Sasolburg Operations

Motivation for the Postponement of Compliance Timeframes in terms of Regulation 11 of Section 21 NEM:AQA Minimum Emissions Standards

Motivation Report Prepared by

March 2017

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Sasol South Africa (Pty) Limited, operating through its Sasolburg Operations ("SO")

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March 2017

Executive Summary

This is a motivation in support of an application for a further postponement of the compliance timeframes applicable to existing and new plants contained in the Minimum Emissions Standards (MES) published in terms of the National Environmental Management: Air Quality Act in Government Notice No. 893 in Government Gazette 37054 of 22 November 2013 (GN 893), for three incinerators at Sasol's Thermal Oxidation plant at its Sasolburg Operations (SO) in the Free State Province. Between 2013 and 2014 SO undertook a process to apply for postponements from the 2015 compliance timeframes of the MES (hereafter referred to as the "2014 Postponement Application"). SO was granted extended compliance timeframes by the National Air Quality Officer (NAQO), with the concurrence of its licensing officer. The postponement decisions, including the compliance extensions, for these sources were subsequently reflected in SO's varied Atmospheric Emissions Licence (AEL). In certain instances, compliance extensions were granted for three years only from 1 April 2015, with a resultant 31 March 2018 compliance timeframe ("2018 compliance timeframe"), in place of the five years initially requested.

Table 8.1 outlines the sources pertaining to SO's present 2017 postponement application which is necessary since after the 2014 Postponement Application, compliance extension was only granted until 31 March 2018 rather than the five years which was requested in that application. As set out in this application (hereafter referred to as the "2017 Postponement Application"), SO will be challenged to meet the MES for some sources, as reflected within its varied AEL, by 31 March 2018. SO is therefore applying for a further five-year postponement to allow the necessary time to conclude on the feasibility studies and select the optimal compliance solution, and thereafter, pending the outcome of that decision, to allow for the approval and commencement of the safe execution of the associated projects, which, if proved feasible, will bring about compliance with the prescribed existing plant standards for the three incinerators at SO's Thermal Oxidation plant in terms of sub-category 8.1 of the MES. This timeline will extend beyond the five year extension requested in this postponement application.

Table 8.1 summarises the postponements requested, including the proposed alternative emissions limits and alternative special arrangement to be complied with during the extended compliance period. The requested postponement period of five years requested, extends beyond 1 April 2020, the date when the new plant standards take effect. Therefore, application is simultaneously being made for a postponement of both the existing and new plant standards to align with the five year postponement period being requested. This motivation therefore also supports the application for postponement from the new plant standards.

This application is made in terms of Regulation (11) of GN 893 which entitles a person, to apply in writing, to the National Air Quality Officer (NAQO) for a postponement from the compliance timeframes set out in Regulations (9) and (10). As required by Regulation (12) the application includes –

1. This motivation report outlining detailed reasons and a justification for the postponement application.
2. An independently compiled Atmospheric Impact Report (AIR) prepared by Airshed Planning Professionals (Annexure A) in accordance with the Atmospheric Impact Report Regulations of October 2013 (Government Notice No. 747 in Government Gazette 36904 of 11 October 2013), along with a further independent peer review report (Annexure B) on the modelling methodology employed in the AIR. The modelling that informed that AIR was conducted in accordance with the Regulations Regarding Air Dispersion Modelling (Government Notice No. 533 in Government Gazette 37804 of 11 July 2014).
3. A Public Participation Report (Annexure C) prepared by SRK Consulting (South Africa) (Pty) Ltd. (SRK) outlining the public participation process conducted to date in accordance with the National Environmental Management Act (Act No. 107 of 1998) (NEMA) Environmental Impact Assessment

Regulations. A Comments and Response Report (CRR) detailing all comments received on the application and responses thereto has been collated and is included at Annexure D.

With the benefit of the postponement granted, SO will be able to advance its roadmaps towards implementation, as contained in Section 9 of this document to consequently also comply with the new plant standards at its Thermal Oxidation facility.

This postponement request pertains only to postponements which were granted consequent upon the 2014 Postponement Application for a period of three years only and which will therefore lapse on 1 April 2018. Thus postponements which are valid until 31 March 2020 are not discussed in this submission.

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Glossary

Definitions in terms of NEM:AQA and MES (GN 893) that have relevance to this application:

Existing Plant – Any plant or process that was legally authorised to operate before 1 April 2010 or any plant where an application for authorisation in terms of the National Environmental Management Act (Act No.107 of 1998) was made before 1 April 2010.

Fugitive emissions - emissions to the air from a facility, other than those emitted from a point source.

Licencing Authority – refers to an authority responsible for implementing the licensing system.

Listed activity – In terms of Section 21 of the NEM:AQA, the Minister of Environmental Affairs has listed activities that require an AEL. Listed Activities must comply with prescribed emission standards. The standards are predominantly based on 'point sources', which are single identifiable sources of emissions, with fixed location, including industrial emission stacks, called a "point of compliance".

Minister – The Minister of Environmental Affairs.

New Plant – Any plant or process where the application for authorisation in terms of the National Environmental Management Act (Act No.107 of 1998) was made on or after 1 April 2010.

Point of compliance – means any point within the off gas line, where a sample can be taken, from the last vessel closest to the point source of an individual listed activity to the open-end of the point source or in the case of a combination of listed activities sharing a common point source, any point from the last vessel closest to the point source up to the point within the point source prior to the combination/interference from another Listed Activity.

Point source – A single identifiable source and fixed location of atmospheric emission, and includes smoke stacks.

Priority area - means an area declared as such in terms of Section 18.

Priority area air quality management plan - means a plan referred to in Section 19.

Total volatile organic compounds (VOCs or TVOCs) – means organic compounds listed under US-EPA Compendium Method TO-14.

Additional definitions provided for the purpose of clarity:

Alternative emissions limits – the standard proposed by Sasol based on what is considered reasonable and achievable as a consequence of the various technical and environmental assessments conducted and which Sasol proposes as an alternative standard with which it must comply. The alternative emissions limits are specified as ceiling emissions limits, as defined in this Glossary. In all instances, these alternative emission limits seek either to maintain emission levels under normal operating conditions as per current plant operations, or to reduce current emission levels, but to some standard which is not identical to the promulgated MES (as defined). Specifically, these alternative emissions limits do not propose an increase in current average baseline emissions.

Alternative special arrangements – An arrangement different to that contained in Part 3 of GN 893 and proposed by SO based on what is considered reasonable and achievable as a consequence of the independent assessments conducted and which Sasol proposes as an alternative special arrangement to be incorporated as a licence condition with which it must comply during the period of postponement. The alternative special arrangement relevant to this application is that proposed for the B6990 Heavy Ends B incinerator pertaining to the exit gas temperature.

Ambient standard - The maximum tolerable concentration of any outdoor air pollutant as set out in the National Ambient Air Quality Standards in terms of Section 9(1) of the NEM:AQA.

Atmospheric Emission License - SO Atmospheric Emission Licence: Licence no. FDDM-MET – 2013-23 issued to Sasol in respect of its Sasolburg Operations, formerly lnfrachem.

Atmospheric Impact Report - in terms of the Minimum Emission Standards an application for postponement must be accompanied by an Atmospheric Impact Report as per Section 30 of NEM:AQA. Regulations prescribing the format of the Atmospheric Impact Report (AIR) were published in Government Notice 747 of 2013.

