

In the National Assembly of the Republic of South Africa

In the matter of:

The Minerals and Energy Portfolio Committee's public hearings on:

The Petroleum Products Amendment Bill (B25 – 2003)
(the Bill)

to be held in

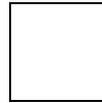
Cape Town on 14 and 18 August 2003

A submission on the proposed amendments to the Petroleum Products Act, 120 of 1977 giving the Minister of Minerals and Energy authority to regulate the quality and specifications of petroleum products

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EXECUTIVE SUMMARY

SUBMISSIONS ON THE BILL'S AMENDMENTS ENABLING THE LEGAL REGULATION OF THE SPECIFICATIONS AND QUALITY OF PETROLEUM PRODUCTS

The phasing out of lead in South African petroleum products presents an opportunity for sustainable development of our economy and people in accordance with the 2 November 2000 *Charter for the South African Petroleum and Liquid Fuels Industry on Empowering Historically Disadvantaged South Africans in the Petroleum and Liquid Fuels Industry (the Charter)*, by

- *The* creation of new enterprises for Historically Disadvantaged South Africans (HDSAs) in the Petroleum and Liquid Fuels Industry (the Industry)
- *The* training and skills development of HDSAs in trades and occupations required by the Industry, especially the HDSA oil companies
- *The* further development of South Africa's fuel and refinery industries in accordance with *the Charter* to ensure their continued international status and competitiveness

- *Making* a material contribution to a better and healthier environment.

Introduction

The use of lead in the Southern African fuel supply is to be phased out. The principle reasons for this decision are: -

- *Environmental:* - Global warming and atmospheric pollution caused by hydrocarbon, photochemical and other emissions from petrol must be reduced. Lead in petrol damages vehicle emission control catalytic converters and renders them and the vehicles into which they are fitted unusable. Catalytic converters are the best available technology for the purpose of reducing atmospheric pollution.
- *Human Health:* - Lead is a poison. While the levels of ambient lead in South Africa's environment are still generally acceptable and below minimum international standards, steps must be taken to protect our population from the dangers associated with lead pollution. The removal of lead from petrol is one of the ways that will contribute to this objective, although lead from petrol represents less than 1% of the environmental burden.
- *International standardisation:* - The modern petrol fuelled internal combustion engine is engineered and designed to use unleaded fuels. Older vehicles assumed leaded petrol as the standard. As older vehicles wear out the use of leaded fuels will become obsolete.

Internationally the use of lead in petrol has for the reasons mentioned, been in the process of being phased out for over thirty years, and that process has usually tracked the growth of modern cars with exhaust catalytic converters.

In South Africa the process began in 1986 when the South African government approved a programme for the progressive reduction of the level of lead in petrol. Prior to 1986, the accepted level was 0.86 grams per litre (gm/l). Between 1986 and 1988 this level was reduced to 0.6 gm/l and as from 1989 to 0.4 gm/l.

This was not done exclusively for environmental reasons. The reasons given were based on technological and economic considerations as well. The then imported engine designs generally had to be downgraded at an economic penalty because unleaded petrol was not available in South Africa at that stage.

In the December 1998 White Paper on the Energy Policy of the Republic of South Africa it was stated that *“Based on the results of the Vehicle Emissions Programme, Government will promote the implementation of economically viable options and will investigate the feasibility of possible emissions control and management measures to reduce pollution from vehicles.”*

On 7 May 2002 during the Department of Mineral and Energy’s budget speech Deputy Minister Susan Shabangu made it public that the Cabinet had recently approved the end of leaded petrol from 2006. Government’s desired target date is 1 January 2006.

While the phasing out of lead is desirable, the consequences of the decision and its implementation need assessment. The deadline carries with it serious environmental, social and economic consequences.

IPIECA, the International Petroleum Industry Environmental Conservation Association, has monitored and assisted the lead phase out programmes in many countries over many years.

IPIECA documents that: -

- The process of phasing out leaded petrol and replacing it with unleaded petrol (ULP) must be tailored and planned in accordance with the specific circumstances and needs of a given region or country, and
- Unless the specific socio-economic, industrial, cultural and technological realities of the specific region are taken into account, unwanted and costly consequences that are avoidable come about.
- In cases where there is no refining activity present, or where the vast majority of vehicles on the road are fitted with catalytic converters (which is not true for the Republic of South Africa) the phase out of lead is greatly straightforward and the switch to ULP may be carried out rapidly.
- In other cases, such as in Southern Africa where there is an established refinery industry and the majority of vehicles are not equipped with catalytic converters (mostly owned by HDSAs) IPIECA's evidence proves that the task is more complex and requires a longer phase in period.

The 1 January 2006 deadline does not take the socio-economic complexities of South Africa into account.

The 1 January 2006 deadline also has negative impacts that will see the costs of this deadline significantly outweigh the benefits.

What it is going to cost

The South African refineries are currently engineered to produce largely leaded fuels. The upgrades hoped for in the past have not yet been carried out. As a result of

indications made in the governments past white papers and discussion documents it seems that a longer lead-time was anticipated.

The industry estimates that re-engineering its refineries to produce ULP will cost in the region of R 15 billion.

Some refineries will not be able to carry out the modifications by 1 January 2006. The consequence will be a need to import ULP at a further cost. In fact at least two refineries are already importing ULP, when its market penetration is currently only 30%.

The costs will not be carried by the refineries, they will be passed on to the consumer by way of increased petrol prices.

The question then arises, if the move to ULP is going to cost the South African motorist in excess of R 15 billion what benefits are they going to receive in return?

Job creation and skills development

A R 15 billion fixed investment into South Africa should, if properly planned, create jobs and develop skills. Unfortunately with a 1 January 2006 deadline this opportunity is lost. To meet the deadline there is not sufficient time to train the artisans needed.

Already, before any major capital projects are underway, local refineries are recruiting expensive engineers from Northern hemisphere countries.

The National Advisory Council for Innovation (NACI) estimates SA will face a skills shortfall of between 15 000 and 40 000 skilled artisans, project managers and engineers over the next five years.

Under the heading "Capacity Building" the Charter reads,

“The South African labour market does not produce enough of the skills required by the petroleum industry, especially the HDSA oil companies. Organized industry and government should work together in addressing this skills gap”.

The lead phase out process is an opportunity to address a chronic shortage of skills by training HDSAs. It requires electricians, specialist welders, mechanics, toolmakers, fitters and turners and millwrights among others. These are exactly the category of skills that South Africa needs to develop.

With a burgeoning oil industry starting to take off across Africa, particularly in neighbouring Angola and Mozambique, the South African skills pool could supply the industry’s needs across the continent or be redeployed in local manufacturing.

However, to meet a 2006 deadline, it is estimated the industry will have to spend at least 60% of the R 15 billion on imported contractors. This percentage may increase to 75%, as all the refineries will have to be retooling simultaneously if they are to meet the 2006 deadline.

This means that approximately R 11, 25 billion may be lost to overseas firms and labour.

Job losses

The South African Petroleum Industry Association (SAPIA) has indicated publicly that faced with a 2006 deadline, refineries have the following choices:

- To spend the money to convert to ULP production
- To import ULP to meet demand, or to
- Simply close their refining operations.

These three choices have the following consequence:

- A cost of R 15 billion with the loss of R 11, 25 billion of that spend to overseas contractors

- A further fuel price increase
- A loss of refining capacity

Importing ULP and closing refineries both have significant implications for the potential of the South African fuel industry to sustain jobs.

South Africa's Petroleum and Refinery Industry

During the 1950's South Africa took the highly strategic decision to develop: -

- A local refinery and fuel industry, and
- To manufacture fuels from coal.

The fundamentals underlying these decisions included the objectives of: -

- Avoiding the need to be dependant on imported refined fuels and thereby saving considerable amounts in foreign exchange, and
- Avoiding the strategic problems associated with being dependant on foreign energy supplies.

As recorded above there is a real possibility that some refineries, if not allowed sufficient time to reengineer their systems, face closure and/or irreparable financial losses. This is not acceptable.

The strategic importance of having local and indigenous fuel capacity is underscored by: -

- The international drive to develop a synthetic fuel industry. Oil reserves are finite. Sasol is the world leader in synthetic fuel production.

- The Charter's prioritisation of creating the necessary skills in the Industry among HDSAs.
- The creation of employment opportunities for skilled HDSAs in the Industry.
- The urgent need to create learnerships in the Industry for HDSAs.
- Crude oil supplies are easily disrupted. Recent wars in the Middle East demonstrated international fears of disruption and unacceptable price increases.
- The failure of international oil embargos introduced to counter apartheid. While thankfully much has changed politically, it is still essential that we be as independent as possible of foreign economic and political manipulations through fuel supplies and prices. What suites global fuel companies do not necessarily accord with South Africa's best interests.

Sasol and South Africa's other refineries can convert to produce ULP. There is no technological difficulty. Time, local skills and money is what is required to carry out the necessary modifications in an efficient and effective manner.

It would be irrational and strategically unsound not to apply all available resources to protecting our local industry.

Ambient air quality: - There is no urgency

The decline in lead in blood levels has tracked the decreasing use of lead in a number of items most notably paint, water pipes, car batteries and household coal burning (due to increased electrification) and is not only linked to fuel emissions. In fact,

since before the introduction of TEL into the United States in 1923, lead levels have dropped year on year despite TEL usage growing to a peak of 500,000 metric tonnes in 1973 in that country.

As more modern engines begin to dominate the national vehicle fleet, the trend should continue with the resulting reduction in vehicle emissions.

South Africa has a relatively small vehicle fleet in comparison to developed countries, like the USA, where the lead levels in ambient air were far higher before the introduction of ULP.

That the South African situation differs materially from a typical first world scenario is illustrated by the following statistics:

- Between 1949 and 1995 the volume of leaded petrol sold in the US was 6.7 billion tons. This equates to 1000 litres per US citizen and 53,000 litres per square mile US landmass.
- In the same period the amount of leaded petrol sold in RSA was 155 million tons equating to 165 litre per RSA citizen or 9,400 litres per square mile

This indicates that US citizens experienced approximately ten times more exposure to lead through its use in petrol compared to South African citizens.

Thus, while lead in fuels must be phased out within an acceptable period, there is no need for a premature deadline, particularly if that deadline carries with it an enormous cost burden.

A technological solution for the mitigation of ambient air lead levels

There are alternative and cost effective methods of immediately removing lead emissions caused by leaded fuels.

A lead trap technology exists, and has been rigorously and successfully tested. It comprises a simple filtration device that can be bolted onto the vehicle's tailpipe. The inventor of the technology will licence the manufacturing and fitment process to a relevant SA company at no cost, and provide the skills and training for the development of the industry in accordance with the Charter.

Thus, the manufacture and installation of lead traps present an additional opportunity to create jobs and indigenous skills.

The average age of the South African vehicle fleet

The average age of vehicles in South Africa is 13 years, and approximately 70% of them run on leaded fuel.

There is no feasible and economic method whereby vehicles designed to consume leaded fuels may be re-engineered to unleaded fuels. Unleaded petrol may cause serious damage to older vehicles not designed for its use. The result is that lead replacement compounds become essential, another additional cost for the motorists' account. Further, the environmental consequences of some of these compounds are considered, at best, to be "unknown", and may well be found to have greater health issues than lead.

A significant percentage of the older vehicles are owned and operated by historically disadvantaged persons who are still in the lower income brackets. The average South African motorist simply cannot afford to replace her/his vehicle.

Catalytic converters

The more wealthy owners of the modern vehicles with catalytic converters that require unleaded petrol already enjoy this more costly fuel at a subsidised rate since 1996.

Under a proposed draft national vehicle emission strategy, all locally manufactured new vehicles will leave the factory floor fitted with catalytic converters by 2008. Yet, now eight years since the introduction of unleaded petrol, the percentage of cars with catalytic converters on our roads is only 25 %.

By 01 January 2006 this is unlikely to have moved to 50 %, due, in part to the fact that South Africans use their vehicles for far longer than their counterparts in developed countries, and particularly due to relatively poor affordability of new cars. These are the socio-economic realities.

ULP typically has a higher level of aromatic components than LP. There is a direct correlation between the aromatic content of a petrol and its potential to produce photochemical smog when combusted in a vehicle operating without an exhaust catalyst. Thus, as 50% of the vehicle car park operating in 2006 will not be equipped with exhaust catalysts, it follows that there will be a significant increase in air pollution, particularly in our cities.

The 2006 deadline is forcing a fuel on to a vehicle fleet that is not ready for it.

The legal process

In April 2003 the Petroleum Products amendment Bill (B25 – 2003) (the Bill) was tabled before the National Assembly.

Published with the Bill is a document entitled 'Memorandum on the Objects of the Petroleum Products Amendment Bill, 2003'. This memorandum explains that the purposes of the Bill are to, *inter alia*:

- 'ensure that governance of the liquid fuels sector is in line with Government's policy objectives and with developments in the sector. The White Paper on Energy Policy for the Republic of South Africa (1998) states that the Petroleum Products Act, 1977, will remain as enabling legislation but that it is to be amended to accommodate policy reforms', and
- Enable the Minister of Minerals and Energy (the Minister) to promulgate regulations that -
 - prescribe the specifications and standards of petroleum products;

- prohibit the blending or mixing of petroleum products with other substances which will affect the standards of petroleum products or which is done in order to avoid a tax, duty or levy.

Nowhere in the Bill, nor in the proposed regulations giving effect to it that were published for comment in Notice No 1902 of 2002, is any direction given to the Minister as to what procedures should be followed or what criteria and principles should be applied in drawing the regulations and fixing standards and specifications for petroleum products.

