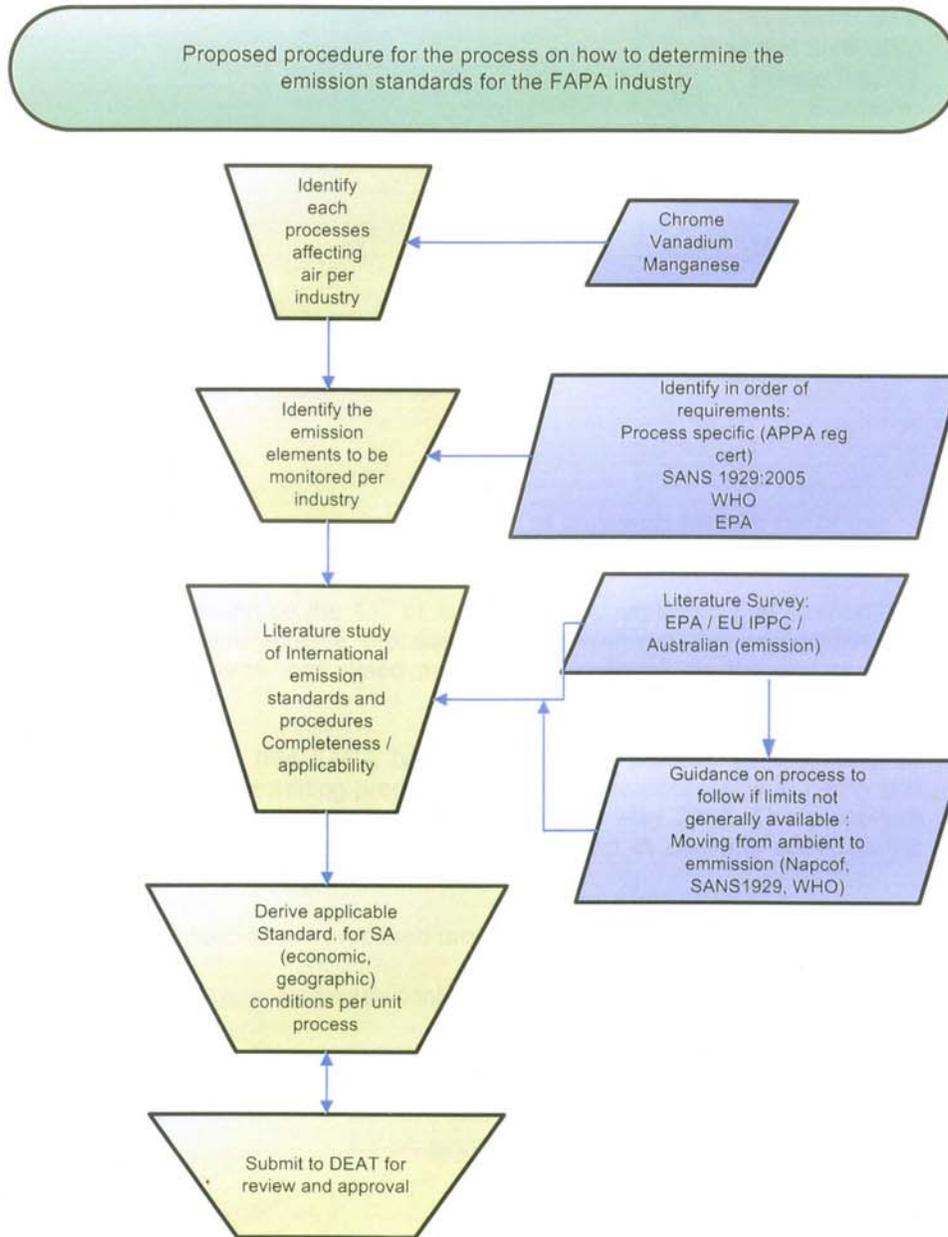
### Terms of Reference Document

- Table 1            The reference unit of m<sup>3</sup> in the Table 1 will lead to confusion as the unit is not absolute, but relative to temperature and pressure. It is suggested to use an absolute reference unit such as Nm<sup>3</sup>.
- 3.2.2            Suggest to also consider the measurement standards of the EU
- 3.2.3            Does the disposal of waste include all recycling activities, recovery of thermal value and the use of waste oils as fuel?
- Table 2            How will industries that operate on site incinerators and waste disposal sites be classified? In the past they had different APPA permits. It is not clear how the AQA license will take account of different processes on one site.
- Table 2            Most cement operations have the mine at the site of the cement operation or very close to the cement production operation. In isolated cases the factories are a isolated from the limestone quarry. Thus process 22 – cement does not fit into the definition.
- Thought needs to be given to the cement operations that will use alternative fuels (co-processing) as, under the current proposed grouping (Table 2) they would fall under two groupings (4 and 10).