Ceiling emissions limit – Synonymous with “maximum emission concentrations”. The administrative basis of the MES is to require compliance with the prescribed emission limits specified for existing plant standards and new plant standards under all operational conditions, except shut down, start up and upset conditions. Whereas average emission values reflect the arithmetic mean value of emissions measurements for a given process under all operational conditions, the ceiling emission would be the 100th percentile value of emissions measurements obtained. Hence, ceiling emissions values would be higher than average emission values, with the extent of difference between ceiling and average values being dependent on the range of emission levels seen under different operational conditions. Since the MES specify emission limits as ceiling emissions limits, Sasolburg Operations has aligned its proposed alternative emissions limits with this format, to indicate what the 100th percentile emissions measurement value would be under any operational condition (excluding shut down, start up and upset conditions). It is reiterated that Sasolburg Operations does not seek to increase emission levels relative to its current emissions baseline through this postponement application and proposed alternative emissions limits (specified as ceiling emission limits), but rather proposes these limits to conform to the administrative basis of the MES.

Criteria pollutants – Section 9 of NEM:AQA provides a mandate to the Minister to identify a national list of pollutants in the ambient environment which present a threat to human health, well-being or the environment, which are referred to in the National Framework for Air Quality Management as “criteria pollutants”. In terms of Section 9, the Minister must establish national standards for ambient air quality in respect of these criteria pollutants. Presently, eight criteria pollutants have been identified, including sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), lead (Pb), particulate matter (PM_{10}), particulate matter ($PM_{2.5}$), benzene (C_6H_6). In this document, any pollutant not specified in the National Ambient Air Quality Standards (“NAAQS”) is called a “non-criteria pollutant”.

Existing plant standards - The emission standards which existing plants are required to meet. Emission parameters are set for various substances which may be emitted, including but not limited to, for example, PM_{10}, nitrogen oxides (NO_x) and SO_2.

GN 551 – Government Notice 551, Gazette No. 38863 dated 15 June 2016, published in terms of Section 21 of the NEM:AQA and entitled '*Amendments to the list of Activities which result in Atmospheric Emission which have or may have a Significant Detrimental Effect on the Environment, including Health, Social Conditions, Economic Conditions, Ecological Conditions or Cultural Heritage'*.

GN 893 – Government Notice 893, Gazette No. 37054 dated 22 November 2013, published in terms of Section 21 of the NEM:AQA and entitled '*List of Activities which Result in Atmospheric Emissions which have or may have a Significant Detrimental Effect on the Environment, Including Health and Social Conditions, Economic Conditions, Ecological Conditions or Cultural Heritage'*. GN 893 repeals the prior List of Activities published in terms of Section 21, namely GN 248, Gazette No. 33064 dated 31 March 2010. GN 893 deal with aspects including: the identification of activities which result in atmospheric emissions; establishing minimum emissions standards for listed activities; prescribing compliance timeframes by which minimum emissions standards must be achieved; and detailing the requirements for applications for postponement of stipulated compliance timeframes.

Maximum Emission Concentrations – Synonymous with "ceiling emissions limits". Refer to glossary definition specific to this application for ceiling emissions limits.

Minimum Emissions Standards – Prescribed maximum emission limits and the manner in which they must be measured, for specified pollutants. These standards are published in Part 3 of GN 893, as amended by GN551. These standards are referred to herein as "MES".

New plant standards - The emission standards which existing plants are required to meet, by April 2020, and which new plants have to meet with immediate effect. MES are set for various substances which may be emitted, including, for example, PM_{10}, NO_x and SO_2.

Postponement – a postponement of compliance timeframes for existing plant standards and new plant standards and their associated special arrangements, in terms of regulations 11 and 12 of GN 893.

Sasol – refers generally to Sasol South Africa (Pty) Limited and its various operations and operating entities.

Shutdown schedule - A programme for the scheduled period for which a plant, or a portion thereof or piece of equipment, such as a tank, is out of commission for maintenance for an extended period of time.

SO – the applicant in this postponement application, Sasol South Africa (Pty) Limited operating through its Sasolburg Operations.

Special arrangements – Any specific compliance requirements associated with a listed activity's prescribed emissions limits in Part 3 of GN 893, as amended by GN 551. These include, amongst others, reference conditions applicable to the prescribed emission limits of the listed activity, abatement technology prescriptions and transitional arrangements.

2014 Postponement Application - Postponement application submitted ahead of the 1 April 2015 compliance timeframe for existing plant standards, for various sources at the SO facility and incorporated into the AEL.

2017 Postponement Application – This postponement application to be submitted by SO to extend the initial three year compliance extension granted ahead of the 1 April 2015 compliance timeframe, for three incinerators at the SO Thermal Oxidation plant.

List of Abbreviations

AEL – Atmospheric Emissions Licence

AFR - Alternative Fuel Resources

AIR - Atmospheric Impact Report

ALNB – Advanced Low NOx Burner

BAT - Best Available Techniques

BOFA – Boosted Overfire Air

CO_2 – Carbon dioxide

CRR – Comments and Response Report

ESP – Electrostatic Precipitator

HSP – High Sulphur Pitch

HEA – Heavy Ends A

HEB – Heavy Ends B

I&APs - Interested and Affected Parties

LNB – Low NOx Burner

NAAQS - National Ambient Air Quality Standards

NAQF – National Framework for Air Quality Management

NAQO - National Air Quality Officer

NEMA - National Environmental Management Act (Act 107 of 1998)

NEM:AQA - National Environmental Management: Air Quality Act (Act 39 of 2004)

NH_3 - Ammonia

NO_x – Oxides of nitrogen

NO_2 – Nitrogen dioxide

MES - Minimum Emission Standards

OFA – Over Fire Air

$PM_{2.5}$ – Particulate Matter with radius of less than 2.5 µm

PM_{10} – Particulate Matter with radius of less than 10 µm

SCR - Selective Catalytic Reduction

SMS – short message system

SNCR – Selective Non-Catalytic Reduction

SO – Sasolburg Operations

SO_2 - Sulphur dioxide

t/h – tons per hour

VOCs or TVOCs – (Total) Volatile Organic Compounds

VTAPA – Vaal Triangle Air-shed Priority Area

1 Introduction

Sasol South Africa (Pty) Ltd (Sasol) is an international integrated chemicals and energy company that leverages technologies and the expertise of 30 100 people working in 33 countries. Sasol develops and commercialises technologies, and builds and operates world-scale facilities to produce a range of high-value product streams, including liquid fuels, chemicals and low-carbon electricity. Sasol is a significant business partner in the South African economy and has manufacturing operations located predominantly in Secunda, Mpumalanga and Sasolburg, Free State.

This postponement application pertains to the Sasolburg Operations (SO) in the Free State Province. Activities at the Sasolburg complex are conducted by:

- Sasol Mining (Proprietary) Limited, which mines the utilities coal used at SO;
- Sasol South Africa (Pty) Limited, operating through its Sasolburg Operations, including the entity formerly known as Sasol Infrachem ("Sasol Infrachem") which entity supplies utilities and reformed gas for production of chemicals to Sasol-related entities and third parties

Between 2013 and 2014 Sasolburg Operations (through the entity formerly known as Sasol Infrachem) undertook a process to apply for postponements from the 2015 compliance timeframes of the Minimum Emissions Standards (MES) which were published in Government Notice No. 893 in Government Gazette 37054 of 22 November 2013 ("GN 893"), in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004) (NEM:AQA) hereafter referred to as the "2014 Postponement Application".