The reasons for enabling the Minister to prohibit the blending or mixing of petroleum products with other substances (additives) and to prescribe the specifications and standards of petroleum products are quintessentially environmental. The fundamental reasons for the amendments are to protect the environment : -

- by enabling the use of catalytic converters. Catalytic converters cannot be used with lead additive. Catalytic converters are essential to controlling the worst aspects of atmospheric pollution caused by the use of petrol in vehicles. The use of unleaded petrol in vehicles without catalytic converters is also undesirable, as unleaded fuels produce even more pollutants.
- by prohibiting the unregulated use of sub-quality fuel and the blending of petroleum products with other additives and substances.

Environmental rights are entrenched in section 24 of the Bill of Rights of the Constitution of the Republic of South Africa, Act 108 of 1996.

These are policies, programmes and plans (i.e. activities) that as is contemplated in section 2(1) of Chapter 1 of the National Environmental Management Act, 107 of 1998 (NEMA) will certainly 'significantly affect the environment'.

NEMA was enacted in order to give effect to and to implement the environmental rights.

Chapter 1 of NEMA, *inter alia*, provides that –

2 Principles

- (1) The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and-
 - (a) shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the *social and economic rights* in Chapter 2 of the Constitution and *in particular the basic needs of categories of persons disadvantaged by unfair discrimination*;
 - (b) serve as the *general framework within which environmental management and implementation plans must be formulated*;

- (c) serve as *guidelines* by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;

In addition to the environmental impacts of the regulations the Minister is to be enabled to promulgate, the regulations will have certain negative consequences regarding –

- Chapter 2 social and economic rights, and
- The basic needs of categories of persons disadvantaged by unfair discrimination

It is therefore axiomatic for what the Bill plans, that the procedures associated with it, and its administration and implementation be fully compliant with NEMA's principles and procedures. Serious weight must also be given to its impacts on social and economic matters and its effects on HDSAs.

This document is supported by the following –

- 1 **Summary of Fact and Expert Opinion.**
This document is a summary of relevant scientific and other facts and of experts' opinions, conclusions and reasons. The experts responsible for this document are especially qualified in the matters under discussion,
- 2 **Legal Opinion on the Bill.**
This document is a legal opinion on the Bill prepared by a practising advocate,

and
- 3 **Legal Opinion on Procedures Required for the formulation of Standards and Specifications for Petroleum Products**
In this second legal advice, after taking into account the statement of facts, counsels' opinion and the law, a procedure whereby the specifications and standards of petroleum products may be formulated is proposed. In this document particular attention is paid to the expectations and requirements of what the Bill is subordinate to, namely the Constitution, NEMA, the Promotion of Administrative Justice Act, 3 of 2000 and how the Standards Act, 29 of 1993 should be properly applied in the process.

The legal mechanisms as presently formulated in the Bill and draft regulation require reformulation if they are to be jurisprudentially, procedurally and constitutionally sound.

The solution

The phasing out of lead should track the phasing in of catalytic converters. This is how lead was phased out of the USA and most developed countries (in fact, the final transition to complete leaded petrol removal was only made when 75% to 80% of the vehicle car park was exhaust catalyst equipped).

This will allow the industry time to schedule the retooling of refineries to a timeline that is most cost effective and efficient. It will also significantly reduce the likelihood of some refiners choosing to close shop all together.

An extended deadline will also allow refineries to make sound investment decisions. By way of example, Petro SA is one of the key champions of black economic empowerment in the liquid fuels industry. It has a number of initiatives and investments it could make to further extend BEE into the sector. It is however, like all the refineries, currently being forced to divert a massive percentage of its planned capital expenditure into meeting the 2006 ULG deadline. Other investments and initiatives are being crowded out.

An extended deadline will ensure that the environmental benefits are maximised by delivering ULP into a fleet of vehicles that is equipped to limit emissions.

It will provide time to train artisans and to develop a skills base that can then move into other manufacturing industries requiring the same skills or become a highly viable export for project work on the oil fields in Africa.

Conclusions

Yes, it is necessary and desirable that by law the specifications and quality of petroleum products be regulated by law and that prescriptive legislation be enacted to achieve this end.

The issue is not whether this should be done, but how and in what time frame.

The facts do not rationally support an unconsidered and over hasty approach. More than the simple “banning” of certain fuel additives is required if unwanted and unintended consequences are to be avoided.

The “how” (i.e. the legal and administrative mechanisms) must have legal, substantive and procedural integrity. The legal mechanisms put forward have not yet been refined and formulated in a manner that achieves these essentials.

What is planned has not yet been the object of a critical regulatory impact assessment. Neither has there been a properly consultative and public participatory environmental impact assessment as expected by the Constitution and NEMA.

It is also true to comment that alternative and other technologies available for the purpose intended have not been properly assessed and evaluated.

The corrective measures required are –

- For government to commission an environmental impact assessment process that accords with NEMA and provides for the proper assessment of socio-economic consequences as well as environmental and regulatory impacts.
- The enabling sections in the Bill be amended so as to record that the process of standards and specification formulation shall accord with the Constitution, NEMA and the Promotion of Administrative Justice Act.
- The current ‘regulation 33’ be withdrawn and substituted by new regulations giving effect to these conclusions.

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SUMMARY OF FACT AND EXPERT OPINION

ISSUES SURROUNDING THE EVENTUAL PHASE-OUT OF LEADED PETROL IN SOUTH AFRICA

INTRODUCTION

1. Most countries in the industrialised world have either totally phased-out leaded petrol or are close to doing so. However, some developing countries have yet to embark on this exercise. Others, like the Republic of South Africa (RSA), are only a short way down this route with an unleaded penetration in 2002 of around 30% of total petrol consumed. Some countries, again like the RSA, have internal and external pressures to accelerate the transition process leading to the total elimination of lead in petrol.
2. Legislation has been proposed in the RSA to phase-out leaded fuel totally by 1st January 2006. However, the South African National Assembly has called for submissions from stakeholders and other interested parties on its proposed Petroleum Products Amendment Bill (B25-2003). The Amending Bill proposes to phase-out lead by giving the Minister of Minerals and Energy the power to legislate fuel content, quality and specifications by way of subordinate

regulations. Should cogent arguments be submitted for changes to be made, the government is prepared to modify the legislation before it is finally promulgated.

3. This document has been prepared as part of this process. By addressing the main facets of the issues surrounding leaded petrol phase-out, it makes a case for the adoption of a sustainable development approach. On this basis it recommends an extension to the proposed transition period for lead phase-out.

BACKGROUND

4. Unleaded petrol was first marketed in the USA and Japan in the early 1970s, and in the early 1980s in Europe and Australia. Mandatory marketing was necessary to allow catalytic converter technology to be employed to meet stringent 'new car' gaseous exhaust emission standards. This was the principal driving force behind unleaded's introduction.
5. However, due to concern over possible health effects associated with lead in the environment, it was deemed prudent to reduce the use of leaded fuel. Furthermore, gradually phasing-out leaded petrol assisted urban areas to meet national air quality standards for lead. An additional measure to help in both regards was a step-wise reduction in the maximum permissible lead content of leaded fuel.
6. In the USA and the European Union, there was a legal requirement to continue to supply leaded petrol for the existing, non-catalyst cars. In both cases the phase-out of leaded petrol took place over twenty or so years. The intended date of 1st January 2006 for the total elimination of lead from petrol in South Africa gives the country less than three years to complete a process that took 22 years in the USA and 17 years in Australia. Initially, the rate of unleaded's introduction was consistent with the marketing of catalyst-equipped cars. This greatly assisted the oil industry since it was able gradually to implement and complete the necessarily capital intensive refinery up-grading programmes.
7. Some countries and regions around the world adopted fiscal measures to ensure that unleaded fuel, which costs more than leaded to make, was available to motorists at a lower price. This effectively eliminated the practice of mis-fuelling 'cat' cars, which had been commonplace in the USA because leaded petrol was

originally cheaper at the pump than unleaded. Using leaded fuel in 'cat' cars causes the emissions of noxious and ozone promoting gases to rise. This happens because lead deactivates the catalyst and reduces its effectiveness.

8. Once unleaded petrol became less expensive than leaded at the pump, 'non-cat' car motorists sought information as to whether they could run on unleaded fuel. In these endeavors they were assisted by the motor and oil industry, and government publicity campaigns - because the latter wanted to encourage this practice. In many cases, high octane 'leaded' cars with special hard valve seats needed an adjustment to the ignition timing to enable them to run on the lower quality unleaded petrol. However, increased emissions, power loss and fuel consumption penalties resulted.
9. Lead trap technology was developed in the 1970s/early 1980s. In eliminating up to 80% or more of vehicular lead emissions (eg by retaining the lead in a filter placed in the exhaust system), it offered a cost-effective alternative to reducing and eliminating lead from petrol.
10. The issue of eliminating leaded fuel is multi-faceted, with health, environmental, economic, technical and societal implications warranting thorough assessment. In the following sections each of these topics is addressed in turn. The case is made that, when all these issues are taken into consideration, there is no compelling case to accelerate the demise of leaded petrol. Indeed, there are lucid and cogent economic and societal reasons for extending the period of leaded fuel use beyond the currently mooted phase-out date of 1st January 2006 for, a period of between three to five years. It is worth noting that the USA and Europe used leaded fuel for a much longer period when they made the transition to 100% unleaded fuel.

HEALTH

Lead in Air & Lead in Blood

11. Whilst petrol lead contributes around 90% to lead in air, a UK study clearly showed that its contribution to lead in blood was 10-15%, making it a minor contributor to body burdens (1).

12. This conclusion was supported in a report issued by the authoritative International Lead Zinc Research Organisation (ILZRO) (2). ILZRO reviewed historical data from the USA on blood lead levels and petrol lead consumption. For the period 1930 to 1973, blood leads were found to decrease even though petrol lead usage increased during this time. The conclusion was drawn that petrol lead must, therefore, be a minor contributor to the total body lead burden. The trend of decreasing blood lead levels in the USA when petrol lead usage fell was attributed to the attention paid to reduce significantly all the other contributors to lead in the body, eg industrial emissions, paint, food, beverages and drinking water.
13. Eliminating lead from petrol will not, therefore, bring about a marked lowering in blood lead levels in the RSA. Where blood levels are unacceptably high, attempts should be put in place to identify the principal sources. Unusually high levels of lead in the local environment are most often caused by specific point sources of emissions (3).

Lead & Health Studies

14. Apart from one or two exceptions, international studies have established that there is no correlation between low levels of environmental lead and hypertension and impairment of neuropsychological development in children. However, studies have been conducted on children exposed to unacceptably high levels of lead exposure, eg living close to lead smelter plants. Adverse health effects were observed in children with blood lead levels in excess of 25µg per dl (4).
15. Environ, an internationally renowned US firm of consultants, reviewed the lead and health studies which underpin;
 - the US EPA's decision to phase-out leaded petrol,
 - the OECD's estimates of the net cost benefits associated with reducing lead in the body, and
 - the World Bank's worldwide petrol lead elimination advocacy programme.
16. In particular, Environ assessed the studies which attempt to correlate blood leads with adverse cognitive development effects (mainly IQ) in children and increased blood pressure in adults. It concluded that a causal association between low level

lead exposure and IQ has not been firmly established and that the cardiovascular risks associated with lead exposure in adults are scientifically unsupportable (5).

17. The World Health Organisation's International Programme on Chemical Safety issued a publication, in 1995, entitled 'Inorganic Lead. Environmental Health Criteria 165'. It reviewed the effect of inorganic lead on human health and the environment. Although the WHO calls for further measures to reduce lead in the environment, the following points were also made (3):

17.1 On children IQ studies. '...observational epidemiology cannot provide definitive evidence of causality (ie between blood leads and IQ effects) when the key statistical association is weak, the temporal relationship is unclear and major confounders are present.'

17.2 On adult blood pressure studies.'Despite intensive efforts to define the relationship between body burden of lead and blood pressure or other effects on the cardiovascular system, no causal relationship has been demonstrated in humans and the mechanisms remain obscure'.

18. In 1994, UK medical researchers came up with similar findings when they made a systematic review of 26 epidemiological studies since 1979 (6). The aim was to quantify the relationship between full-scale IQ in children aged five or more and their body burden of lead. They concluded that,....'While low level lead exposure may cause a small IQ deficit, other explanations need considering, eg

- adequate allowance for confounders
- selection biases
- do children of lower IQ adopt behaviour which makes them prone to lead uptake (reverse causality)?'

In the industrialised countries, blood lead levels are now so low that definitive studies of subtle health effects are practically impossible. These low levels have been achieved due to significant reductions in exposure to lead from all sources, not just leaded petrol. In developing countries studies are made difficult by socio-economic factors and other confounding variables. One such variable is the link between the lack of dietary iron, anemia and cognitive development.

19. Solely focusing on the contribution of petrol lead in air to lead in blood in developing countries carries with it the danger of overlooking the major contribution of lead from other sources. For example, potentially highly

significant sources of atmospheric lead are: fossil fuel burning in industry and in homes; lead-product manufacture (eg lead smelting); poorly-glazed cooking and eating ware; from lead-soldered food cans; lead in drinking water and beverages; in old flaking paint work; and illicit car battery meltdown to recover and sell the lead.

20. From the above, the assertion can be made that, unless there is compelling evidence of elevated blood levels that can be directly attributed to petrol lead, there is no justification on health grounds for a rapid phase-out of petrol lead by 1st January 2006.

ENVIRONMENTAL

The Effect of Lead's Reduction & Elimination on Petrol Formulations

21. High octane hydrocarbons, ie predominately aromatics, olefins, isomerate and alkylate, are employed in refineries to replace the octane numbers lost by lead's reduction and elimination (7).