Regards

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7<sup>th</sup> of May 2007

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Dear Mr Kornelius

**FAPA feedback on the determination of emission standards for the  
FerroAlloy Industry**

As per our meeting on the 11<sup>th</sup> of April 2007, you explained that Airshed had to have an administrative procedure, on determining the way to set the emission standards, completed and handed to DEAT by the end of June 2007.

It was requested that FAPA be involved in this process by compiling an emission standards setting procedure that would be acceptable to FAPA and sent through to Airshed by the second week in May 2007. The procedure would then be review by Airshed and DEAT, and its contents added to the DEAT procedure for approval.

Please find attached our proposed procedure, for your review.

If you have any queries please contact :

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Regards



Mr AJ van der Merwe  
Chairman - FAPA Environmental Forum

Clay Brick Association  
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21 May 2007

Mr Gerrit Kornelius  
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Dear Gerrit,

**PROPOSALS FROM THE CLAY BRICK ASSOCIATION (CBA) ON THE AIR QUALITY ACT**

As part of the consultative process, the Clay Brick Association on behalf of its members would like to propose the following comments/inputs for your consideration in establishing a national framework for achieving the objectives of the Air Quality Act 39 of 2004.

This submission focuses on the quality of ambient air at the boundaries of our members factory sites. Where ambient air pollutant limit values are exceeded (as per SANS 1929:2005), the onus rests on the relevant member to initiate appropriate corrective measures to eliminate or reduce source emissions that negatively impact on ambient air quality. Thus our comments/inputs that follow are based on this premise:

**1. Atmospheric Pollutants**

That irrespective of the kiln technology and type of fuel used in the clay brick industry, only the following two atmospheric pollutants be considered for monitoring purposes, namely:

- 1.1 **Particulate Matter (PM10)**
- 1.2 **Sulphur Dioxide (SO<sub>2</sub>)**

## **2. Method of Test (as per SANS1929:2005)**

### **2.1 Particulate Matter**

As per the reference method EN 12341 or any other method which can be demonstrated to give equivalent results.

### **2.2 Sulphur Dioxide**

As per the ultra violet fluorescence method in accordance with CFR53.32 or any other method which can be demonstrated to give equivalent results.

## **3. Exposure Period per Test**

As per the requirements of SANS 1929:2005 for both Particulate Matter and Sulphur Dioxide.

## **4. Siting of Particulate Matter and Sulphur Dioxide Sampling Points**

- 4.1 That the sampling point(s) be sited at the property boundary.
- 4.2 That as far as is practicable a minimum of four sampling points are established at 90°; 180°; 270° and 360° to the direction of the prevailing wind as provided by the nearest meteorological station.

## **5. Frequency of Sampling**

- 5.1 To establish a base-line of pollutant levels per site:
  - 5.1.1 Twice per year during the months of June and December for each pollutant.
- 5.2 Once a base-line for each pollutant has been established and a history of compliance can be demonstrated then:

5.2.1 The sampling frequency be reduced to once/year for each pollutant either during June or December.

Note: Any significant process change to the base-line will require the frequency of sampling to revert back to twice per year.

5.3 Where compliance for a pollutant cannot be demonstrated, the sampling frequency of twice/year is retained.

**6. Proposed Minimum Number of Measurements per Annum for Each Site**

POLLUTANT	PROPOSED MINIMUM NUMBER OF MEASUREMENTS PER ANNUM FOR EACH SITE WHERE A BASELINE:	
	NEEDS TO BE ESTABLISHED	IS ESTABLISHED
Particulate Matter	8	4
Sulphur Dioxide	8	4

**7. Accredited Suppliers**

That the monitoring, analysis and reporting of air quality at our members' factories be undertaken, where possible, by SANAS accredited suppliers.