Following the 2014 Postponement Application, SO was granted postponement by the National Air Quality Officer (NAQO) with the concurrence of the licensing officer for a number of the activities conducted on the SO site.

In some instances, and for some sources, extended compliance timeframes were granted however for other sources less than the five years was granted as initially requested. These include the Heavy Ends B (B6990), High sulphur pitch (B6930) and Spent caustic (B6993) Incinerators at its Thermal Oxidation plant where postponements were only granted for three years, namely until 1 April 2018.

As indicated in the 2014 Postponement Application SO would be challenged to comply within a five-year timeframe for the abovementioned incinerators and therefore requested an initial five-year postponement. The present postponement application therefore constitutes a further postponement application for these sources, to extend the initial three year compliance extension granted to 2023 to allow the necessary time to conclude on the feasibility studies and select the optimal compliance solution, and thereafter, pending the outcome of that decision, to allow for the approval and commencement of the safe and complete execution of the associated projects, which, if proved feasible, will bring about simultaneous compliance with the existing and new plant standards. It is likely that a further postponement application will be required to be made to extend the postponement period beyond 2023 to complete execution of the projects, if proved feasible. Thus, in the present application, SO therefore makes application for further postponements from the 2015 existing plant standards for the three aforementioned incinerators at its Thermal Oxidation plant (the "2017 Postponement Application"). In addition, since the five year postponement periods being extended will extend beyond 1 April 2020, postponements on the associated 2020 new plant standards, which will come into effect on that date, are also applied for. Alternative emissions limits and alternative special arrangements will be requested to be applicable during the postponement period.

The application includes:

- This motivation report outlining detailed reasons and a justification for the postponement application.
- An independently compiled Atmospheric Impact Report (AIR), Annexure A, prepared by Airshed Planning Professionals in accordance with the Atmospheric Impact Report Regulations of October 2013 (Government Notice No. 747 in Government Gazette 36904 of 11 October 2013), along with a further independent peer review report, Annexure B, on the modelling methodology employed in the AIR. The modelling that informed that AIR was conducted in accordance with the Regulations Regarding Air Dispersion Modelling (Government Notice No. 533 in Government Gazette 37804 of 11 July 2014).
- A Public Participation Report, Annexure C, prepared by SRK Consulting (South Africa) (Pty) Ltd (SRK) outlining the public participation process that was conducted in accordance with the National Environmental Management Act (Act No. 107 of 1998) (NEMA) Environmental Impact Assessment Regulations.
- A Comments and Response Report (CRR), Annexure D detailing all comments received to date on the application and responses thereto.

This motivation report therefore provides:

- Background to the application and the MES (Section 2).
- Detailed information on the activities of the affected SO activities at the Sasolburg complex, the MES in general (Section 3), together with the specific requirements for the Incinerators at Sasolburg including progress towards compliance achieved thus far (Section 4) and technology options considered (Section 5).
- Reasons for the postponement request (Section 6).
- Key findings of the stand-alone AIR, in order to demonstrate the implications of the postponement request on ambient air quality (Section 7). The full AIR is included in Annexure A
- Details of proposed alternative emissions limits (Section 7.1) and a roadmap to compliance (Section 9).
- A summary of the public participation process to be conducted in support of this application (Section 10). The Public Participation Report reflecting the process conducted thus far is included in Annexure C and the Comments and Response Report in Annexure D.

This postponement request pertains only to postponements which were granted consequent upon the 2014 Postponement Application for a period of three years only and which will therefore lapse on 1 April 2018. Thus postponements which are valid until 31 March 2020 are not discussed in this submission.

2 Background

2.1 Overview

Sasol was established in 1950 and started producing synthetic fuels and chemicals in 1955, from the world's first commercial coal-to-liquids (CTL) complex in Sasolburg. The company privatised in 1979 and listed on the JSE Ltd in the same year. In the late 1970s and early 1980s, Sasol constructed two additional coal-to-liquid plants at Secunda. Sasol's activities in South Africa are both diverse and yet highly interdependent with main activities at facilities located in Secunda, Mpumalanga and Sasolburg, Free State.

Sasol is well known both locally and internationally for its core activity of converting coal to liquid fuels (known as coal-to-liquids or 'CTL'). What is perhaps less well known is the range of other activities that are built on and around that core CTL process. These various activities serve to maximise the range of products and associated value that can be derived from the basic raw materials that are used in the Sasol process, as well as the provision of so-called utilities (most notably steam) that are critical inputs to the industrial process. Sasol describes its business as one

of 'integrated value chains'. What is meant by integrated value chains is that there is a high degree of integration between all the process units whereby the maximum utility (and thus commercial value) can be derived from the basic material inputs of coal, natural gas, water and air.

2.2 The Sasolburg Complex

The SO site (formerly known as Sasol Infrachem) is located in Sasolburg in the Metsimaholo Local Municipality which is part of the Fezile Dabi District Municipality in the Free State Province. SO is responsible for supplying utilities and services (including infrastructure, waste management, site support and site governance) to various plants on the site as well as external businesses in Sasolburg, including Natref.