Aromatics from Reforming

- 21.1 The use of aromatic hydrocarbons is the preferred route. These components are produced in catalytic reformers, using precious metal based catalysts, by reforming naphtha. Naphtha is essentially straight chained distillate, which also contains some branched chain saturated hydrocarbons, of relatively low octane number resulting from the initial distillation of crude oil. In reforming, the hydrocarbons are converted to a ring structure of six carbon atoms, then de-hydrogenated to form predominately benzene, toluene, xylenes, ethyl benzene and iso-propyl benzene. Reformate has an octane range of 90-102 RON. It can add up to 40 research octane numbers (RON) to naphtha quality. Hydrogen is an important by-product from the reforming process
- 21.2 Many refineries in developing countries still simply distil the crude oil and add lead to the naphtha produced to meet the octane number specification. In these cases, the first and most cost-effective refinery modification to make more 'clear' (ie non-lead) octane numbers is to install a catalytic reformer.

Heat is required in the reforming process and yields of aromatics are less than the quantities of naphtha used. So there is an energy penalty involved, as well as high capital investment

Olefins from Cracking

21.3 There is an ever-increasing demand to make more transport fuels from a barrel of crude oil. Therefore, products from the atmospheric and vacuum distillation of crude oil are 'cracked' using heat, hydrogen and steam in the presence of catalysts. Here, the long chains of carbon atoms are broken into smaller molecules with distillation properties suitable for blending into petrol. Olefins are produced along with other hydrocarbons. These olefins are characterised by having double bonds in their structure, which confers good octane quality properties. Typical olefinic streams can be in the region 88 – 94 RON. A deficiency is that they do not raise Motor Octane Number (MON) to the same extent as RON. MON is normally included in national petrol specifications.

Branched Chain Hydrocarbons from Isomerisation and Alkylation

- 21.4 Isomerisation and alkylation units produce high octane blending components. They are almost always found in sophisticated refineries in industrialised countries. Isomerisation involves taking straight chain naphtha components and, using a catalyst, 'branching' the carbon atoms. Alkylation units are expensive to install, require a catalytic cracker (FCC) unit and have high variable costs of manufacture. They take C₄ and C₅ saturated branched hydrocarbons and react them, over a powerful catalyst, with C₄ and C₅ branched olefins from the catalytic cracker unit. In both processes highly branched hydrocarbons are formed with excellent octane quality. Isomerate can lift naphtha quality by 12 – 20 RON. Alkylate streams can have octane qualities in the range of 92 - 97 RON, with excellent MON properties.
- 21.5 Oxygenates as octane enhancers are either ethers or alcohols.
- 21.5.1 Methyl tertiary butyl ether (MTBE) has been the most widely utilised oxygenate. It can be produced in the refinery by reacting isobutylene with

methanol over a catalyst. Most MTBE, however, is manufactured externally in a dedicated plant and delivered into the refinery. It has a blending RON of 120. Using 15% MTBE in petrol, which is the highest practical level, gives approximately 3 RON – the same as 0.15 g lead per litre. Apart from reducing crude oil consumption and providing octane quality, MTBE in fuel results in lower exhaust emissions of carbon monoxide (CO) due to the presence of oxygen in the molecule. Ethyl tertiary butyl ether (ETBE) is the alternative ether which is made using ethanol instead of methanol in the reaction.

21.5.2 Ethanol is the preferred alcohol to improve a petrol's octane quality. It can be made either from the oxidation of ethane or from sugar/grain sources. Methanol is too volatile and phase separation can occur when water is present in the storage and distribution system. Ethanol's octane quality and CO reduction properties are much the same as for MTBE. For environmental reasons associated with ground water contamination, ethanol is replacing MTBE as the preferred oxygenate in US reformulate petrols. However, ethanol does have vapour pressure and water solubility issues.

21.6 Lead phase-out in many parts of the industrialised world, together with the cost of producing 'clear' octane number in the refinery and importing MTBE, has led to the marketing of two other organo-metallic antiknocks. One is methyl cyclopentadienyl manganese tricarbonyl (MMT) and the other dicyclopentadienyl iron (Ferrocene). For environmental reasons, concentrations of the metals employed are limited to the range 0.005 to 0.020 g per litre (ie 5 to 20 ppm) This is sufficient to give up to 2 RON in an unleaded basestock. MMT and ferrocene do not raise MON quality as much as RON.

Catalytic Converters

22. Catalytic converters are fitted to petrol-driven cars to reduce, by more than 90%, exhaust gas emissions of three so-called 'regulated' pollutants, namely unburned hydrocarbons (HC), carbon monoxide (CO) and oxides of nitrogen (NO_x).
23. These pollutants are of environmental concern for the following reasons. HC and NO_x are implicated in ground level ozone formation due to their role in

photochemical reactions. CO in air forms carboxy-haemoglobin in the lungs, which impairs the body's ability to take up and use oxygen. Also, NO_x is a well-known lung irritant which has a negative effect on pulmonary function. Both chronic and acute health effects can result from excessive exposure to these pollutants

- 23.1 Catalysts have been used to control emissions since they were first introduced into the USA, with the 1975 Model Year, by the motor manufactures in order to meet the legislative requirements of the 1970 Clean Air Act.
- 23.2 A pre-requisite to effective and efficient catalyst performance is that the vehicle must run on unleaded petrol. This is necessary because catalyst performance is adversely affected by any lead salts present in the exhaust gas.
- 23.3 Most countries in the industrialised world have adopted emissions legislation, which has set standards for new car exhaust emissions that can only be met by the use of catalysts.
- 23.4 Today, all catalysts are of the 'three way' type, ie they simultaneously remove all three pollutants from the exhaust gas stream whilst the car is running under its wide variety of speeds and loads. To achieve this, the engine must be continuously supplied with exactly equivalent amounts of air and fuel. An oxygen sensor fitted into the exhaust system is used, together with electronic fuel injection in a 'closed loop', to maintain this air:fuel in an extremely narrow tolerance band. This so-called 'lambda' sensor, too, is affected by lead in the exhaust gas.
- 23.5 HC and CO are both oxidised by reacting with oxygen on the surface of the catalyst to form carbon dioxide and water, whereas simultaneously NO_x reacts with CO and HC to form nitrogen, carbon dioxide and water.
- 23.6 HC in exhaust gases contains a volatile organic compound (VOC) fraction. As well as other chemicals, these VOCs contain benzene and other aromatics, 1,3 butadiene and other olefins, aldehydes and PAHs. When fully operational, catalysts are particularly effective in destroying these VOCs. Therefore, the environmental consequences of using unleaded petrol with elevated levels of aromatics, olefins and oxygenates can be mitigated when this fuel is used in catalyst-equipped cars.

- 23.7 Sulphur in the fuel has a deleterious effect on catalyst performance – especially durability. It is for this reason, and partly because of concern about particulate emissions and acid rain implications, that governments in North America, Europe and elsewhere worldwide have promulgated legislation severely restricting petrol sulphur contents. As low as 10 ppm sulphur is the ultimate target in Europe with 150 ppm an intermediate level (8). During this transition, oil companies have made available a 50 ppm sulphur fuel.
- 23.8 As well as lead and sulphur harming catalyst performance, claims have been made by the major car companies that manganese, (a constituent of MMT), even at very low concentrations, has the same effect (9, 10). For this reason motorists are advised that warranty claims could become invalid if they fuel their ‘cat’ cars with unleaded petrol containing manganese. It has severely restricted the use of this organo-metallic in unleaded petrol. Evidence exists that iron additives do not have a similar negative effect on catalyst performance as manganese. Currently, some countries, such as The Philippines, have catalyst cars operating on unleaded petrol containing an iron-based additive (Plutocen®G).

Greenhouse Gas Emissions

24. Lead is the most energy-efficient way a refinery can produce high octane fuel. And high octane fuel, when used in engines with compression ratios to take advantage of it, gives the lowest fuel consumption in cars. It is axiomatic, therefore, that lead helps minimise vehicular emissions of carbon dioxide, the principal greenhouse gas implicated in global warming. Roughly speaking, one tonne of crude oil or petrol produces three tonnes of carbon dioxide. From the RSA oil industry’s extra energy consumption estimates for producing 100% unleaded, the carbon dioxide penalty can easily be projected. To this can be added the approximately 3% energy penalty in the car as result of reducing engine compression ratios to run on 95 RON unleaded (11).
25. Simply reducing rather than totally eliminating lead from petrol whilst maintaining octane quality will still result in an increase in carbon dioxide

emissions. However, the effect will be about half as great as the total elimination of lead.

Aromatics – Benzene & NO_x Emissions

26. Adverse environmental consequences can arise due to the change in petrol composition made necessary by lead's reduction and elimination. As already mentioned above, traditionally, lead's octane numbers are replaced by using increased amounts of aromatics, such as benzene, toluene and xylene. Olefins and oxygenates, such as methyl tertiary butyl ether (MTBE) and ethanol, are other popular octane blending components.
27. Higher exhaust emission levels of benzene result from increased usage of aromatics as a blending component. This is not just due to benzene itself – the other aromatics undergo de-alkylation reactions during the combustion process to form benzene (12, 13).
28. Benzene is a known carcinogen (14). And aromatics are acknowledged to be highly photochemically reactive, resulting in elevated emissions of ground level ozone. Legislation exists in many industrialised countries limiting levels of benzene and ozone in ambient air (15, 16).
29. Research in Mexico City identified increased levels of ambient air ozone due to higher levels of aromatics when the transition from 0.40 to 0.15 g lead per litre was made (17).
30. It is widely accepted that increasing the aromatic content of petrol produces more oxides of nitrogen (NO_x) at the tail-pipe (18). This is due to the resultant elevated combustion chamber temperatures caused by the higher calorific value of the aromatics. NO_x contributes to ozone formation and adversely affects pulmonary function.
31. The aforementioned Environ company used a mathematical computer model for both Manila and Santiago to estimate quantitatively the theoretical effect on vehicle fleet emissions resulting from a total switch to unleaded petrol (19,20). A pre-requisite for this analysis was reliable model input data, eg vehicle types, numbers and activity information, such as fuel consumption and tail-pipe emissions. Also, petrol composition and consumption data were required.

32. This modelling exercise demonstrated that, for both cities, the entire fleet switching to unleaded would result in a small decrease in lead emissions (Manila: 77 tonnes per year) but a significant rise in benzene (Manila: 1132 tonnes per year), toluene (Manila: 3089 tonnes per year), xylenes (Manila: 3934 tonnes per year) and NO_x (Manila: 1099 tonnes per year) levels.
33. Risks associated with increased use of aromatics have been officially acknowledged by the UN Commission on Sustainable Development (21). In 1995, when recommending that all countries consider the reduction and phase-out of lead in petrol, it called upon countries... 'to guard against the replacement of lead in petrol with the excessive use of aromatics which are also harmful to health'.
34. In the same year, the UK Government's Chancellor of the Exchequer took fiscal action to curb the use of super unleaded petrol in non-catalyst cars because of concern about benzene (22). To quote from his press release,... "super unleaded petrols contain higher levels than leaded petrol of aromatic compounds such as benzene, a carcinogen which can contribute to the formation of ground level ozone.'
35. In 1983, Europe's oil industry, in an official report to the Commission, warned that reducing and eliminating lead would result in an increase in the benzene and total aromatic content of petrol (23). Having already shown the inter-dependence between petrol composition, emission control and benzene emissions, CONCAWE, the oil industry's European group for environment, health and safety, advised that... 'it may be prudent to combine moves to unleaded petrol with appropriate emission controls, which is, anyway, a major driving force for the elimination of lead in some countries'.

Polycyclic Aromatic Hydrocarbon Emissions

36. On combustion, aromatics can be converted into polycyclic aromatic hydrocarbons (PAH) which have well-documented cancer-inducing properties. Benzo [a] pyrene is the most well-known of this group of compounds and is often used as a marker for the total mixture of PAHs in the environment. Proposals

exist in the UK and European Union for legislation to limit PAHs in ambient air (24, 25).

Olefins

37. As mentioned in paragraph 21.3, the use of additional amounts of olefins can be employed to attain octane quality, eg to replace some of the numbers lost by lead's elimination. This results in higher exhaust emissions of photochemically reactive unsaturated hydrocarbons, including 1,3 butadiene – which is also a suspected carcinogen (26). These olefinic emissions contribute to ambient air levels of ozone, the levels of which are restricted by legislation (16).
38. For the reasons listed in paragraphs 26 – 37, legislation exists in Europe, as well as the USA and many other countries worldwide, limiting the benzene, total aromatic content and olefin content of petrol (8). In the EU, from the year 2000, the benzene and total aromatic content were limited to 1% v/v and 42% v/v respectively. Olefin limits were set at 18%v/v. In 2005 total aromatics are restricted to 35% v/v.
39. Important questions have been raised about the RSA's stance on petrol formulation with lead's elimination. These include whether the authorities will introduce legislation, standards and specifications as Europe and the USA have done, placing strict limits on benzene, total aromatic, olefins oxygenate and sulphur contents. Sulphur levels are an important consideration since the EU plans to mandate the introduction of 10 ppm sulphur by 1st January 2009, at the latest (27). If such legally enforceable restrictions are imposed it is widely believed that the cost and other implications to RSA's refineries would be immense. Undoubtedly, this makes the case for the extension of the phase-out even more compelling.

Oxygenates

40. As already mentioned, oxygenates are other octane-enhancing blending components which can also reduce emissions of carbon monoxide. These, too, are not without environmental risk and concern. On combustion, photochemically

reactive aldehydes are produced when alcohols and ethers are present in the fuel (13). These aldehydes can cause ambient air levels of ozone to rise (28). As mentioned above, problems in California and elsewhere in the USA, concerning groundwater contamination by MTBE in petrol, has resulted in legislation prohibiting the use of MTBE as a fuel component by the end of 2003 (29, 30). Given RSA's ever increasing reliance on artesian water, groundwater contaminated with MTBE could have massive environmental consequences on water quality.