**8. Time Frames for Attaining Compliance with Limit Values as specified in the Air Quality Act**

For those factories where actual levels of Particulate Matter or Sulphur Dioxide exceed the limit values stipulated for that pollutant, the timeframe required for the necessary interventions to achieve compliance, will differ from factory to factory. However, a timeframe, not exceeding a period of 10 years from 11 September 2007, is proposed by the Clay Brick Association, to ensure its members initiate the necessary processes to ultimately achieve acceptable

air quality standards throughout South Africa. These processes would involve but not necessarily be restricted to the following action plans :

- (a) An emission inventory in respect of Particulate Matter and Sulphur Dioxide to establish source contributions to ambient air concentrations of these two pollutants.
- (b) An identification of emission reduction measures (e.g. dust suppression, kiln design, alternative fuels etc). These measures, in conjunction with drawing on international best practices, could be utilised to reduce and control air pollution levels.
- (c) A technical feasibility assessment to reduce and maintain air quality within limit values.
- (d) An economic viability evaluation to reduce and maintain air quality within limit values.
- (e) A prioritising and implementation of emission reduction measures.

## **9. Legislative Requirements**

Currently our members are required to comply with the legislative requirements of the Mine Health and Safety Act (Act 29 of 1996) where occupational exposure to airborne pollutants such as Dust and Sulphur Dioxide need to be maintained below specified limits. Hence the rationale to site the sampling points at the boundaries of our members factory sites.

In conclusion, the Clay Brick Association would like to take this opportunity of thanking Airshed Planning Professionals (Pty) Ltd for reviewing our submissions and the Department of Environmental Affairs and Tourism (DEAT) for allowing our members to participate and contribute to the process of establishing a national framework for achieving the objectives of the Air Quality Act 39 of 2004.

for 

**CLAY BRICK ASSOCIATION WORKING  
GROUP ON AIR QUALITY**

# **SUBMISSION ON APPROACH TO LISTING ACTIVITIES AND EMISSION STANDARDS IN TERMS OF THE AIR QUALITY ACT**

## **CHEMICAL AND ALLIED INDUSTRIES ASSOCIATION**

**MAY 2007**

### **BACKGROUND**

It is understood that DEAT has retained the services of a consultant to assist them with the development of an approach to implementation of Section 21 of the Act which requires the Minister to undertake the following:

- (1) Publish a list of activities which result in atmosphere emission and which the Minister or MEC reasonably believes have or may have significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage, and when necessary, amend the list by-
  - (i) adding to the list activities in addition to those contemplated in paragraph (a);
  - (ii) removing activities from the list;
  - (iii) making other changes to particulars in the list.”

In addition the Minister must

- (a) must establish minimum emission standards in respect of a substance or mixture of substances resulting from a listed activity and identified in the notice, including-
  - (i) the permissible amount, volume, emission rate or concentration of that substance or mixture of substances that may be emitted, and
  - (ii) the manner in which measurements of such emissions must be carried out;

For the purposes of this submission comments are made on the process of developing the following

List of activities

List of national minimum emission standards

Sampling and measurement methodology for the emission components

Transitional provisions

### **PROPOSALS**

#### **General**

In general it is important to note that technical regulations of this nature are subject to the National Technical Regulatory Framework which requires adherence to certain principles.

DEAT has also repeatedly expressed its commitment to non duplication of legislative requirements and that it does not wish to prescribe technology solutions in achieving environmental objectives.

The general concern on the approach as understood from the BID document is that there appears to be no attempt to harmonise impact assessment requirements with those set out in other environmental legislation like the EIA regulations and the Waste Management Bill and that the approach to activities and standards is not risk based.

#### **List of activities**

The concept of using criteria to develop the list of activities as proposed in the BID document is supported. However the proposed criteria for listing set out in the BID document are problematic and should be reviewed. Comments on these criteria are provided below.

The following criteria are proposed for identifying a process for inclusion as a listed activity in the AQA:

- *The process should be active in South Africa and should apply to large scale operating plants.*

What does large scale mean? Air pollution is not only produced as a function of scale

- *The activity should not be listed if it is an activity identified in Government Notice No. 386 of 2006 - being the schedule to the environmental impact assessment regulations promulgated in terms of S.24 of the National Environmental Management Act (Act No. 107 of 1998) (hereinafter "NEMA"), i.e. identified activities that require basic assessment.*

This results in a circular argument for the chemical industry as chemical industry activities are listed in R387 as a function of whether they are subject to permits in terms of other environmental legislation, which would include the AQA. The only chemical specific activities listed in R386 are storage below the threshold that would be expected for a tank farm that may result in some air emissions.