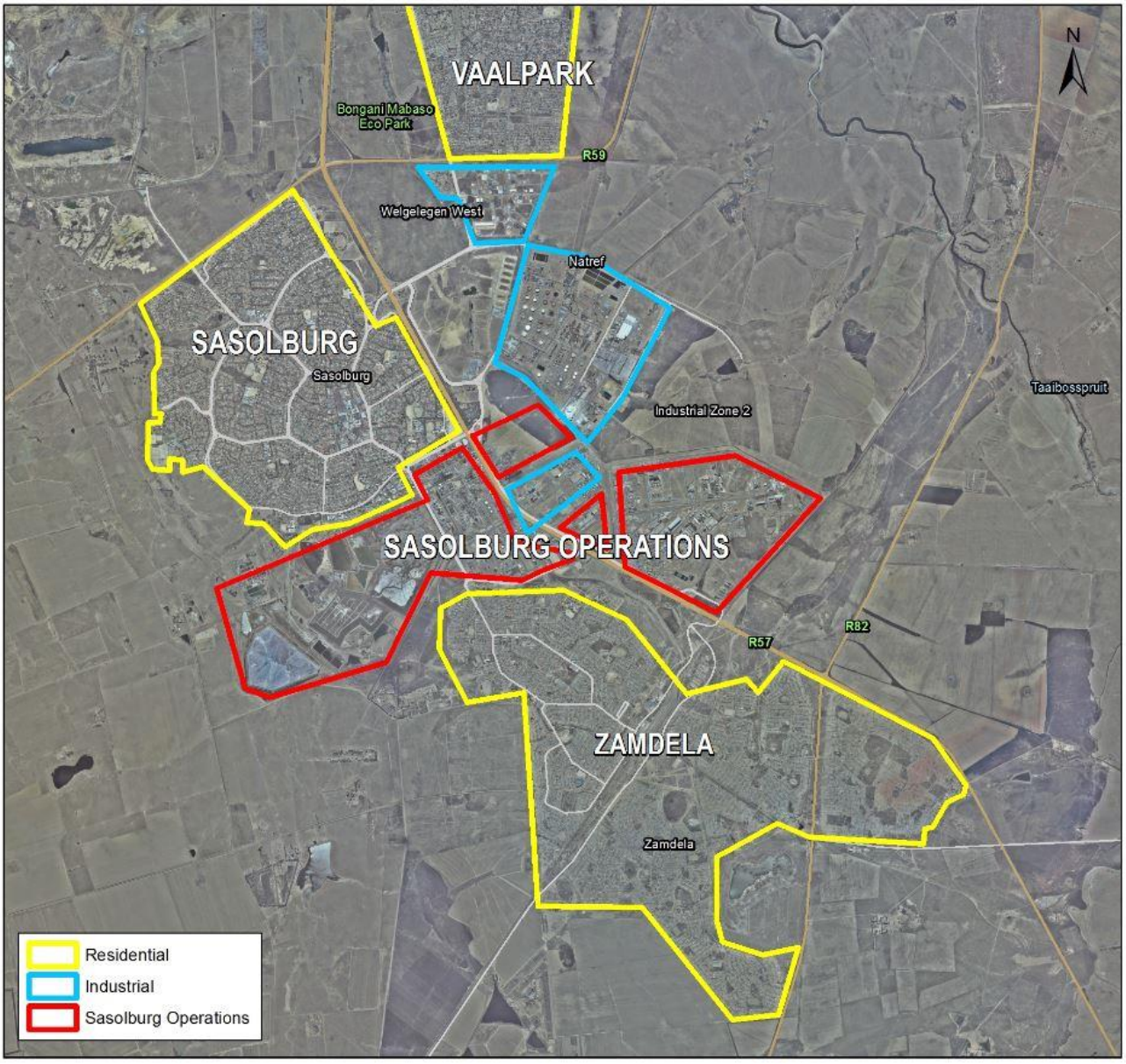

Figure 2-1: Map showing the position of SO

2.3 Atmospheric emissions

SO generates a range of atmospheric emissions. The emissions are presented below as a function of the activities and facilities where they are emitted on the Sasol One site of SO only. These sources include steam stations, incinerators and others. The sources associated predominantly with gas loop operations and plants linked to Thermal Oxidation are illustrated schematically in Figure 2-2. This postponement pertains to the incinerators that are described in more detail below.

At Thermal Oxidation, waste streams are thermally treated to produce a residue stream that can be disposed of safely and efficiently. The waste streams treated at the SO's Thermal Oxidation facility originate from mainly three other SO facilities, namely Phenolics (previously known as Merisol), various solvent related plants and the Monomers facility on the Sasol One site. The operation of these plants depends on the ability to safely treat or dispose of these streams. These waste streams are oxidised in three incinerators:

- B6930 Incinerator: utilised for the incineration of a stream called "High Sulphur Pitch" (HSP). This stream comprises high-sulphur pitch, organic solvents and organic waste water.
- B6990 Incinerator: utilised for the incineration of a stream called "Heavy ends B". This stream comprises heavy oils, off-specification waxes, Sasol spent catalyst, Funda filter cake, slop solvents and high-calorific-value organic waste. The flue gas exit temperature of the B6990 incinerator exceeds 200°C.
- B6993 Incinerator: utilised for the incineration of a stream called "Spent Caustic". This stream comprises spent caustic solution, Heavy Ends A and off-specification solvent products.

Emissions from the incinerators include PM, SO_2, NO_x, CO, HCl, TOCs, dioxins and furans, Metals, Mercury (Hg), Cadmium and Thallium (Cd + Tl), Hydrogen fluoride (HF) and ammonia (NH_3). While some of these emissions could be high in concentration, the streams are low in volume which generally implies a limited ambient impact.

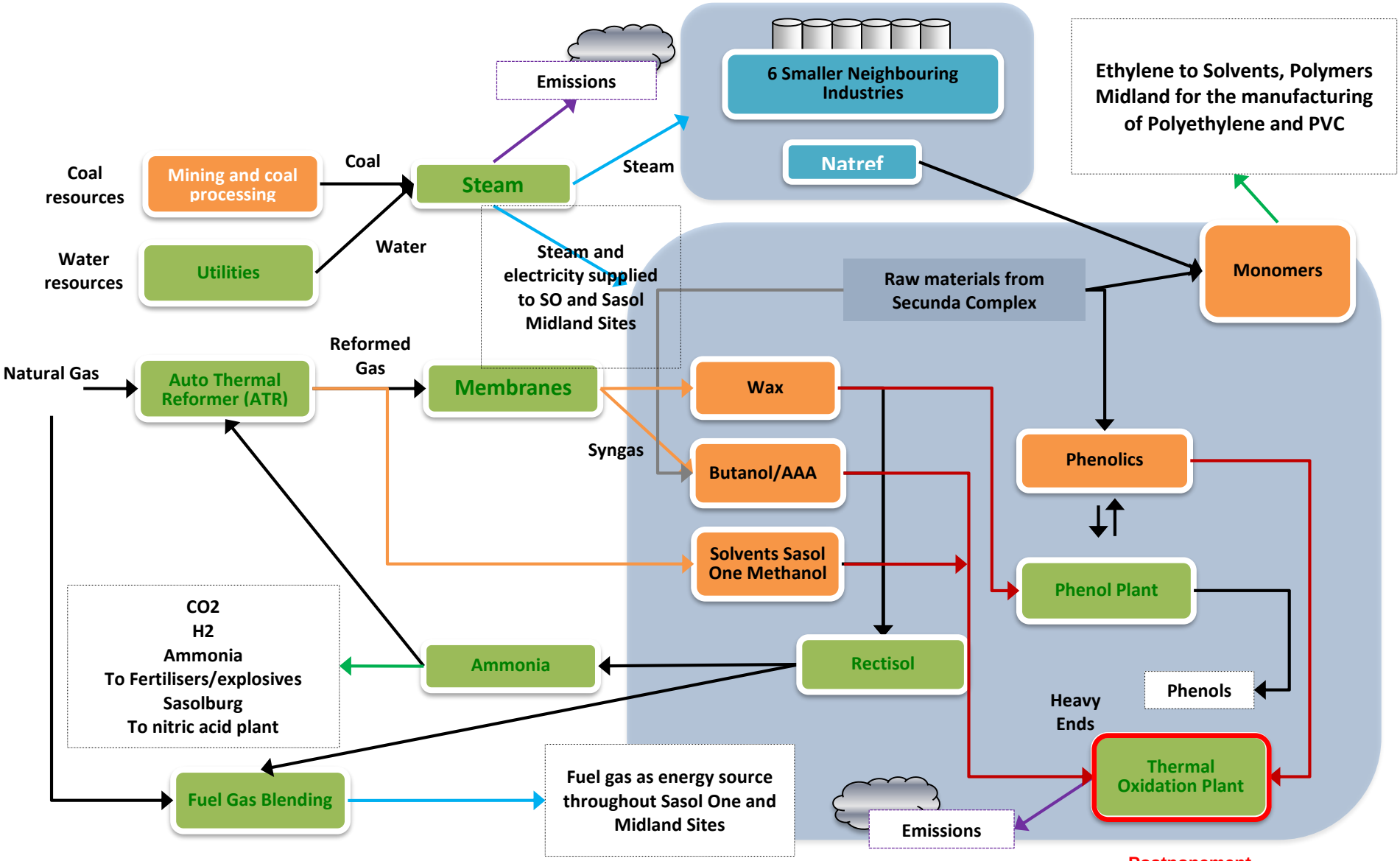

Figure 2-2: Schematised illustration of the Gas loop and utilities at Sasolburg Operations

3 The Minimum Emissions Standards

3.1 Overview

The NEM:AQA is a specific environmental management act as contemplated in the NEMA, and aims to give effect to the Constitutional right to an "environment that is not harmful to health or wellbeing and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development". In this context, therefore, SO makes this application.