Alternative Organo-metallic Octane Enhancers

41. Several alternative organo-metallic additives exist to replace some of the octane quality lost due to lead's elimination. Two currently in commercial use are based on iron (Plutocen®G) and manganese (MMT, known as HiTEC 3000). Typical concentrations employed are in the range 5 to 20 ppm metal (0.005 to 0.020 g/l).
42. However, MMT is hardly used in the USA with the oil majors refusing to allow petrol containing manganese to flow through shared distribution pipelines. Widespread acceptance elsewhere has been severely restricted by concern over potential health risks associated with manganese emissions, particularly those voiced by the US EPA (31, 32). Furthermore, the world's major automotive manufacturers have consistently voiced concern over manganese's effects on catalytic converters and the highly sensitive lambda sensors used to control the engine's air:fuel ratio. As a consequence, motorists using MMT petrol can face invalid warranty claim issues.
43. From the foregoing, it is apparent that there are human health and environmental risks associated with changes to petrol formulations to replace the octane numbers lost by lead's elimination. Catalysts can destroy most of the harmful combustion products associated with these components. It makes sense, therefore, to restrict unleaded's use to catalyst-cars.

Lead Traps

44. Lead traps (ie exhaust gas lead filters) offer a cost-effective and environmentally-beneficial alternative to the rapid elimination of lead from petrol in South Africa. Such traps were initially developed for the European, Australian and Venezuelan markets in the 1970s and early 1980s (33, 34), ie before the advent of unleaded petrol and catalyst-equipped cars. Many countries conducted their own assessment of the technology (35). Cars fitted with these lead filters, which are situated in the exhaust system's silencer box, were shown to reduce lead emissions by up to 80% over 80,000km. In effect, when fitted to cars running on 0.40 g lead per litre, lead emissions were equivalent to those from a car running on a fuel containing less than 0.10 g per litre. This meant that lead's considerable economic benefits to a refinery could be preserved.
45. Lead traps are a well-proven technology providing an economic and environmental solution to reduce lead emissions from existing non-catalyst cars. Historically, governments have allowed non-cat cars to continue to use leaded fuel whilst encouraging as many as possible of them to switch to unleaded. This was the original preferred approach to the gradual reduction in vehicular lead emissions.
46. In the mid-1990s a number of developing countries showed renewed interest in the lead trap. A smaller but extremely effective filter was designed and developed that could be fitted in the tail-pipe section of the exhaust system (36). Being smaller than the original design meant that they would need to be replaced more often, typically every year at the service mileage. Several advantages could accrue. They could be made locally, fitted and replaced by garage mechanics and disposed of safely by newly-constructed plants.

ECONOMICS

Unleaded – High Capital Investment for Refineries & Energy Penalties

47. In almost every case when a country moves to unleaded petrol the oil industry has been asked by government to develop energy penalty and cost implications. There is an energy penalty because making more aromatics and olefins consumes more crude oil in the refinery. Without exception, refineries have been required to

find the capital investment costs to upgrade their octane-enhancing component units. Governments accepted the oil industry's energy penalties and costs to produce unleaded fuel knowing that the latter would have to be passed on to the motorist.

48. Additional reforming to produce more aromatics has been the traditional and most cost effective route to up-grade. Cracking to make more transport fuels from a barrel of crude also contributes high octane petrol blending components to the refinery pool. Expensive alternatives to refinery up-grading do exist in the form of importing high octane components. However, this has detrimental effects on a nation's balance of payments and the viability of its local industry.
49. Clearly, the cost of upgrading depends on a refinery's size but it can easily run into hundreds of millions of dollars. For example, the estimate for the UK refining industry made in 1983 amounted to \$600 million, with the actual figure likely to have been nearer \$1 billion. The actual capital investment involved is most greatly influenced by the lead level currently employed, and the octane specification of the leaded and unleaded petrols produced.
50. In 1983, Europe's oil industry, through CONCAWE its environmental arm, carried out an assessment of the energy balances and economic consequences of the reduction and elimination of lead in petrol (23).
 - 50.1 The optimum octane quality of unleaded petrol, ie taking into account energy consumption in both refineries and in the car, was set at 95 RON: 85 MON, at the pump.
 - 50.2 Extremely high capital investment was identified in order to up-grade refineries, eg installing catalytic reformers. For the (then) 10 European Union countries the total investment was put at \$2.1 to 3.2 billion (1983 value) for the 95 RON grade introduced.
 - 50.3 The overall energy penalty was estimated to be 45 tonnes crude oil per 1000 tonnes petrol consumed.
 - 50.4 Total recurring annual financial costs were calculated to be \$19,300 per 1000 tonnes petrol consumed. For the 10 countries, this put the total extra year-on-year costs at some \$1.9 billion. It should be stressed that these costs were developed without taking into account any restrictions on composition, particularly for benzene and aromatic content.

51. Ten years later, in 1993, experts identified that a refinery installing a 30,000 barrels per day catalytic reformer would incur start-up costs in excess of \$100 million (37). In 1994, Germany's Environmental Protection Agency (UBA) commissioned Arthur D Little to conduct a study to assess the costs for the EU's refineries of meeting the newly proposed changes in petrol formulations (38). Capital investments identified to meet the proposals whilst continuing to cater for lead's elimination were shown to be immense.

Cars & Engines

52. When unleaded was first introduced in the USA and Europe, the motor industry had costs associated with re-designing and manufacturing engines that have the correct octane requirement and compatible valve seat material. However, this is no longer a major expense since, all new cars in most countries are compatible with the grade of unleaded fuel marketed.

53. There was also an energy penalty in the car due to its re-design requirements for 95 RON unleaded. The engine's compression ratio had to be lowered from its 'leaded' value to make it compatible with the lower quality unleaded. Around 3% of fuel economy was lost as a result (11).

54. The RSA currently has 95 RON unleaded available at the coast and 91 RON inland. Doubtless, as has happened in many other countries, the petrol marketers will want to make a super unleaded grade widely available, ie at 97 RON. Totally eliminating lead from its current 0.40 g per litre in the 97 RON leaded grade means that seven octane numbers will need to be replaced to produce this super unleaded. This will entail a high cost and major changes to fuel formulations.

TECHNICAL AND SOCIETAL ISSUES

Valve Seat Recession

55. A high proportion of cars in South Africa have engines that were designed and manufactured to run on high-octane leaded fuel. This is a consequence of the fact that the average age of the RSA car-pool is approximately 13 years. In most cases

these engines need the higher octane of leaded fuel and have 'soft' valve seats that need lead's protection. Converting all of them to run without catastrophic engine failure on lower octane unleaded petrol is not a practical proposition, neither is it economically feasible.

56. A statement has been made that '60-70% vehicles in the RSA designed for leaded fuel can simply use unleaded without damage'? This assertion has to be brought into question, bearing in mind the octane requirement and valve seat protection issues.
 - 56.1 If the leaded 97 RON cars referred to have hardened exhaust valve seats then they can use the lower quality 95 RON unleaded without damage as long as ignition timings are retarded (or compression ratios lowered).
 - 56.2 If they were originally designed for 95 RON (or lower) and have hardened valve seats then they can run safely on unleaded.
 - 56.3 If cars have engines with 'soft' valve seats but are compatible with unleaded's 95 RON octane quality, then they can run safely using anti-valve seat recession additives.
 - 56.4 However, cars designed to run on leaded 97 RON and with 'soft' valve seats that need lead's protection cannot simply run on 95 RON without being at serious risk from catastrophic engine damage.
57. Additives do exist that have been formulated to prevent valve seat recession in older engines. A Shell report issued in 1993 concluded that two principle factors directly affecting the rate of valve seat wear are valve temperature and engine speed, which are both linked to vehicle speed and load. Shell's researchers identified phosphorus-based additives (marketed internationally as Valvemaster®) as the most effective of these alternatives to lead but also demonstrated that none are anywhere as near as efficient as lead in protecting valve seats (39).
58. They concluded that any legislation to speed up the phase-out of lead must acknowledge that even with the best lead replacement additives available, some engines will risk damage during high speed operation.
59. Other workers have studied the mechanisms and combustion chamber reactions leading to valve seat recession and reported similar conclusions to Shell's (40).
60. Lead replacement petrol (LRP) was introduced in to the UK in the last year or so of leaded petrol when penetration was around 5%. It would be totally impractical

and prohibitively expensive for the RSA to adopt such a measure when approximately 70% of all cars still use leaded fuel.

Societal Implications

61. Petrol pricing policies impact on the poorer members of society who run older cars. Fiscal strategies might involve applying a lower excise duty to unleaded fuel to off-set its higher manufacturing cost, thereby making it cheaper than leaded at the pump. However, this would unfairly penalise the socially disadvantaged motorist.
62. Price parity for both fuels at the pump might be a better option to prevent 'cat' car misfuelling, ie motorists filling with cheaper leaded fuel – as happened in the USA – which can greatly reduce the effectiveness of catalyts. But this would still need government manipulation of fuel taxes.
63. In South Africa the majority of drivers of the 'old' cars that need leaded petrol for safe operation are Historically Disadvantaged South Africans (HDSAs). Therefore, requiring HDSAs to convert their cars to run on unleaded or run them on more expensive leaded fuel is unfairly discriminatory. This would be particularly penal for motorists who need their car to help them earn a wage, for example commuting to work and using it to transport goods in a small private business.
64. Compulsory vehicle scrapping programmes have been mooted in some countries. But these can be seriously flawed since motorists, despite receiving a one-off payment to scrap their vehicle, still cannot afford to purchase a more expensive newer model, with the obvious negative impact on quality of life and earning potential. These issues currently form part of the debate around the taxi re-capitalisation programme in RSA.
65. The South African National Advisory Council for Innovation (NACI) recently (June 2003) estimated the RSA will face a skills shortfall of between 15,000 and 40,000 skilled artisans, project managers and engineers over the next five years.
66. The lead phase-out process is an opportunity to address a chronic shortage of skills by training HDSAs. It requires electricians, specialist welders, mechanics,

toolmakers, fitters and turners and millwrights among others. These are exactly the category of skills that South Africa needs to develop.

67. To meet a 2006 deadline, it is estimated the industry will have to spend at least 60% of the planned capital expenditure on imported contractors. This percentage may increase to 75%, as all the refineries will have to be retooling simultaneously if they are to meet the 2006 deadline.

THE WAY FORWARD – A SUSTAINABLE DEVELOPMENT APPROACH

68. Lead is being phased out in the RSA, however plans exist to accelerate this process by banning the use of lead in petrol from 1st January 2006. This objective is currently undergoing critical review.
69. In view of the health, environmental, economic, technical and societal issues summarised above, there are no compelling reasons for rigorously adhering to the timescales currently envisaged by government for the transition to totally unleaded fuel. Using unleaded fuel in non-catalyst equipped cars can create environmental problems.
70. Without any new legislation, the use of unleaded petrol in the RSA will continue to increase year on year as new cars fitted with catalysts come on to the market. As older vehicles wear out and become unusable they will disappear from the country's roads. A reduction in leaded fuel use and therefore lead emissions will result.
71. The RSA is well into the transition to totally unleaded use with the current penetration some 30% of total. Refinery upgrading programmes to enable the switch to 100% unleaded will necessarily involve importing highly sophisticated and expensive refinery equipment. The implications of the tight deadline, attendant cost and adverse impact on balance of payments are immense.
72. A sustainable development approach to the issue is required such that the socio-economic impacts of the complete transition to unleaded petrol use in the RSA is minimised. Measures that can help achieve this objective include the following:
- 72.1 Revoke the decision to move to totally unleaded fuel by the 1st January 2006.
- 72.2 Introduce a new date of 1st January 2010 for petrol lead phase-out. This would greatly assist refineries in their upgrading and investment programmes.

- 72.3 Retain the use of 0.40 g lead per litre in leaded fuel to enable refineries to continue to take full advantage of lead's cost-effectiveness as an octane enhancer. This will also help the less-well-off members of society who can only afford to run older 'leaded' cars.
- 72.4 Introduce an existing technology that can immediately reduce vehicle lead emissions by up to 80%.
- 72.5 Create jobs for HDSAs and others in the local filter unit manufacture, fitting, replacement and disposal/recycling of spent filters.
- 73. These measures may well obviate the need for any leaded petrol phase-out legislation, and at the same time contribute to alleviating the RSA skills shortage.

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In the National Assembly of the Republic of South Africa

In the matter of:

The Minerals and Energy Portfolio Committee's public hearings on:

The Petroleum Products Amendment Bill (B25 – 2003)
(the Bill)

to be held in

Cape Town on 14 and 18 August 2003

EX PARTE: REALSEARCH **LEGAL OPINION ON THE LEAD PHASE OUT**

Introduction

1. Consultant is Realsearch, a firm specialising in environmental development. Consultant seeks an opinion on certain legal issues concerning the lead phase out programme in South Africa. The opinion will be used by Consultant in support of submissions being made to government.
2. On 7 May 2002 the Deputy Minister for the Department of Minerals and Energy announced that Cabinet had approved the phase out of leaded petrol by 1 January 2006. It is in the light of this remark and pending public hearings into the Petroleum Products Amendment Bill and the Air Quality Bill that this opinion is sought.

Executive summary of the opinion

3. The date set for the finalisation of the lead phase is a policy decision. The date has not been determined by reference to scientific, economic or environmental factors.
4. The South African Courts will not interfere with the legislature's policy decisions unless the legislation that gives form to such decisions is in conflict with the Constitution of the Republic of South Africa Act 108 of 1996 or any other applicable legislation which sets parameters for a valid law.