- *The activity should be listed if it is an activity identified in Government Notice No. 387 of 2006 - being the schedule to the environmental impact assessment regulations promulgated in terms of S.24 of NEMA, i.e. identified activities that require environmental impact assessment (EIA). However this does not mean that all activities requiring an EIA should be identified, but only those activities that "are likely to have significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage"*

See comment above. Listing in R387 is dependant on listing elsewhere and cannot now be used as the dependant variable for listing here.

- *The emissions of the individual activity "are likely to have significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage". This implies that the combination of the toxicity of the pollutants with the released quantity may cause the quoted effects.*

This can be determined by risk assessment, which is the preferred approach or a list can be used based on a preliminary risk assessment using available information.

- *There must be a method to measure the emissions of the activity.*

*With regard to the latter, the USA Emission Measurement Center (EMC) of the Environmental Protection Agency (EPA) has developed methods of measuring air pollutants emitted from the entire spectrum of industrial processes causing air pollution, which are also widely used in South Africa.*

Reference to international methodology should be incorporated into a national standard which is then referenced in a regulation.

It was also proposed that measurement methods developed by the EMC and accredited in South Africa should be followed or used as a guideline to measure specific pollutants in the stack for the listed activities. How will they be "accredited"? This approach does not appear to take into account the National Technical Regulatory Framework and should be amended to take this into account.

The preferred approach here is to require analysis to be undertaken by laboratories accredited by the South Africa National Accreditation System and for the methodology both for sampling and measurement to be developed by the South African National Standards Authority.

## Proposed activities in BID document

Although it is recognised that comments on the process of developing the list rather than the list itself are urgently required for this submission, comments on some of the actual activities are provided here to illustrate the concerns with the approach that appears to have been adopted.

It is proposed in the BID document that, as nearly all of the processes that are currently listed in the APPA schedule meet the proposed criteria outlined in the BID document, they all be included. There was no requirement to remove processes from the list. However, the following activities were regarded as being necessary additions based on the proposed criteria:

- *Gold refining - This is a large industry in South Africa and hazardous chemicals are used by this activity;*

The use of hazardous chemicals is not listed as one of the decision criteria yet is used here as the only motivation for inclusion

*Platinum Group Metals (PGMs) refining - This is a large industry in South Africa and hazardous chemicals are used by this activity. The usage of specifically chlorine and hydrogen chloride may lead to significant emissions. (Some aspects of PGM refining are covered under the current APPA list);*

The use of hazardous chemicals is not listed as one of the decision criteria yet is used here as one of the motivations for inclusion

- *Pharmaceutical industry - The potential release of active pharmaceutical components is a concern;*

Reason for concern should be provided to facilitate discussion. Evidence of risk of significant detrimental effect on the environment to be provided.

- *Plastics industry (This heading serves as a subsection under organic chemicals) - The addition of this subsection is in line with international practice and helps with the grouping into categories (see 3.2.4);*

If this is a reference to plastics conversion, then there is very little motivation for this sector to be included based on risk of significant detrimental effect on the environment. Evidence of risk to be provided.

- *Monomer production (as a subsection under plastics industry) - The addition of this subsection is in line with international practice and helps with the grouping into categories (see 3.2.4);*

It is not clear what is meant here. Monomer production is generally recognised as a subsector of the chemical industry and would be covered under organic chemicals.

- *Explosives industry - This is a relative large industry and hazardous chemicals are used by this activity. Different chemicals are used and different emissions may occur, dependent on the different types of explosives being manufactured. The addition of this subsection is in line with international practice.*

Evidence of risk of significant detrimental effect on the environment to be provided. It is not clear how the risk to the environment of the manufacturing process would be so different from the manufacture of other chemicals like fertilizers to warrant its separate listing.

- *Disposal of hazardous and general waste - The addition of this activity is in line with the minimum requirements for the disposal of hazardous waste as well as with Government Notice No. 387 of 2006, i.e. identified activities that require environmental impact assessment (EIA);*

This is a circular argument as referred to above. Authorisation under this legislation is not opposed as long as there is a single impact assessment process.

- *Production and formulation of pesticides - The potential release of active pesticides is a concern.*

Reason for concern should be provided to facilitate discussion. Evidence of risk of significant detrimental effect on the environment to be provided.