In March 2010, the Department of Environmental Affairs (DEA) published MES, in terms of the NEM:AQA. In November 2013, the Regulations within which the MES were contained were repealed and replaced by Government Notice No. 893 which was published in Government Gazette 37054 of 22 November 2013 (GN 893) and amended in terms of Government Notice No. 551 in Government Gazette 38863 of 12 June 2015 (GN 551). This application is therefore aligned with the 2013 MES. The MES serves to define maximum allowable emissions to atmosphere for a defined range of pollutants and specific activities that can generate such emissions. In terms of GN 893 and GN551, existing production facilities are required to comply with MES prescribed for existing plants by 1 April 2015 ("existing plant standards") unless otherwise specified, as well as with MES applicable to new plants by 1 April 2020 ("new plant standards") unless otherwise specified.

3.2 The MES categories applicable to this postponement application

Category 8.1: Thermal Treatment of Hazardous and General Waste, is applicable to this postponement application. Compliance with the applicable standards are summarised below.

Table 3-1: Summary of applicable MES (Those highlighted in orange are the subject of this postponement application)

MES Category	Substance(s)	Emission limits or special arrangements*		Applicable SO Activities
		New plant standards	Existing plant standards	
Category 8: Sub-category 8.1	Particulate matter	10	25	Incinerator B6930
	Carbon Monoxide	50	75	
	Sulphur dioxide	50	50	
	Oxides of nitrogen	200	200	
	Hydrogen chloride	10	10	
	Hydrogen fluoride	1	1	
	Sum of Lead, arsenic, antimony, chromium, cobalt, copper, manganese, nickel, vanadium	0.5	0.5	
	Mercury	0.05	0.05	
	Cadmium + Thallium	0.05	0.05	
	Total Organic Compounds	10	10	
	Ammonia	10	10	
	Dioxins and furans	0.1	0.1	
	n/a	Exit gas temperatures must be maintained below 200ºC		
Category 8: Sub-category 8.1	Particulate matter	10	25	
	Carbon Monoxide	50	75	

MES Category	Substance(s)	Emission limits or special arrangements*		Applicable SO Activities
		New plant standards	Existing plant standards	
	Sulphur dioxide	50	50	Incinerator B6993
	Oxides of nitrogen	200	200	
	Hydrogen chloride	10	10	
	Hydrogen fluoride	1	1	
	Sum of Lead, arsenic, antimony, chromium, cobalt, copper, manganese, nickel, vanadium	0.5	0.5	
	Mercury	0.05	0.05	
	Cadmium + Thallium	0.05	0.05	
	Total Organic Compounds	10	10	
	Ammonia	10	10	
	Dioxins and furans	0.1	0.1	
	n/a	Exit gas temperatures must be maintained below 200ºC		
Category 8: Sub-category 8.1	Particulate matter	10	25	Incinerator B6990
	Carbon Monoxide	50	75	
	Sulphur dioxide	50	50	
	Oxides of nitrogen	200	200	
	Hydrogen chloride	10	10	
	Hydrogen fluoride	1	1	
	Sum of Lead, arsenic, antimony, chromium, cobalt, copper, manganese, nickel, vanadium	0.5	0.5	
	Mercury	0.05	0.05	
	Cadmium + Thallium	0.05	0.05	
	Total Organic Compounds	10	10	
	Ammonia	10	10	
	Dioxins and furans	0.1	0.1	
	n/a	Exit gas temperatures must be maintained below 200ºC		

*In the case of emission limits, these are specified as mg/Nm^3 under normal conditions of 273 Kelvin and 101.3 kPa, at 10% O_2 reference conditions as specified in the MES; in the case of dioxins and furans this is specified as ng I-TEQ/Nm^3, as included within the MES.

4 Monitoring and Improvements made to date

Over the past decade, Sasol has spent in excess of R20 billion, or R2 billion per year, on various projects that have delivered significant environmental improvements. This expenditure excludes very significant regulatory-driven investments in the Department of Energy's Clean Fuels 1 programme and pending Clean Fuels 2 programme, which have resulted in, and will further result in, reduced motor vehicle emissions.

Further, SO made commitments to certain emissions abatement interventions as part of the Vaal Triangle Priority Area Air Quality Management Plan, and has made significant progress towards achieving these commitments in accordance with its Air Quality improvement roadmaps.

Details of historical improvements were provided in the 2014 Postponement Application, available at http://www.srk.co.za/en/sasol-postponements. Improvements made since the last postponement application for the plant processes which are the subject of this 2017 Postponement Application are detailed below.

Since SO's 2014 Postponement Application, heightened focus was placed on the Thermal Oxidation facility to obtain greater insight into the emissions footprint of the three incinerators. By comparing additional sampling information with historical measurements, SO has been able to conduct statistical analyses on the data to inform the operating ranges it proposes in this application and which it believes to be technically feasible and reasonable.

Using newly purchased equipment (namely a titanium probe and nozzle set) able to withstand elevated flue gas exit temperatures, SO has conducted quarterly sampling campaigns on incinerator B6990 since the 2014 Postponement Application as required by the postponement conditions. This sampling, which is based on more effective measurements constitute more stable results which has enabled SO to propose specific limit values rather than relying on the previous data that informed the 2014 Postponement Application.

Subsequently feed stream analyses, also a requirement under the previous postponement process outcomes, has confirmed that the bulk of the samples contain negligible values of mercury and low concentrations of chlorides. This is further confirmed by the low mercury results of the isokinetic sampling as well as the low levels of Polychlorinated dibenzo-dioxins and Polychlorinated dibenzo–furans (PCDD/PCDF) measured during the quarterly sampling campaigns.

As per the AEL conditions, SO has installed a camera that is continuously monitoring the visibility of the B6990 plume.

SO has also installed online monitoring equipment at all three incinerators. Although some challenges are experienced due to high moisture content on the B6993 incinerator, SO and its supplier are working towards resolving the challenges to obtain more accurate results.

All of the above has greatly benefitted and duly informed the content of this application, except for the online monitoring which has done so in a limited capacity.

Sasol has also engaged and continues to engage with a number of third parties to investigate alternative waste management solutions for the waste streams which are currently incinerated and which will, in terms of applicable waste regulations, soon be prohibited from being landfilled. Some alternatives for particular streams have been piloted successfully but require further investigation to confirm they are sustainable whilst other streams require more time to develop a solution due to challenges posed by the chemical and physical nature of these streams. The investigations and their progress / outcomes are summarised below.

Table 4-1: Alternative waste management investigations

Targeted Waste Stream	Investigations	Progress/ Outcomes
High Sulphur Pitch (HSP)	Require highly specialised equipment for the purposes of using these materials as Alternative Fuel Resources (AFR). Sasol has received proposals from third parties indicating interest in taking these streams into their processes.	The proposals received are subject to ongoing deliberation for purposes of identifying and appropriately adopting sustainable solutions.
Heavy ends A (HEA)		
Heavy ends B (HEB)		
Spent Caustic from Solvents AAA-plant	Some third party waste managers have indicated that they have the capabilities to manage these streams on behalf of SO, through a variety of technologies. Trials of various technological options have not yet been concluded	Trials of the various technological options are in the process of being concluded.
Spent Caustic from the Monomers plant		
Spent Methanol from Solvents and Rectisol	Separation of Methanol into high quality for use in fuel market and biological treatment of remainder	High Quality Methanol: Developing blending market for use as fuel. Low Quality Methanol - trials with impact assessment on biological treatment performance. Study is being concluded.