5. The determination of the date of 01 January 2006 for the completion of the final lead phase out must be in line with the Constitution and applicable legislation. The Constitution treats the environment specifically in section 24 of the Bill of Rights. The linchpin of environmental legislation is the National Environmental Management Act 107 of 1998, in particular the Principles set out in Chapter 1. Other environmental legislation is subject to the NEMA principles.
6. The proposed National Environment Management: Air Quality Act is not constitutionally sound. Nor is it a necessary enactment for government to achieve the lead phase out. If the Air Quality Act is to be passed, it will have to be redrafted *de novo* to comply with the Constitution. If not, a constitutional challenge may render much of the Act invalid.
7. The Petroleum Products Act 120 of 1977, often touted as the proper law under which to achieve lead phase out, relates to saving petroleum not regulating its content. The proposed Petroleum Products Amendment Bill (B25 – 2003) seeks to remedy the current position by augmenting, should it be required at all, the Minister's powers to regulate the content of petroleum.
8. Unlike the Air Quality Bill, the proposed amendment grants the executive administrative power to determine the standards and specifications of petroleum. Yet, a basic structure already exists in the proposed Amendment Act which renders the main Act capable of complying with the Constitution. What is required are guidelines for the determination of how the regulation on efficient petroleum is to be carried out.
9. Thus a constitutional challenge on the Petroleum Products Act, after it is amended, will merely delay its implementation while guidelines on the standards and specifications are drafted into law.
10. On the assumption that government will seek nonetheless to pursue the completion of the lead phase out by 01 January 2006, by whatever legislative device it may deem appropriate, one of the fundamental issues to be determined is compliance with the constitutional law and how the law is informed by the NEMA principles.
11. The device which may also be considered is the setting of fuel standards in terms of the Standards Act, 1993, (Act No. 29 of 1993). Since the purpose of setting fuel standards remains environmental protection, the NEMA principles will apply as well as the principles of the Constitution.
12. As such, and without underestimating the importance of the main constitutional challenges on legislation, like separation of powers and the rule of law, there is one aspect of the rule of law which is particularly pertinent in this matter. It is the doctrine of legality, and specifically the rationality test. This is so because most of the data on which the phase out programme is based emanates from scientific, sociological and economic information as at our current state of knowledge. In this matter, the rationality test must inform the content of the debate on lead phase out.

13. This requires a genuine airing of the environmental, social and economic consequences and views on the above matter. For the purposes of this opinion I am making the following assumption. The phasing out of lead is a rational and desirable environmental goal. The essential question relates to the proper timing and implementation of a lead phase out programme. The programme must comply with constitutional imperatives. The programme must comply with the NEMA principles. The legislative device used to achieve lead phase out is within the discretion of the lawmaker.
14. When the principles of the Constitution and NEMA are applied to the completion of the phasing out of lead, the date of 01 January 2006 would appear to be arbitrary. As such it fails the most basic of constitutional principles and is invalid. The body of this opinion contains the analysis of these principles and explains why the date cannot be sound. When rationality is restored to the programme, a date later than 1 January 2006 becomes appropriate. I am informed by the Consultant that lead phase out took some 22 years in the United States of America and some 17 years in Australia. South Africa will be able to benefit from the First World experience.
15. However, it is submitted that we need also to take into account the experience of nations at a similar level of development as South Africa. Such an approach is a constitutional imperative. I am informed that the lead phase out programmes in India, Indonesia and Mexico led to increased pollution from, *inter alia*, benzene and other hydro-carbon additives. Resistance by petroleum users to adopt a general pollution reduction approach to tail pipe emissions also contributed to the problem. Thus in India, Indonesia and Mexico the lead phase out was achieved by increasing other pollutants in the atmosphere. This is not rational nor is it desirable.
16. Since we are already aware of the difficulties of lead phase out programmes in countries at a similar stage of development, it would be irrational, and thus unconstitutional to pass laws which ignore such learning and experience.
17. In conclusion, it is submitted that a rational date can be achieved when all the relevant factors are taken into account. Although this is a legal opinion, not a scientific opinion on lead phase out, it appears that a date of nigh 2010 would be more appropriate. Here are the reasons for this conclusion.

The Constitution of the Republic of South Africa Act, 1996 (Act No. 108 of 1996)

Background

18. On 27 April 1994 the Constitution of the Republic of South Africa Act 200 of 1993 took effect. This heralded an entirely new constitutional order. The supremacy of parliament was replaced by the supremacy of the Constitution.
19. This new concept has occasioned some considerable difficulty in the minds of many jurists, State functionaries, lawmakers and the public. Although the

Constitutional Court pronounced definitively the supremacy of the final Constitution, Act 108 of 1996, in the **certification judgment** of 1997 and again in the **Pharmaceutical** case in 2000, it is by no means certain that South Africans have genuinely understood the implications of the new constitutional order.

20. Indeed there is no evidence that State functionaries engaged in drafting new laws regard the Constitution as requiring their unswerving support. Such support is required by sections 2, 7 and 8 of the Constitution.
21. Recently, on 29 October 2002, the Interim Report of the Joint Subcommittee on Delegated Legislation on Scrutiny of Delegated Legislation (sic) was published. The opening paragraph sets the tone for this document. It reads:

No modern state can be effectively governed without the legislature granting to the executive the authority to make law, in a delegated capacity, to supplement Acts of Parliament. Strictly speaking this delegated / subordinate / secondary legislation is a contravention of the principle of the separation of powers, but one that is indispensable for the flexible and expeditious governmental response to unforeseen developments in the reality of daily life.
22. The point is that the lead phase out programme belongs properly to the legislature but it has been appropriated by the executive.
23. In order to propose a proper course of action, Consultant requires an opinion on two proposed laws, the Petroleum Products Amendment Bill (B25 – 2003) and the National Environment Management: Air Quality Bill. Since the proposed laws are Bills, neither can be challenged until they have been enacted by Parliament. Only the Constitutional Court has the jurisdiction to determine the constitutionality of a Bill. This can be done only if the President were to refer the Bills to the Constitutional Court under section 167 (4)(b) read with section 79 of the Constitution.
24. If sufficient lobbying on the impact data which support a more gradual lead phase out programme is done, and, the irrationality of the date of 01 January 2006 becomes publicly accepted as a result of the lobbying, then one may request the President to exercise his powers under section 167 of the Constitution. The argument for him to do so would rest, at least in part, on the legal critique of the two Bills. In this opinion I shall refer to certain sections of the Bills as unconstitutional. This is shorthand terminology which assumes the Bills will be enacted in their present form. For paragraphs 23 and 24 see the opinion of Gilbert Marcus SC and Professor Alfred Cockrell on the FAIS Bill produced for the Law Review Project.

Constitutional and environmental principles

25. Section 2 of the Constitution reads: This Constitution is the supreme law of the Republic; law or conduct inconsistent with it is invalid, and the obligations imposed by it must be fulfilled. *In casu* the critical section is section 24 of the

Bill of Rights. The highlighted portions of the text are for emphasis. The section reads:

24 **Environment**

Everyone has the right-

- (a) to an environment that is not harmful to their health or well-being; and
- (b) to have the environment protected, for the benefit of present and future generations, through **reasonable legislative and other measures** that-
 - (i) prevent pollution and ecological degradation;
 - (ii) promote conservation; and
 - (iii) **secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.**

26. In 1998 Parliament enacted the National Environmental Management Act. The Act contains a second level of principles required to be taken into account when legislation is prepared concerning the environment. The first level of principles remains the Constitution. For the sake of completeness and to demonstrate the highlighted text for emphasis, the whole of Chapter 1 of Act 107 of 1998 is set out in Annexe A.

The National Environment Management: Air Quality Bill

27. The National Environment Management: Air Quality Bill, was published in Notice 556, Government Gazette 24777 on 22 April 2003. The Bill stipulates in section 5 that it must be read with the provisions of the National Environmental Management Act and be interpreted and applied in accordance with the NEMA principles.
28. The Bill thereafter presents a challenge to our current understanding of the doctrine of the separation of powers. There are five aspects to the separation of powers which require scrutiny, the last two of which impact on the rule of law.
29. **First**, the Minister of Environmental Affairs and Tourism must set up a national framework setting national norms and standards for achieving the object of the Act. Thus Parliament is no longer in direct control of its own law. The control goes to the Minister who may set up a National Air Quality Management / Advisory Committee.
30. In this regard the Bill delegates to the Minister the power to make laws determining the content of national norms and standards. It is now trite law that Parliament must provide guidelines to officials on how to exercise an *administrative* discretion. See **Dawood and Another v Minister of Home Affairs and Others; Shalabi and Another v Minister of Home Affairs and Others; Thomas and Another v Minister of Home Affairs and Others** 2000 (3) SA 936 (CC).
31. It is also settled law that, within limits, Parliament may delegate legislative powers to the Executive. See **Executive Council, Western Cape v Minister**

of Provincial Affairs and Constitutional Development and Another; Executive Council, KwaZulu-Natal v President of the Republic of South Africa and Others 2000 (1) SA 661 (CC) at para [123] and **South African Association of Personal Injury Lawyers v Heath and Others** 2001 (1) SA 883 (CC).

32. That such delegation also requires guidelines to be stipulated in the statute seems to flow from paragraph [25] of **Heath's** case and from Goldstone J's remarks in **Janse van Rensburg NO v Minister of Trade and Industry** 2001 (1) SA 29 (CC) at paragraph [25] in footnote 29, to wit:

The powers conferred upon the Minister by s 12(1) of the Act may also be of concern because they too confer a wide discretion without any guidance as to their exercise by the Minister.

33. The Bill does not contain guidelines on the exercise of the power to make the law. As such the Bill lacks constitutional probity.
34. **Second**; the national framework binds all organs of state in all spheres of government. Thus the Minister of Environmental Affairs and Tourism establishes a framework which binds other institutions like the South African Bureau of Standards, which has to answer to the Minister of Trade and Industry.
35. **Third**, the Bill provides that provinces and municipalities must maintain the national standards, but may establish stricter standards. Thus an internal conflict of laws is envisaged within South Africa concerning air quality standards. This is not unique to South Africa. Consider Zermatt in Switzerland.
36. **Fourth**, the Minister of Environmental Affairs and Tourism and the MECs may make regulations to enforce priority area air quality management plans without recourse to their respective legislatures.
37. **Fifth**, the Minister of Environmental Affairs and Tourism and the MECs may publish by notice in the *Gazette* a list of activities which results in atmospheric emissions which has or is (sic) likely to have a significant detrimental effect on the environment. Before publishing the list the consultative process of sections 49 and 50 must be used. Neither section envisages participation by a legislature.
38. Ultimately, the Bill envisages that the core content of the law regulating air quality will be made outside of Parliament. It will be made by the Minister and the MECs and various committees set up to assist and advise in establishing the standards of air quality. By virtue of sections 49 and 50, public participation is ensured.
39. What is not ensured is that the process of setting the standards will take into account the NEMA principles. It is neither necessary to state in the Bill that there must be compliance with NEMA (because it applies anyway), nor is it

sufficient if compliance cannot be measured. Committees are no substitute for legislatures when making law, particularly law which affects all of South Africa and the globe so immediately.

40. However, in the matter of **De Lange v Smuts NO and Others** 1998 (3) SA 785 (CC), Ackermann J stated at paragraph [60]:

I have no doubt that over time our Courts will develop a distinctively South African model of separation of powers, one that fits the particular system of government provided for in the Constitution and that reflects a delicate balancing, informed both by South Africa's history and its new dispensation, between the need, on the one hand, to control government by separating powers and enforcing checks and balances and, on the other, **to avoid diffusing power so completely that the government is unable to take timely measures in the public interest.** [emphasis added].

41. While the uniquely South African model envisaged in sections 49 and 50 of the Bill has merit, it is the latter caution of Ackermann J which needs emphasising. How long will it take for the Air Quality Act to determine the standards for point source emissions? Having determined such standards, how much time will the public and the State be allowed to get into compliance? It is these practical questions which persuade me that the Bill is not necessary to achieve the completion of the phasing out of lead.
42. Finally, section 2 sets out the object of the law thus: The object of this Act is to protect, restore and enhance the quality of air in the Republic, taking into account the need for **sustainable development.** [emphasis added].
43. The concept of sustainable development resonates both with the Bill of Rights in the Constitution and with the NEMA principles. Hence the need to analyse those principles. This is done below at paragraphs 52 and following.

The Petroleum Products Amendment Bill (B25 – 2003)

44. The Petroleum Products Amendment Bill (B25 – 2003), published on 15 April 2003, is the main vehicle touted for the completion of the lead phase out programme. This poses a problem. The Petroleum Products Act 120 of 1977, which it will amend, related to petrol saving. It was not designed to regulate petroleum content and composition. The Bill seeks to remedy this by according the Minister of Minerals and Energy the power to regulate the content, quality and specifications of petroleum.
45. Consultant does not require a critique of the Bill as a whole. The new licencing provisions and amendments which do not affect fuel content are beyond the scope of this opinion.
46. Pertinently, the amendments to achieve control of the content of petroleum are subtle. Section 2 now includes the efficient and safe use of petroleum products. This section must be read with the new section 12C on Regulations. In particular, the Minister may make regulations regarding the specifications

and standards of petroleum products as well as the prohibition of the blending or mixing of different petroleum products. This deals with petroleum additives. See sub-sections 12C (e) and (f).