#### **APPLICATION OF CRITERIA TO SOME PROPOSED ADDITIONS TO LIST**

<b>Criteria</b>	<b>Pharmaceutical production</b>	<b>Pesticide production</b>
large scale operating plants.	Depends on definition most are small	Depends on definition most are small
activity identified in Government Notice No. 386 of 2006 –	Not identified unless not in industrial zone	Not identified unless not in industrial zone
activity identified in Government Notice No. 387 of 2006	Not identified	Not identified
emissions of the individual activity “are likely to have significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage”.	This must be demonstrated by assessment, which includes the manufacturing processes and nature of the material involved. Reasons for concern are not provided	This must be demonstrated by assessment, which includes the manufacturing processes and nature of the material involved. Reasons for concern are not provided
method to measure the emissions of the activity.	Methods to determine active ingredients are available but probably not at the trace levels that may be found in emissions	Methods to determine active ingredients are available but probably not at the trace levels that may be found in emissions

It is clear from the above examples that the application of the proposed criteria do not necessarily result in a risk based decision on listing the activity. In the case of pharmaceutical and pesticide formulation in the absence of any information demonstrating the risk of these activities in South Africa, they should not be added to the list.

In respect of the rest of the chemical activities it is proposed that an investigation into the current production processes in South Africa that could comply with the criterion of significant detrimental effect on the environment, be undertaken in consultation with the industry.

The other concern with the list is that only industrial activities are listed when it is common cause that industry is not the only source of air pollution. A holistic approach to measuring contributions to ambient air quality needs to be adopted and the process to achieve this needs to be made clear in the national framework.

## **List of national minimum emission standards**

It is understood that the intention here is to develop a list of emission standards for each listed activity, which may result in the minimum emission standard for the same pollutant being different depending on the activity. This approach is not supported. It is recognised that site emission standards may be set at local level based on local ambient air quality requirements. The departure point for the consequential licensing requirements should then be derived from the contributions of the different site emitters not a different set of national emissions standards.

It is also recognised that all listed emission standards may not be applicable to all activities. The concept of listing the pollutants that are applicable to specific listed activities is therefore supported.

The setting of such standards is a complex technical matter and therefore needs to be undertaken by a technical committee established by the national standards authority as contemplated in the National Technical Regulatory Framework.

## **Sampling and measurement methodology for the emission components**

While an approach that takes into account international methodology is supported the process of doing that needs to be formalized. It is therefore proposed that the sampling and measurement methodology required for conformity assessment be developed through the national standards authority as contemplated in the National Technical Regulatory Framework.

In addition the emission standards must not be set lower than the minimum detectable limit of the measurement methodology for the pollutant. In some cases emissions are determined by calculation rather than direct measurement. In these cases emission factors for the specific processes are used. The framework must allow determination and must provide for a set of agreed emission factors. While it is recognised that the limits for greenhouse gas emissions are not been dealt with in this process, the development of emission factors for greenhouse gases is being dealt with in another project and it is considered important that the two approaches are aligned.

## **Transitional provisions**

As previously indicated to DEAT, provision for a transitional period will be required. It is proposed that the trigger date for a transitional period to commence should be authorization under the EIA process. In other words the transitional period will run from that date for existing or about to be constructed plants. In the case of a plant where no authorization has been granted the provisions will be immediately applicable.

It is proposed that the transition period be set at 5 -7 years from date of promulgation of these provisions.

## **FURTHER DISCUSSIONS**

It is understood that the following issues will be subject to further discussion and CAIA wishes to reiterate its willingness to participate in such discussions.

- Finalisation of the list of activities
- Finalisation of the list of pollutants applicable to the listed activities
- Methodology for sampling and measurement of pollutants

The issue of duplication of environmental authorizations is another area of concern in respect of the list and while it is recognised that the Act requires activities to be listed, the relevant notice should contain language that eliminates duplication.

While the individual consultation approach is appreciated as a start, the BID document refers to the forum of the Affected Industry Reference Group. CAIA is not aware of any meetings of this forum having been convened and agrees with DEAT that co-ordinated, cohesive and consistent engagement with industry associations needs to be part of the consultative process. It is therefore recommended that a meeting of this forum be convened as soon as possible to ensure that all affected industries have the same message on what the ultimate objective of the process is and at the same time the synergies amongst different affected sectors can be exploited.