5 Technology options for compliance

In this motivation, statements are incorporated regarding the feasibility of identified technologies as emissions abatement solutions. Assessments of these technologies were triggered in some instances by Sasol's internal policies regarding continuous improvement, and in others, by the requirement to comply with the MES. The consideration of the feasibility of a compliance technology requires a holistic assessment of the implications of compliance from multiple perspectives, including but not limited to:

- the viability of a technology to achieve the desired emission reduction outcome
- the unintended consequences of implementing a technology, including upstream and downstream impacts
- operability of the technology
- implementation considerations including process safety risks, construction risks, production risks and integrated planned maintenance scheduling implications
- financial implications, including upfront capital expenditure and lifecycle operating costs
- environmental cross-media impacts
- ambient air quality benefits arising

In the 2014 Postponement Application, SO indicated that it had not yet identified a feasible solution to achieve compliance with the MES in respect of the three incinerators. Based on a comparison of the total investment cost associated with a shut down and replacement of the incinerators at both Sasolburg and Secunda and the limited ambient air quality improvements to be realised by doing so, not only was the business impact considered infeasible but any such action would, amongst other things, not have been aligned with the best practicable environmental option.

However, as committed in the 2014 Postponement Application, Sasol has continued to explore alternatives to find potentially feasible compliance options.

SO's approach to further emission reductions from its incinerators is informed by, amongst other things, the waste hierarchy, which places preference on solutions to avoid and reduce waste, over disposing waste (either to landfill, or to atmosphere by incineration), since the avoidance and

reduction of waste in the first instance averts the potential negative environmental impacts associated with waste disposal. The various alternative options evaluated in terms of the waste hierarchy, which, if feasible and available, would concurrently address the emission components not achieving the MES, include the following:

- Operational improvements.
- Installation of abatement technology on existing plant equipment.
- Installation of a new incinerator.
- Reduction of the waste streams being incinerated at source.
- Alternative, beneficial use of the incinerated streams.

What follows is a description of each solution investigated.

5.1 Disposal of waste at a hazardous landfill as an alternative to incineration

Disposal to landfill is the least preferred alternative in the Waste Hierarchy. Standards for disposal of waste to landfill (GN 636 of 2013) have been published in terms of the National Environmental Management: Waste Act (Waste Act).

5.2 Source reduction of the waste streams being incinerated

This is considered best practice, and the contributions to the waste streams have therefore already been optimised. No further opportunities have been identified that would significantly change the quantity or make - up of the feed to the incinerators. In addition, a reduction in quantity of feed, while decreasing the total mass of pollutants emitted, would not necessarily reduce emission concentrations, which is the basis on which the standards have been set.

5.3 Installation of abatement technology on existing equipment

The B6993 and B6930 incinerators already have certain abatement technology installed and energy recovery through steam production.

The B6930 incinerator utilises a lime fluidised bed for the capturing of SO_2 emissions followed by a bag house for the capturing of particulates. The design basis of the current abatement technology restrict the meeting of the more stringent limits prescribed by the MES, hence alternative abatement technology is considered as described below.

The B6993 incinerator contains a spent caustic medium for SO_2 absorption and a venturi scrubber for particulate abatement. Similar to the B6930 incinerator, the abatement equipment design restrict the meeting of stringent limits prescribed by the MES.

The B6990 incinerator is space constrained and therefore does not have abatement equipment installed.

The pre-feasibility study that was conducted during 2014 to determine suitable abatement equipment retrofits has continued and some vendors who have indicated they may have potential technical solutions to deal with SO's waste streams have been preliminarily identified. Only proven, commercialised technologies were considered in the pre-feasibility study, so as to limit operational risks. The installation of abatement equipment will, in many cases, lead to an increase in effluent and waste as an unintended consequence. Options for wet and dry flue gas treatment were considered as part of the study.

Table 5-1: Summary of abatement technology options evaluated

Incinerator	Potential abatement equipment identified	Impact of potential abatement option*
B6930	**Wet treatment**: ESP and scrubber system (targeting particulates and metals, SO_2 emissions)	**Wet treatment**: Additional water requirements – in excess of 50,000 tons of water per year; production of dilute effluent streams (acid stream and a neutral stream) will put current production system under pressure
	Dry treatment: Cyclone and bag filter with activated carbon injection (targeting particulates and metals, including SO_2 and TOCs)	**Dry treatment**: Production of contaminated waste requiring disposal
	Installation of Selective Non-Catalytic Reduction (SNCR) (targeting NOx emissions)	Temperature control is critical for SNCR. This is an operational risk due to the risk of by-product formation.
B6990[#]	**Wet treatment**: ESP and scrubber system) (targeting particulates and metals, SO_2 and NOx emissions as well as the reduction of flue gas temperature)	**Wet treatment:** Additional water requirements – in excess of 45,000 tons of water per year; production of dilute effluent streams (acid stream and a neutral stream) will put current water treatment systems under pressure due to the increased load
	Dry treatment: Bag filters (targeting Particulates and Heavy Metal emissions)	**Dry treatment**: Production of contaminated waste requiring disposal
	Installation of Selective Non-Catalytic Reduction (SNCR) (targeting SO_2 and NOx emissions)	Temperature control critical for SNCR. This is an operational risk due to the risk of by-product formation.
B6993	**Wet treatment**: Wet ESP (targeting particulates and metals, SO_2 and NOx emissions as well as the reduction of flue gas temperature)	**Wet treatment:** Effluent stream to be treated (>12,000 tons per year with salt load of 16% which will increase the salt load on SO's effluent)
	Replacement of existing burners with low NO_x burners (NOx) (targeting NO_x, CO and TOC emissions)	Efficiency of NO_x reduction is dependent on fuel-to-air ratio. Control of this ratio is complicated by variations in feed and design reductions may not be reached.

*: Plot space for the retrofitting of abatement technologies remains a challenge, due to space constraints, as discussed below.

[#]: The elevated temperature in the B6990 incinerator can be reduced based on the technology considered however space remains a constraint.

5.4 Installation of new equipment

A single, new incinerator would not be capable of handling all of the waste streams. It would only be possible to replace two of the incinerators (B6930 and B6990) with a single incinerator, while the caustic incinerator (B6993) would have to be retained due to the difference in the feed streams to B6993. The availability of plot space on the incineration site is a further concern, as the area is congested, as seen in Figure 5-1 below. The new incinerator would need to be constructed concurrently with the operation of the existing incinerators and therefore requires sufficient open plot space.

Due to other plants already constructed, the availability of infrastructure and piping already in place as well as the offloading and loading facilities already installed at this location, the installation of a

new incineration facility will have to be done at the current S6900 location. Relocating a new incinerator to a different location will require additional infrastructure which will not only make it unnecessarily expensive but will delay the installation of a new unit. This is because the new infrastructure will require design and construction, which is time consuming.