47. The crux of the Bill regarding petroleum content resides in the twin concepts of efficient and safe use and the specifications and standards of petroleum products. On their own these amendments look benign. Yet the purpose of the amendments is to gain control over the type and content of petroleum used in order to achieve, *inter alia*, a reduction in pollutants associated with their use. See the Memorandum to the Bill and the White Paper on Energy Policy for the Republic of South Africa (1997). Hence lead phase out is at issue.
48. The making of regulations involves an administrative act. ‘The common law dictates that such acts must be reasonable, otherwise they are null and void being *ultra vires* the empowering provisions of the particular Act of Parliament (**R v Carelse** 1943 CPD 242; M Wiechers Administrative Law 1985 at 252 - 3),

per Erasmus J in **South African Shore Angling Association and Another v Minister of Environmental Affairs** 2002 (5) SA 511 (SE) at page 519I-J.

Erasmus J added ‘It is not necessary here to set out the arguments advanced by counsel regarding the common law as to reasonableness. The rights of the public in such regard are now enshrined in the Bill of Rights (chap 2 of the Constitution). Section 33...’.

49. Section 33 on just administrative action provides that:
- (1) Everyone has the right to administrative action that is lawful, reasonable and procedurally fair.
 - (2) Everyone whose rights have been adversely affected by administrative action has the right to be given written reasons.
 - (3) National legislation must be enacted to give effect to these rights, and must-
 - (a) provide for the review of administrative action by a court or, where appropriate, an independent and impartial tribunal;
 - (b) impose a duty on the state to give effect to the rights in subsections (1) and (2); and
 - (c) promote an efficient administration.
50. The national legislation enacted in terms of this section is the Promotion of Administrative Justice Act 3 of 2000. In terms of section 4 relating to administrative action affecting the public, a public inquiry may be held. One of the purposes of the Act, stated in the Preamble, is to create a culture of accountability, openness and transparency in the public administration or in the exercise of a public power or the performance of a public function, by giving effect to the right to just administrative action.
51. Notwithstanding the fact that the Bill is not yet law and the regulations are still to be promulgated, the approach required by Act 3 of 2000 also resonates with

the NEMA principles. Certainly a change in the content of petroleum would affect the public. The possibility that many people will have to convert their vehicles to accommodate new standards and specifications is both real and desired. This is but half of the enquiry. The other is how to achieve the desired objective.

The National Environmental Management Act 107 of 1998

52. In terms of section 2 (1) of the Act, '(t)he principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment...'. Environment is defined very broadly in the Act (and includes the effect of petroleum products) as meaning:

the surroundings within which humans exist and that are made up of-

- (i) the land, water and atmosphere of the earth;
- (ii) micro-organisms, plant and animal life;
- (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and
- (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being;.

53. Likewise an organ of state is defined broadly as it is in the Constitution, to wit:

- (a) any department of state or administration in the national, provincial or local sphere of government; or
- (b) **any other functionary** or institution-
 - (i) exercising a power or performing a function in terms of the Constitution or a provincial constitution; or
 - (ii) **exercising a public power or performing a public function in terms of any legislation,**

but does not include a court or a judicial officer;. [emphasis added].

54. A Minister making regulations is performing a public function and thus falls within the definition of an organ of state. See **National Gambling Board v Premier KwaZulu-Natal** 2002 (2) SA 715 (CC) at paragraph [19] per Du Plessis AJ: (t)he parties are agreed that the national board, the Minister, the Premier and the KZN board are organs of State, and rightly so. Accordingly, when the Minister comes to formulating regulations under the about-to-be-amended Petroleum Products Act, she will be bound to apply the NEMA principles.

55. The same law would apply to any change of standards or specifications made by the South African Bureau of Standards in terms of the Standards Act 29 of 1993, notwithstanding that the latter Act predates the new constitutional order. See **United Democratic Movement v President of the Republic of South Africa** (No 2) 2003 (1) SA 495 (CC) at paragraph [97]. The question of standards and specifications is addressed below with the NEMA principles. Suffice it to say that the SABS is also bound to comply with the NEMA principles.

General comment

56. In my opinion, the NEMA principles most applicable to this matter relate to the impact the lead phase out will have on the poor in South Africa. In these circumstances I would add some cautionary remarks. In the context on environmental debates there seems to be an unhelpful amount of cynicism when a large corporation argues for an approach to law which would benefit both the corporation and the public at large, especially the poor. In such event the public tends to recoil in incredulity with sneers of hypocrisy. Yet neither cynicism nor incredulity should dissuade Consultant's client from engaging all parties on the NEMA principles.

The NEMA principles

57. Section 24 of the Constitution proclaims that 'everyone has the right ... to reasonable legislative ... measures that ... secure ecologically sustainable development...'. Indeed, in the words of Ackermann J '(t)he preamble to the Constitution indicates that one of the purposes of its adoption was to establish a society based, not only on democratic values and fundamental human rights, but also on **social justice**. Moreover the Bill of Rights places positive obligations on the State in regard to various social and economic rights.' [emphasis added]. Included in this category are the environmental rights of section 24.

See **First National Bank of SA Ltd t/a Wesbank v Commissioner for the SARS; First National Bank of SA Ltd t/a Wesbank v Minister of Finance** 2002 (4) SA 768 (CC) at paragraph [50].

58. Section 2 in Chapter 1 of the National Environmental Management Act contains four sub-sections. The first sub-section deals with the application of the principles and their use as guidelines. The second deals with the primacy of people and their concerns in environmental management. The third reiterates the need for development to be socially, environmentally and economically sustainable. The final sub-section sets out a list of 18 specific principles to be taken into account, in which the first principle on sustainable development is divided into 8 relevant factors.
59. Central to an application of the NEMA principles is the need to make an assessment based on the balancing of interests. This is analogous to the proportionality tests employed when considering limitations of rights.
60. For NEMA to work there are four imperative duties on the State.
- 60.1 First, the State must comply with section 41 of the Constitution and section 7 or 11 of the Act on **cooperative government** especially concerning the organs of state involved.

- 60.2 Second, the State must publish the proposed **standards and specifications** for petroleum so that public consultations may take place on an informed basis.
- 60.3 Third, the State must **engage in consultations** with all interested parties on completion of the lead phase out, paying particular attention to peoples' needs.
- 60.4 Finally, attendant upon the consultations, the State must perform the **environmental impact assessment** (similar to a regulatory impact assessment) required in terms of section 24 of the Act.

Cooperative government

61. Not only is cooperative government specifically required under sections 40 and 41 of the Constitution, it is specifically provided for in sections 7, 8, 9 and Chapter 3, sections 11 to 16 of NEMA. The Act provides for fair decision-making and conflict management between organs of state in Chapter 4.
62. In the completion of the lead phase out programme there are automatically six ministries involved; Environmental Affairs and Tourism, Trade and Industry; Minerals and Energy; Transport; Arts, Culture, Science and Technology; and Health. There are also important organs of state that need to be involved, like the South African Bureau of Standards, the Council for Scientific and Industrial Research, the National Advisory Council on Innovation, the Director of Trade Metrology, and the Foundation for Research Development.
63. If the lead phase out programme is to go ahead by 01 January 2006, the Reserve Bank may need to be consulted. This would relate to the cost of employing foreign specialists to convert South African refineries and the attendant foreign exchange requirements on capital investment.
64. In short, some form of coordinated approach should be adopted by the State, with one department charged with the task of secretariat. That could quite conceivably be the National Environmental Advisory Forum (section 3 of the Act), or preferably, the Committee for Environmental Coordination (section 7 of the Act). That this be done is a precondition to the consultation process referred to below. Section 2 begins with the words - *“(t)he principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment ...”*.

Standards and specifications

65. In terms of section 2 of the Standards Act 29 of 1993, the South African Bureau of Standards continued to exist. It had been established under Act 30 of 1982. The SABS is tasked with setting norms, standards and specifications. It falls under the Ministry of Trade and Industry. Its relevance in this matter relates to its expertise. Setting standards and specifications for petroleum is a complex and technical task. It is doubtful whether such expertise resides in departments not geared to science, technology, energy or related activities.

66. It is submitted that publication of the old fuel specifications and the proposed new specifications is a vital State duty in order to commence consultations. In order to have consultations of substance rather than mere form, the public must have an idea of the change in specifications. The old fuel specifications become a benchmark against which to judge the new. This would accord with section 2 (4)(f) of the NEMA principles. It reads:
- (f) The participation of all interested and affected parties in environmental governance must be promoted, and **all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation**, and participation by vulnerable and disadvantaged persons must be ensured. [emphasis added].

Consultations

67. A vital feature of constitutionally valid law revolves round public participation. This is required in the Constitution at sections 59 and 72. In Act 107 of 1998 public participation is stipulated in section 2 (4)(f), and in section 23 (2)(d). One of the objects of integrated environmental management is to ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment.
68. The NEMA principles, set out in Annexe A for reference, have their greatest impact in the consultation process. In this matter the impact on people in terms of increased capital costs for new vehicles will operate more harshly on the poor than the wealthy. The gap between the wealthy and the poor is most exaggerated when applying for credit. Here people disadvantaged by unfair discrimination have the most anguish. If the State embarks on the completion of the lead phase out by 01 January 2006, most vehicle owners will not be in possession of compliant vehicles regarding potential vehicle emission limits.
69. In consultation with the Consultant I was referred to the experience of other countries in their lead phase out programmes. It appears that three unhelpful events occurred. First, people used unleaded petrol in vehicles not designed to accommodate the fuel. The engines suffered costly damage. Second, to compensate for the new fuel, people mixed their own additives. The adulterated fuel produced more pollutants than the lead. I am informed that benzene was one of the most damaging. Third, many people simply could not afford new vehicles. They became more dependent on public transport. Consequently their freedom of movement was curtailed.
70. A scientific and socio-economic study on these experiences needs to be argued with conviction both at the public hearings and in the media. It is a constitutional point that one looks to countries comparable to South Africa's state of development and not just to first world economies.
71. Section 2 (2) requires that environmental management must place people and their needs at the forefront of its concern. This can be done through public participation in setting the standards and specifications of petroleum if the

changes are quantified as set out by the State or some agency on the basis of a cost benefit analysis.

Environmental impact assessment

72. In **Silvermine Valley Coalition v Sybrand van der Spuy Boerderye and Others** 2002 (1) SA 478 (C) Davis J said at page 489 B-C:

The investigative process envisaged by s 24 of NEMA was intended to aid the authorising official to decide whether a permit should be granted. If a person undertakes an activity for which a permit is required without obtaining permission, he acts unlawfully and all the consequences to which reference has already been made might well then flow. For such conduct there may be civil remedies and criminal prosecution might well be initiated, but an EIA would only be required for the process of authorisation. The investigation cannot be wrenched from the rest of the legislative process. If a person elects to ignore the process, the remedy to curb the unlawful conduct lies in a battery of other remedies, but not in the relief as set out in applicant's notice of motion.

73. Included in the battery of remedies are civil law interdicts, both prohibitory and mandatory. Is the State bound by section 24 of the Act?

74. It is submitted that there are compelling reasons why the State is bound to perform an environmental impact assessment.

74.1 First, in terms of section 48 the Act binds the State except in so far as any criminal liability is concerned.

74.2 Second, the **Silvermine** case was heard before the regulations to Act 107 of 1998 had been published and after the development had been completed. As such the decision turned on the Environmental Conservation Act 73 of 1989 and the question of a remedy for a past wrong. Act 107 of 1998 was not considered in the context of section 48 and, as in this case, where a prohibitory interdict or mandamus could be employed.

74.3 Third, section 2 (1)(c) requires any organ of state to accept the principles as guidelines when taking any decision in terms of this Act or **any statutory provision concerning the protection of the environment**. [emphasis added].

74.4 Fourth, section 24 must be read with section 23, and in particular section 23 (2), which states that the objective of integrated environmental management is, *inter alia*, to promote the principles in section 2.

74.5 Fifth, section 1 (3) stipulates that 'a reasonable interpretation of a provision which is consistent with the purpose of this Act must be preferred...'.

74.6 Finally, in the light of the remarks on cooperative government above, one organ of state may well be in a position analogous to that of granting an authorisation or permission. In this sense, organs of state are each actors in their own right.

Final remark

75. While the law may have some application in persuading the State to consult, the real issue of the timing of the lead phase out programme is closer to technical, social, environmental and economic issues. If South Africa does not take into account the experiences of other developing countries and their lead phase out programmes, that would be irrational. At present the date of January 2006 seems too optimistic. It may well prove to be the government's opening gambit. If it is not, perhaps the remarks of Chaskalson P (as he was then) in **Pharmaceutical Manufacturers Association of South Africa: In re Ex parte President of the Republic of South Africa 2000 (2) SA 674 (CC)** at paragraph [85] may inspire some sense:

It is a requirement of the rule of law that the exercise of public power by the Executive and other functionaries should not be arbitrary. Decisions must be rationally related to the purpose for which the power was given, otherwise they are in effect arbitrary and inconsistent with this requirement. It follows that in order to pass constitutional scrutiny the exercise of public power by the Executive and other functionaries must, at least, comply with this requirement. If it does not, it falls short of the standards demanded by our Constitution for such action.

Nicholas John Tee

Chambers

16 July 2003

In the National Assembly of the Republic of South Africa

In the matter of:

The Minerals and Energy Portfolio Committee's public hearings on:

The Petroleum Products Amendment Bill (B25 – 2003)
(the Bill)

to be held in

Cape Town on 14 and 18 August 2003

LEGAL OPINION ON PROCEDURES REQUIRED FOR THE FORMULATION OF STANDARDS AND SPECIFICATIONS FOR PETROLEUM PRODUCTS

1. Introduction

- 1.1 The Petroleum Products Amendment Bill (B25 – 2003) (the Bill), *inter alia*, seeks to amend the Petroleum Products Act, No 120 of 1977 (the Act) by inserting the following subsections:

12C. The Minister may, without derogating from his or her general regulatory powers, make regulations—

regarding the specifications and standards of petroleum products;

regarding the prohibition of the blending or mixing of different petroleum products or the blending or mixing of petroleum products with other substances which will lead to deviation from prescribed petroleum product standards or for the purpose of avoiding the payment of any tax, duty or levy;

- 1.2 The purpose and intention of the legislature underlying the proposed amendment is to enable the Minister of Minerals and Energy to:

- 1.2.1 Give effect to the government's announcement that as from 1 January 2006 petrol containing lead additives for use in road going motor vehicles will by law be prohibited.
- 1.2.2 Enable the Minister to enforce by regulation the quality, content, specifications and standards of petroleum products. "Petroleum Products" are defined to mean: "any petroleum fuel and any lubricant, whether used or unused, and includes any other substance which may be used for a purpose for which petroleum fuel or any lubricant may be used."
- 1.2.3 Control and regulate the formulation and specification of lead replacement petrol.
- 1.2.4 By regulation take steps to prevent the problems associated with fuel adulteration experienced in other countries as a consequence of controlling additives used in petroleum products.
- 1.3 Neither the Act nor the Bill make any provision as to how the Minister should formulate the regulations nor what criteria should be adopted in arriving at the specifications and standards.
- 1.4 The only indication of what is intended appears in draft regulations published for comment Government Notice 1902 of 2001. In this notice the suggested regulation reads as follows:

Specifications and standards

33 For the purposes of these regulations, the fuel standards of the South African Bureau of Standards shall apply and be deemed to be incorporated therein.

- 1.5 In short, it will be the function of the South African Bureau of Standards, which body will from time to time fix the specifications, and standards of petrol that in turn will be the basis of the regulations promulgated by the Minister.
- 1.6 In the legal opinion supporting the submission filed the conclusions arrived at are that:
 - 1.6.1 What the Bill deals with is quintessentially an environmental matter.
 - 1.6.2 Environmental rights are entrenched at section 24 of the Bill of Rights in the Constitution of the Republic of South Africa, Act 108 of 1996 (the Constitution). The National Environmental Management Act South, Act 107 of 1998 (NEMA) was passed to give effect to section 24.
 - 1.6.3 What the Bill introduces and the procedures to be followed in its execution, administration and enforcement must comply with both section 24 of the Constitution and Chapter 1 of NEMA.

1.7 For ease of reference a copy of Chapter 1 of NEMA is appended marked **Annexe A**. It is plain that the Bill, as read with draft regulation 33 does not comply with the principles set out in Chapter 2.

1.8 In addition it is essential to take into account that when the SABS formulates a specification or standard it is performing an “administrative act” as defined in section 1(i) of the Promotion of Administrative Justice Act, Act 3 of 2000 (PAJA). Why this is so is as follows:

1.8.1 The SABS is an “organ of state” as defined in section 239 of the Constitution. The definition reads as follows:

'organ of state' means-

(b) any other functionary or institution-

(ii) exercising a public power or performing a public function in terms of any legislation,

1.8.2 A ‘decision’ is defined as follows in section 1(v) of PAJA:
‘decision’ means any decision of an administrative nature made, proposed to be made, or required to be made, as the case may be, under an empowering provision...

1.8.3 As a decision on petrol specification is an administrative action that – ‘materially and adversely affects the rights of the public’ the procedural requirements of section 4 of PAJA apply. A copy of section 4 is appended marked **Annexe B**.

1.9 The issues to be dealt with are accordingly:

1.9.1 The procedures to be adopted in setting the regulatory standards and specifications for petroleum products as defined in order for what the Bill proposes to be compliant with the laws and principles to which it is subordinate.

1.9.2 The practical consequences and implementation of the procedures.

1.10 For the reasons advanced in the legal opinion the danger of not following procedures compliant with firstly the Constitution, secondly NEMA and thereafter with PAJA is that the petroleum products ‘specifications and standards’ would be open to query and challenge.

2. **What do the Constitution and NEMA require?**

2.1 In order to realise the rights guaranteed in section 24 of the Constitution, NEMA at Chapter 1, section 2(1) provides – ‘The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment...’

- 2.2 **Annexe A** to the legal opinion is the full text of Chapter 1 of NEMA. Its requirements are more fully discussed in the legal opinion.
- 2.3 At paragraphs 72 – 74 of the opinion its author under the heading ‘*Environmental Impact Assessment*’ commends that, in order to fulfil the requirements of NEMA such an assessment be undertaken.
- 2.4 In Chapter 5 “Integrated Environmental Management” at sections 23 and 24, NEMA sets out the tools and procedures expected for appropriate environmental management in order to ensure the integrated environmental management of activities. NEMA Chapter 5 is **Annexe C** hereto.
- 2.5 Inherent in an environmental impact assessment (executed in accordance with Chapters 1 and 5 of NEMA) are processes that:
- 2.5.1 Inform the public of the full nature and exigency of what is being planned, including:
 - 2.5.1.1 The reasons therefor,
 - 2.5.1.2 The environmental impacts and consequences of the proposed actions,
 - 2.5.1.3 The socio-economic consequences thereof,
 - 2.5.1.4 Alternatives to what is proposed, and
 - 2.5.1.5 Methods whereby the impacts (environmental and socio-economic) of what is proposed may be mitigated and/or avoided.
 - 2.5.2 Require full and proper public participation.
 - 2.5.3 Provides for the proper and professional formulation of all relevant issues requiring investigation and ensures that they are addressed by suitably qualified experts.
 - 2.5.4 Ensures that proper scoping is carried out in order to identify the issues.
 - 2.5.5 Ensures that proper environmental impact reports are written and made available.
 - 2.5.6 Ensure that all stakeholders and interested and/or affected parties’ points of view are placed before the decision makers.
- 2.6 In this instance the plan of study for scoping would include:

2.6.1 What is required in terms of NEMA's Principles as set out in Chapter 1 section 2 (**Annexe A**).

2.6.2 The procedures and focuses of investigation that NEMA expects as is set out in Chapter 5 sections 23 and 24 (**Annexe C**).

2.7 An environmental impact assessment would accordingly satisfy NEMA's requirements.

3 **What does PAJA expect?**

3.1 **Annexe B** sets out what is to be done when a decision of consequence to the public is to be made.

3.2 The first issue arising in the process would be to decide whether the process requires a public enquiry as provided for in subsection 4(1)(2) or a notice and comment procedure in terms of subsection 4(1)(3) or both.

3.3 Taking into account the expectations of NEMA, both are required.

3.4 PAJA at subsections 4(1)(d) and (e) provides that:

(d) where the administrator is empowered by any empowering provision to follow a procedure which is fair but different, to follow that procedure; or

(e) to follow another appropriate procedure which gives effect to section 3.

3.5 A properly administered and managed environmental impact assessment would constitute a procedure that is fair but different, that also gives effect to section 3.

3.6 Section 3 of PAJA provides that: 'Administrative action which materially and adversely affects the rights or legitimate expectations of any person must be procedurally fair', and proceeds to set out what is to be done in order that an administrative action is fair. **Annexe D** is a copy of this section.

3.7 As the determination of petrol specifications and standards by the SABS is an administrative action, the environmental impact assessment necessary for the determination should, as a matter of law comply with section 3 of PAJA (**Annexe D**).

4 **The Standards Act, No 29 of 1993**

4.1 The fixing of standards is a complex and technical task requiring expert scientific skills.

- 4.2 The Standards Act, 29 of 1993 (the Standards Act) creates the South African Bureau of Standards (the SABS). One of the objects of the SABS include is: “to assist a person or State department in the preparation and framing of any document which embodies characteristics similar to those of a standard;(Section 3(n) of the Standards Act).”
- 4.3 It is accordingly fitting that the SABS is, in terms of the draft regulation the organ of state given the task of: ‘exercising a public power or performing a public function’ and formulating petrol’s standards and specifications (Draft Regulation 33): ‘For the purposes of these regulations, the fuel standards of the of the South African Bureau of Standards shall apply and be deemed to be incorporated herein’.
- 4.4 Section 3(o) of the Standards Act authorises the SABS to ‘to perform, in so far as it is not repugnant to or inconsistent with the provisions of any Act of Parliament, such functions as the Minister may assign to the SABS’.
- 4.5 The Minister responsible for to the administration of the Standards Act perform is the Minister of Trade and Industry. For the SABS to formulate the fuel standards and specifications it is competent for him to assign to the SABS the task of carrying out an Environmental Impact Assessment in a manner consistent with the Constitution, NEMA and PAJA.
- 4.6 Such an act would not be repugnant to or inconsistent with the Standards or any other Act of Parliament.

5 **Compulsory Standards**

- 5.1 The Standards Act makes provision for ‘Compulsory Standards’ that must be applied to all commodities affected by a compulsory standard.
- 5.2 In terms of section 22(1) of the Standards Act reads as follows:
- a. The Minister (of Trade and Industry) may, subject to the provisions of subsections (3) (a) and (5) and after the expiry of the period referred to in

subsection (3) (b), on the recommendation of the council and to promote and maintain standardization and quality if safety, health, consumer protection or the environment is concerned, by notice in the Gazette--

- i. declare a specification which has been set and issued as a standard or a provision of such specification, to be a compulsory specification;
- ii. amend a compulsory specification; or
- iii. withdraw a compulsory specification.

5.3 In terms of section 23(1) of the Standards Act, 'No person shall sell a commodity to which a compulsory specification applies, unless such a commodity complies with or has been manufactured in accordance with the compulsory specification concerned;'

5.4 In other words, were the SABS at the request of its Minister to formulate fuel specifications in accordance with what is suggested above and follow the procedure of causing its specifications to be declared compulsory, the fuel reformulation objectives of the Bill could be achieved.

5.5 Section 22(2) of the Standards Act enables standards to be brought into effect on dates determined by the Minister and different standards may be brought into effect on different dates. The flexibility needed in the circumstances is accordingly provided for.

Annexe A

CHAPTER 1

NATIONAL ENVIRONMENTAL MANAGEMENT PRINCIPLES (s 2)

2 Principles

- (1) The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and-
- (d) shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the *social and economic rights* in Chapter 2 of the Constitution and *in particular the basic needs of categories of persons disadvantaged by unfair discrimination*;
 - (e) serve as the *general framework within which environmental management and implementation plans must be formulated*;
 - (f) serve as *guidelines* by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;
 - (g) serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and
 - (h) *guide the interpretation, administration and implementation of this Act, and any other law concerned with the protection or management of the environment.*
- (2) *Environmental management must place people and their needs at the forefront of its concern*, and serve their physical, psychological, developmental, cultural and social interests equitably.
- (3) *Development must be socially, environmentally and economically sustainable.*
- (4) (a) Sustainable development requires the consideration of all relevant factors including the following:

- (i) that the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
 - (ii) that *pollution and degradation of the environment are avoided, or*, where they cannot be altogether avoided, are *minimised and remedied*;
 - (iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
 - (iv) *that waste is avoided*, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;
 - (v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;
 - (vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;
 - (vii) that a *risk-averse and cautious approach is applied*, which *takes into account the limits of current knowledge about the consequences of decisions and actions*; and
 - (viii) that *negative impacts on the environment* and on people's environmental rights *be anticipated and prevented*, and where they cannot be altogether prevented, are *minimised and remedied*.
- (b) ***Environmental management must be integrated***, acknowledging that all elements of the environment are linked and interrelated, and it must *take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option*.
- (c) ***Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons***.
- (d) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.
- (e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
- (f) ***The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable***

and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.

- (g) Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes ***recognising all forms of knowledge***, including traditional and ordinary knowledge.
- (h) Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.
- (i) The ***social, economic and environmental impacts of activities***, including disadvantages and benefits, ***must be considered***, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
- (j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
- (k) ***Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.***
- (l) ***There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions*** relating to the environment.
- (m) ***Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.***
- (n) Global and international responsibilities relating to the environment must be discharged in the national interest.
- (o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.
- (p) The ***costs of remedying*** pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects ***must be paid for by those responsible for harming the environment.***
- (q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.
- (r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

Annexe B

Section 4 of the Promotion of Administrative Justice Act, Act 3 of 2000

4 Administrative Action Affecting Public

4. (1) In cases where an administrative action materially and adversely affects the rights of the public, an administrator, in order to give effect to the right to procedurally fair administrative action, must decide whether—
 - (a) to hold a public inquiry in terms of subsection (2);
 - (b) to follow a notice and comment procedure in terms of subsection (3);
 - (c) to follow the procedures in both subsections (2) and (3);
 - (d) where the administrator is empowered by any empowering provision to follow a procedure which is fair but different, to follow that procedure; or
 - (e) to follow another appropriate procedure which gives effect to section 3.
- (2) If an administrator decides to hold a public inquiry—
 - (a) the administrator must conduct the public inquiry or appoint a suitably qualified person or panel of persons to do so; and
 - (b) the administrator or the person or panel referred to in paragraph (a) must—
 - (i) determine the procedure for the public inquiry, which must—
 - (aa) include a public hearing; and
 - (bb) comply with the procedures to be followed in connection with public inquiries, as prescribed;
 - (ii) conduct the inquiry in accordance with that procedure;
 - (iii) compile a written report on the inquiry and give reasons for any administrative action taken or recommended; and
 - (iv) as soon as possible thereafter—
 - (aa) publish in English and in at least one of the other official languages in the Gazette or relevant provincial Gazette a notice containing a concise summary of any report and the particulars of the places and times at which the report may be inspected and copied; and
 - (bb) convey by such other means of communication which the administrator considers effective, the information referred to in item (aa) to the public concerned.
- (3) If an administrator decides to follow a notice and comment procedure, the administrator must—
 - (a) take appropriate steps to communicate the administrative action to those likely to be materially and adversely affected by it and call for comments from them;

- (b) consider any comments received;
 - (c) decide whether or not to take the administrative action, with or without changes; and
 - (d) comply with the procedures to be followed in connection with notice and comment procedures, as prescribed.
- (4)
- (a) If it is reasonable and justifiable in the circumstances, an administrator may depart from the requirements referred to in subsections (1)(a) to (e), (2) and (3).
 - (b) In determining whether a departure as contemplated in paragraph (a) is reasonable and justifiable, an administrator must take into account all relevant factors, including—
 - (i) the objects of the empowering provision;
 - (ii) the nature and purpose of, and the need to take, the administrative action;
 - (iii) the likely effect of the administrative action;
 - (iv) the urgency of taking the administrative action or the urgency of the matter; and
 - (v) the need to promote an efficient administration and good governance.