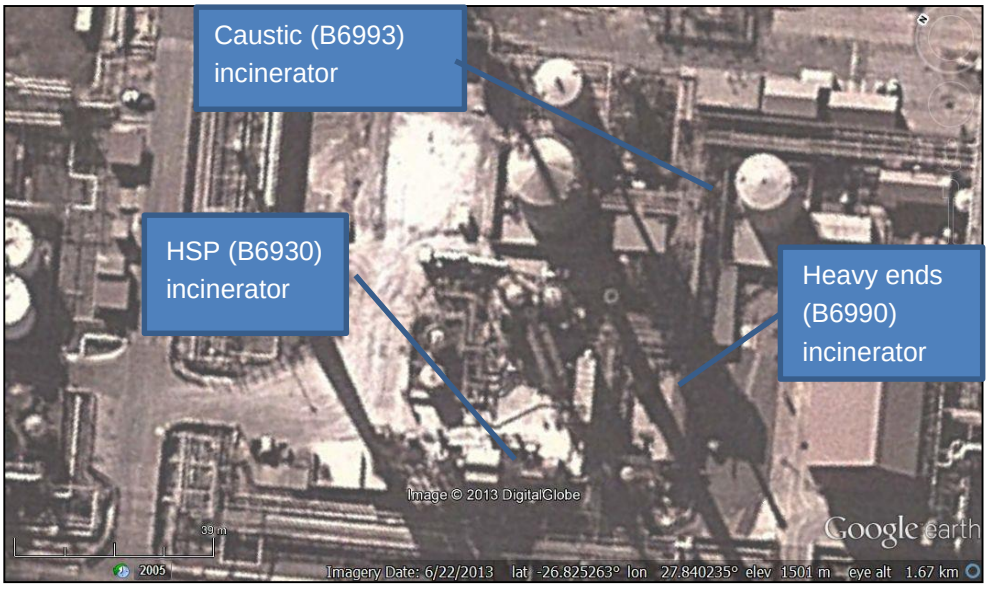

Figure 5-1: Plot space constraints at Thermal Oxidation plant (S6900)

5.5 Use of waste streams as alternative fuels

In respect of the waste hierarchy, co-processing of waste in cement kilns would positively change the status of waste management of the stream from thermal “disposal” to energy “recovery”. The cement industry utilizes waste as an alternative fuel source so that they can cut back on their dependence on fossil fuels, thus reducing their greenhouse gas emission footprint. In addition to this benefit, any solid waste (normally generated during incineration that needs disposal) will be incorporated in the cement matrix and will become part of their product and therefore there will not be more solid waste to be treated and disposed. This approach would bring about feedstock reduction at the incinerators and therefore result in a smaller environmental footprint from an environmental and particularly an air quality perspective. On-site incineration could potentially be significantly reduced in this way.

A pilot trial study is currently underway to utilise High Sulphur Pitch (HSP) and Heavy Ends A and Heavy Ends B as alternative fuels in the cement industry. The technology application is well understood and has been practised for several decades in the EU and USA. However, the HSP stream is unique to Sasol’s processes. The use of the streams as alternative fuels (either in part, or in terms of the entire volumes generated) can only be confirmed on completion of the pilot, and hence, a postponement will be required to complete the pilot investigation and establish the long term viability and sustainability of this solution.

Work is also on-going to find ways to make the HSP transportable to the cement facilities where it would be utilised. Subject to its success, although the solution enables the reduction in stream volumes in alignment with the objectives of the Waste Act it will not necessarily change the concentration of emissions, therefore will not achieve the MES.

5.6 Integrated Waste solution

An investigation is also underway to determine the possible integration of waste streams currently incinerated at Sasol's facilities in Sasolburg and Secunda. If feasible, this would reduce the number of point sources linked to the various Sasol incineration activities. Various integration options have been identified including the possibility of incorporating the waste streams from SO's incinerators into an integrated solution in Secunda.

The project is still in the pre-feasibility phase and requires significant further investigation and development work. Based on the current project schedule, the outcome of the feasibility study to assess the viability of this option as a viable compliance solution, will be made by the third quarter of 2019, where after, if assessed as viable, this option will advance through the remainder of Sasol's capital project governance and implementation model, as detailed in Section 6.2.

The table below summarises each of the types of solutions investigated and provides commentary on the current conclusions regarding their feasibility.

Table 5-2: Summary of technology options investigated

TECHNICAL OPTION	OUTCOME OF TECHNOLOGY FEASIBILITY ASSESSMENT	SUMMARY OF REASONS FOR FEASIBILITY ASSESSMENT OUTCOME
Operational improvements	Already implemented	Limited impact in improving emission concentrations, and insufficient to meet new plant MES. To the extent that operational improvements have been identified, these have been implemented
Installation of additional abatement technology on existing equipment	In progress - to be determined	Risks of disrupting upstream operations during technology installation – modifications and tie-ins will have to be done during planned statutory maintenance cycles which will require additional time to implement. High cost option Plot space challenges could make options unfeasible
Integrated incinerator option	In progress - to be determined	Still under investigation – options to combine HOW and Biosludge from Secunda Synfuels Operations versus option to combine HOW, Biosludge from Secunda Synfuels Operations and waste from Sasolburg Operations.
Landfilling	Least preferable – lowest on the waste hierarchy	Increasingly stricter landfilling requirements make this a short term solution only.
Utilisation as alternative fuel resource by third party	In progress - to be determined	Pilot trials are commencing. This is a potentially viable long term solution, provided the handling and offloading and storage of waste can successfully be implemented.
Various other alternatives depending on waste type and possible re-use options mentioned in the roadmap	In progress – the outcome ad feasibility need to be determined	These other alternatives are still subject to further investigation and will be duly considered including by taking into account their overall feasibility and sustainability, as is the case with all options considered.

6 Reasons for the Postponement Application

As indicated in Section 5 above, the 2014 Postponement Application noted that a feasible solution to meet the MES had not been identified yet. SO has however, as committed in the 2014 Postponement Application, continued to explore alternatives to identify potentially feasible compliance options as summarised in Section 5 above.

Based on the investigations, SO now believes that, based on presently available information, it may be feasible to comply with the new plant standards for Category 8 of the MES. More time is however required to confirm this position and if confirmation is attained, to advance solutions to implementation. The various reasons that SO will require more time to identify solutions, which if feasible, will require time to be implemented, are detailed below.

6.1 Previous Postponement Application

As indicated above a feasible solution to meet the MES has not been identified yet for the incinerators at the time of the 2014 Postponement Application. Regulation 13 of the MES limits the period for which a postponement may be granted to 5 years per postponement application. SO therefore anticipated that a postponement of 5 years would be granted, as motivated in its 2014 postponement application, during which time the incinerators would be operated at the Alternative Emissions Limits proposed in the 2014 Postponement Application allowing it to continue to investigate options to achieve compliance. The NAQO decision dated 23 February 2015 however granted postponement for the incinerators for three years only until 31 March 2018.

While SO has since undertaken investigations and been able to identify potentially feasible options to achieve compliance as indicated above, the three year postponement period granted did not allow sufficient time to identify and implement the most feasible solution as explained further below to also facilitate compliance with the MES for new plants.

6.2 Due Diligence obligations

As per Sasol's capital project governance model applicable to all types of capital projects, SO uses a project development and governance framework to manage an extensive portfolio of capital projects, which is a "stage-gate" model. The model provides a framework to carefully guide projects towards successful implementation. This requires detailed investigations and design considerations to address complexities in installing equipment into an integrated and operational brownfields facility. The model prescribes rigorous project development quality standards and business requirements to be met at each successive stage of project development, before a project is approved to proceed to the next development stage. Good project governance entails that all projects need to be properly motivated, evaluated and approved in a systematic and consistent manner.