Annexe C

National Environmental Management Act, 107 of 1998

CHAPTER 5

INTEGRATED ENVIRONMENTAL MANAGEMENT (ss 23-24)

23 General objectives

- (1) The purpose of this Chapter is to promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities.
- (2) The general objective of integrated environmental management is to-
 - (a) promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment;
 - (b) identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2;
 - (c) ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;
 - (d) ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;
 - (e) ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and
 - (f) identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2.
- (3) The Director-General must coordinate the activities of organs of state referred to in section 24 (1) and assist them in giving effect to the objectives of this section and such assistance may include training, the publication of manuals and guidelines and the co-ordination of procedures.

24 Implementation

(1) In order to give effect to the general objectives of integrated environmental management laid down in this Chapter, the potential impact on-

- (a) the environment;
- (b) socio-economic conditions; and
- (c) the cultural heritage,

of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorising, permitting, or otherwise allowing the implementation of an activity.

(2) The Minister may with the concurrence of the MEC, and every MEC may with the concurrence of the Minister, in the prescribed manner-

- (a) identify activities which may not be commenced without prior authorisation from the Minister or MEC;
- (b) identify geographical areas in which specified activities may not be commenced without prior authorisation from the Minister or MEC and specify such activities;
- (c) make regulations in accordance with subsections (3) and (4) in respect of such authorisations;
- (d) identify existing authorised and permitted activities which must be considered, assessed, evaluated and reported on; and
- (e) prepare compilations of information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account by every organ of state charged by law with authorising, permitting or otherwise allowing the implementation of a new activity, or with considering, assessing and evaluating an existing activity:

Provided that where authorisation for an activity falls under the jurisdiction of another Minister, a decision in respect of paragraph (a) or (b) must be taken in consultation with such other Minister.

(3) (a) The investigation, assessment and communication of the potential impact of activities contemplated in subsection (1) must take place in accordance with procedures complying with subsection (7).

- (b) Every Minister and MEC responsible for an organ of state that is charged by law with authorising, permitting, or otherwise allowing an activity contemplated in subsection (1) may prescribe regulations laying down the procedures to be followed and the report to be prepared for the purpose of compliance with paragraph (a).
 - (c) Any regulations made in terms of this subsection or any other law that contemplates the assessment of the potential environmental impact of activities must, notwithstanding any other law, comply with subsection (7).
 - (d) This section does not affect the validity of any law contemplated in paragraph (c) that is in force at the commencement of this Act, including the provisions and regulations referred to in section 50 (2): Provided that paragraph (a) must nevertheless be complied with.
- (4) Before any regulations are prescribed under this section or any other law that contemplates the assessment of the potential environmental impact of activities, and notwithstanding such other law-
- (a) a Minister or MEC must submit a draft of such regulations to the Committee;
 - (b) the Committee must within 30 days of the receipt of such draft regulations-
 - (i) determine whether the draft regulations would bring about a duplication of effort by persons initiating activities contemplated in subsection (1) in the investigation and assessment of the potential impacts of activities that require authorisation or permission from more than one organ of state; and
 - (ii) approve the draft regulations unless they would bring about such a duplication of effort; or
 - (iii) specify amendments to be made to such draft regulations in order to avoid such a duplication of effort;
 - (c) a Minister or MEC must-
 - (i) where such draft regulations have been approved by the Committee, follow the procedure prescribed in section 47; or
 - (ii) give effect to the amendments specified by the Committee, and thereafter follow the procedure prescribed in section 47.
- (5) Compliance with the procedure laid down by a Minister or MEC does not remove the need to obtain authorisation for that activity from any other organ

of state charged by law with authorising, permitting or otherwise allowing the implementation of the activity.

- (6) The Minister may make regulations in accordance with subsections (3) and (4) stipulating the procedure to be followed and the report to be prepared in investigating, assessing and communicating potential impacts for the purpose of complying with subsection (1) where-
 - (a) the activity will affect the interest of more than one province or traverse international boundaries;
 - (b) the activity will affect compliance with obligations resting on the Republic under customary or conventional international law; or
 - (c) an activity contemplated in subsection (1) is not dealt with in regulations made under subsection (3).

- (7) Procedures for the investigation, assessment and communication of the potential impact of activities must, as a minimum, ensure the following:
 - (a) Investigation of the environment likely to be significantly affected by the proposed activity and alternatives thereto;
 - (b) investigation of the potential impact, including cumulative effects, of the activity and its alternatives on the environment, socio-economic conditions and cultural heritage, and assessment of the significance of that potential impact;
 - (c) investigation of mitigation measures to keep adverse impacts to a minimum, as well as the option of not implementing the activity;
 - (d) public information and participation, independent review and conflict resolution in all phases of the investigation and assessment of impacts;
 - (e) reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information;
 - (f) investigation and formulation of arrangements for the monitoring and management of impacts, and the assessment of the effectiveness of such arrangements after their implementation;
 - (g) co-ordination and co-operation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state;
 - (h) that the findings and recommendations flowing from such investigation, and the general objectives of integrated environmental management laid down in this Act and the principles of environmental management set out in section 2 are taken into account in any decision

made by an organ of state in relation to the proposed policy, programme, plan or project; and

- (i) that environmental attributes identified in the compilation of information and maps as contemplated in subsection (2) (e) are considered.

Annexe D

Section 3 of the Promotion of Administrative Justice Act. No 3 of 2000

Procedurally fair administrative action affecting any person

3. (1) Administrative action which materially and adversely affects the rights or legitimate expectations of any person must be procedurally fair.
- (2) (a) A fair administrative procedure depends on the circumstances of each case.
- (b) In order to give effect to the right to procedurally fair administrative action, an administrator, subject to subsection (4), must give a person referred to in subsection (1)—
- (a) adequate notice of the nature and purpose of the proposed administrative action;
- (b) a reasonable opportunity to make representations;
- (c) a clear statement of the administrative action;
- (d) adequate notice of any right of review or internal appeal, where applicable; and
- (e) adequate notice of the right to request reasons in terms of section 5.
- (3) In order to give effect to the right to procedurally fair administrative action, an administrator may, in his or her or its discretion, also give a person referred to in subsection (1) an opportunity to—
- (a) obtain assistance and, in serious or complex cases, legal representation;
- (b) present and dispute information and arguments; and
- (c) appear in person.
- (4) (a) If it is reasonable and justifiable in the circumstances, an administrator may depart from any of the requirements referred to in subsection (2).
- (b) In determining whether a departure as contemplated in paragraph (a) is reasonable and justifiable, an administrator must take into account all relevant factors, including—
- (i) the objects of the empowering provision;

- (ii) the nature and purpose of, and the need to take, the administrative action;
 - (iii) the likely effect of the administrative action;
 - (iv) the urgency of taking the administrative action or the urgency of the matter;
and
 - (v) the need to promote an efficient administration and good governance.
- (5) Where an administrator is empowered by any empowering provision to follow a procedure which is fair but different from the provisions of subsection (2), the administrator may act in accordance with that different procedure.

Annexe E

The Standards Act, No 29 of 1993, Section 22 ‘Compulsory specifications’

(1)

- b. The Minister may, subject to the provisions of subsections (3) (a) and (5) and after the expiry of the period referred to in subsection (3) (b), on the recommendation of the council and to promote and maintain standardization and quality if safety, health, consumer protection or the environment is concerned, by notice in the Gazette--
 - i. declare a specification which has been set and issued as a standard or a provision of such specification, to be a compulsory specification;
 - ii. amend a compulsory specification; or
 - iii. withdraw a compulsory specification.
- c. The notice referred to in subsections (1) (a) (i) and (ii) shall contain full particulars of such specification, provision or amendment.

(2)

- a. A declaration referred to in subsection (1) (a) (i) or an amendment referred to in subsection (1) (a) (ii) shall come into operation on a date fixed in the notice, which date shall be not less than two months after the date of the publication of such notice.
- b. Different dates may be fixed in terms of paragraph (a) on which different provisions of a compulsory specification shall come into operation.
- c. The Minister may alter a date referred to in paragraph (a) or (b) by notice in the Gazette.

(3) If the Minister intends to publish a notice under subsection (1) (a) (i) or (ii), he shall publish in the Gazette a preliminary notice--

- a. in which full particulars are set out of the specification or the provision of the specification he intends to declare to be a compulsory specification, or of the amendment of a compulsory specification; and
- b. in which all interested persons are invited to lodge objections to the proposed notice he intends to publish, or any part thereof, in writing at a stated address and before a stated date, which shall be not less than two months after the date of the publication of such preliminary notice.

(4) The Minister shall consult with the Minister to whom the administration of any other law has been assigned if that law, or the regulations promulgated thereunder, lays down or may lay down requirements in respect of a commodity or the manufacture thereof which is the subject of a preliminary notice referred to in subsection (3) (a).

(5) The Minister shall not publish a notice referred to in subsection (1) (a) (i) or (ii) if in his opinion such a notice differs materially from the preliminary notice concerned.

(6) The Minister may by notice in the Gazette--

- a. determine that a commodity that complies with a compulsory specification shall be marked in the prescribed manner with an appropriate distinctive mark;
- b. determine the requirements regarding the marking of a commodity in accordance with its origin, batch, date of manufacture, characteristics or other particulars of a commodity falling within the scope of a compulsory specification and which a manufacturer or importer shall indicate on that commodity;
- c. amend a requirement referred to in paragraph (b); and
- d. withdraw a notice referred to in paragraph (a), (b) or (c).

(7)

- a. At the commencement of this Act a compulsory specification referred to in section 16 (1) (a) of the Standards Act, 1982 (Act No. 30 of 1982), which is in force in terms of the provisions of that Act, shall be deemed to be a compulsory specification for the purposes of this Act.
- b. At the commencement of this Act a requirement referred to in section 16 (1) (c) of the Standards Act, 1982, which is in force in terms of the provisions of that Act, shall be deemed to be a requirement determined under subsection (6) (b).

(8) The Minister may, in order to give effect to the provisions of subsections (1) (a) and (6), publish only one notice in the Gazette.

23. Effect of declaration as compulsory specification and application of distinctive mark.--

- (1) (a) No person shall sell a commodity to which a compulsory specification applies, unless--
 - i. such a commodity complies with or has been manufactured in accordance with the compulsory specification concerned; and
 - ii. if applicable, the distinctive mark referred to in section 22 (6) (a) has been applied to the commodity concerned in the prescribed manner as set out in the notice concerned, and such commodity has been marked in accordance with the requirements referred to in section 22 (6) (b).
- (b) The provisions of section 20 (2) shall mutatis mutandis apply to the application of a distinctive mark to a commodity.
- (c) The SABS may issue a sales permit exempting the person to whom it has been issued from the provisions of paragraph (a).

(2) The prescribed records shall be kept by the seller, manufacturer or importer in respect of sales, or quantities manufactured or imported, of a commodity to which a compulsory specification applies.

(3) The prescribed fees shall be payable to the SABS by a manufacturer or importer of a commodity to which a compulsory specification applies.

(4) A commodity to which a compulsory specification applies and which is manufactured outside the Republic shall be deemed to comply with the provisions of subsection (1) (a) if that commodity has been certified by a person or organization recognized by the Minister by notice in the Gazette: Provided that if the Minister so directs, such a commodity shall be tested or examined and if it is found that that commodity does not comply with the provisions of subsection (1) (a) (i), it may be dealt with in terms of section 24 (3).

24. Non-compliance with compulsory specification.--(1) If the president upon reasonable grounds suspects that a commodity, excluding a commodity referred to in section 23 (4), or a consignment or batch thereof does not comply with or has not been manufactured in accordance with the compulsory specification that applies to it, he may direct a person in whose possession or under whose control that commodity, consignment or batch is, to keep it in his possession or under his control, at or upon premises mentioned in the directive, until the said directive is withdrawn by the president in writing.

(2)

- a. If a certificate referred to in section 4 (2) has not been issued in respect of a consignment of a commodity to which a compulsory specification applies and which has been imported into the Republic, the Commissioner of Customs and Excise may, subject to the provisions of paragraph (b), cause that consignment to be secured at the request of the president until the president withdraws his request.
- b. For the purposes of paragraph (a) the provision of the Customs and Excise Act, 1964 (Act No. 91 of 1964), with regard to the securing of goods, shall *mutatis mutandis* apply.

(3) If it is found by the SABS, or as a result of a test or examination referred to in section 23 (4), as the case may be, that a commodity referred to in subsection (1) or (2) does not comply with the compulsory specification concerned, the Minister may direct in writing that--

- a. an importer of the consignment concerned of the said commodity return it to the country of origin;
- b. the consignment or batch concerned of the said commodity be confiscated and destroyed; or
- c. the consignment or batch concerned of the said commodity be dealt with in such other manner as may be stated in the directive.