Table 6-1: Overview of Sasol's stage-gate project governance model

Project Phase	Purpose
Idea Generation	Formulate a project's "opportunity statement", to crisply explain the driver for the project. In so doing, articulate the nature and scope of a project
Prefeasibility	Identification of possible operational improvements and technology options to address the opportunity statement, and initial assessment of each option's applicability/feasibility, to narrow down a sub-set of prioritised solutions. Depending on the project, this phase could require extensive piloting to ensure identified options are operationally feasible.
Feasibility	Identify the most feasible technology option following appropriately detailed technical, business and operations investigations; evaluate potential technology providers; obtain necessary authorisations and approvals from authorities for the preferred solution
Engineering	Detail design of the identified technology including design of the interfaces with the rest of the existing facility, including upstream and downstream process impacts; detailed resource planning including sourcing equipment and other project resources
Final investment decision	Governance step for the final authorisation on the selected business, technical and project execution option. The decision sanctions all the necessary resources for project implementation.
Construction	Execution of the project; construction of the required technology; physical integration of the new technology with existing equipment and systems. The construction phase for new equipment within an operational facility is coordinated within plant maintenance schedules, to mitigate against production impacts.
Commissioning	Commissioning of the installed equipment and ensuring the technology operates in accordance with the equipment's design basis; modifications to equipment or plant operating philosophy if required to reach equipment's design basis

The duration of the various development phases (the "stages") is determined by the complexity of the project. The governance processes (the "gates") serve as a crucial quality control to ensure that effective projects are ultimately successfully implemented and integrated into the facility's business model.

Given the requirements of the "stage-gate" model SO will not necessarily be able to implement the compliance interventions in a safe and complete manner in less than 5 years. As indicated in Section 5, the technical solutions are currently in the Prefeasibility phase of investigation, and once a decision is taken considering the feasibility of all options in the third quarter of 2019, the Engineering phase on the selected compliance technology option, in accordance with a project schedule aligned with that technology choice, will commence.

6.3 Modifying a brownfields operation

Modifying an existing brownfields operation is considerably more challenging than building a new greenfields plant. In the case of a greenfields plant the entire plant can be designed in a manner that caters for all requirements and the plant can be conceptualised and 'packaged' in a specific way. In the case of a brownfields operation that benefit does not exist, and every modification or retrofit has to be developed around the existing plant. In the case of SO, there is very little available space around the Thermal Oxidation Plant, as discussed in Sections 5.3 and 5.4, and illustrated in Figure 5.1. The lack of space is challenging enough in its own right, but it also creates further access problems for construction teams. Not only is access a problem for workers but bringing in the kind of equipment that would be required to install retrofits are even more challenging.

On-going maintenance requirements of an operational plant entail that there will be competition for both access to the plant and working space. Construction crews would have to be very carefully scheduled and coordinated so that the construction process does not limit the ability of teams to complete their maintenance obligations. This is not to say that such coordination is not possible, but simply that the timeframes for implementation are, in practice, considerably longer. A brownfields site also presents multiple occupational health and safety hazards that do not exist on a greenfields

site. These hazards relate principally to having energised systems, in terms of electricity, gas, steam and other utilities, as well as pipelines transporting flammable or explosive products around the site.

The abovementioned challenges necessitate appropriate planning and scheduling of consequential events which require more time in order to execute a project safely and efficiently. Subsequently SO is therefore applying for postponement together with alternative emission standards and alternative special arrangements during this postponement period.

7 The Atmospheric Impact Report

7.1 Overview

The AIR is a regulatory requirement which is required to be compiled and submitted as part of an application for postponements. The purpose of the AIR is to provide an assessment of the implications for ambient air quality and associated potential impacts associated with the postponement application. The impact on climate change has not been considered as current greenhouse emissions will not increase or decrease as a result of this application. The AIR specifically focussed on compliance with the MES, and is fit for purpose. The AIR was prepared by Airshed Planning Professionals, an independent consultant, in accordance with the Atmospheric Impact Report Regulations and the methodology and datasets were independently peer reviewed by E^{x}ponent Inc. The full AIR is included in Annexure A, with key elements of the report and the findings being summarised in this section of the motivation report. The AIR conducted as part of the 2014 Postponement Application includes further information on sources not addressed by this postponement application, given its fit for purpose scope, and is available from the SRK website http://www.srk.co.za/en/sasol-postponements.

7.2 Study approach and method

7.2.1 Dispersion modelling

Dispersion modelling is a key tool in assessing the ambient air quality implications of atmospheric emissions. A dispersion model serves to simulate the way in which emissions will be transported, diffused and dispersed by the atmosphere and ultimately how they will manifest as ‘ground-level’ or ‘ambient’ concentrations. For the purposes of this assessment, the Regulations Regarding Air Dispersion Modelling determined the dispersion model selection. The CALPUFF model was selected because it can simulate pollution dispersion in low wind (still) conditions, which occur frequently in the area where SO operates and because CALPUFF is able to perform chemical transformations.

7.2.2 Ambient air quality monitoring stations

As opposed to predicted ambient concentrations using a dispersion model, ambient air quality monitoring serves to provide direct physical measurements of selected key pollutants. Sasol operates four ambient air quality monitoring stations in and around Sasolburg, namely at the Sasol One Fence Line, Leitrim, AJ Jacobs and Eco Park. In addition, DEA operates three quality monitoring stations in and around Sasolburg, namely at Three Rivers, Sharpeville, and Zamdela.

Data from the Sasol and DEA monitoring stations for 2013, 2014 and 2015 were included in this investigation. The Sasol monitoring stations are accredited (ISO/IEC17025) to ensure data quality and availability.

7.2.3 Emissions scenarios

In order to assess the impact of the emissions associated with the postponements for which SO is applying, four emissions scenarios were modelled:

1. **Current baseline emissions**, reflective of the impacts of present operations, which are modelled as *averages* of measurements taken from periodic emission monitoring. This scenario is represented by the first column in the presentation of all AIR graphs (shown in blue in Figure 7-1). The reason baseline emissions were modelled as averages of measured point source emissions was to obtain a picture of long-term average impacts of SO's emissions on ambient air concentrations, which could be reasonably compared with monitored ambient concentrations, as a means of assessing the representativeness of the dispersion model's predictions. Modelling baseline emissions at a ceiling level, which is seldom reflective of actual emissions, would over-predict ambient impacts, and therefore not allow for reasonable assessment of the model's representativeness.
2. **Compliance with the 2015 existing plant standards**. This is modelled as a ceiling emissions limit (i.e. maximum emission concentration) aligned with the prescribed standard, and reflects a scenario where abatement equipment is introduced to theoretically reduce emissions to conform to the standards. This scenario is the represented by the second column in the presentation of all AIR graphs (shown in red in Figure 7-1).
3. **Compliance with the 2020 new plant standards.** This is modelled as a ceiling emissions limit (i.e. maximum emission concentration) aligned with the prescribed standard, and reflects a scenario where abatement equipment is introduced to theoretically reduce emissions to conform to the standards. This scenario is then represented by the third column in the presentation of all AIR graphs (shown in green in Figure 7-1).
4. **A worst-case scenario of operating constantly at the requested alternative emissions limits**, which have been specified as ceiling emissions limits (i.e. maximum emission concentrations). This therefore represents the alternative emissions standards proposed during the interim postponement period. This scenario is represented by the fourth column in the presentation of all AIR graphs (shown in purple in Figure 7-1). It is re-emphasised that by applying for alternative limits, SO will not physically increase its current baseline emissions, unless otherwise indicated (namely for SO_2 for the B6993 and B6990 incinerators).

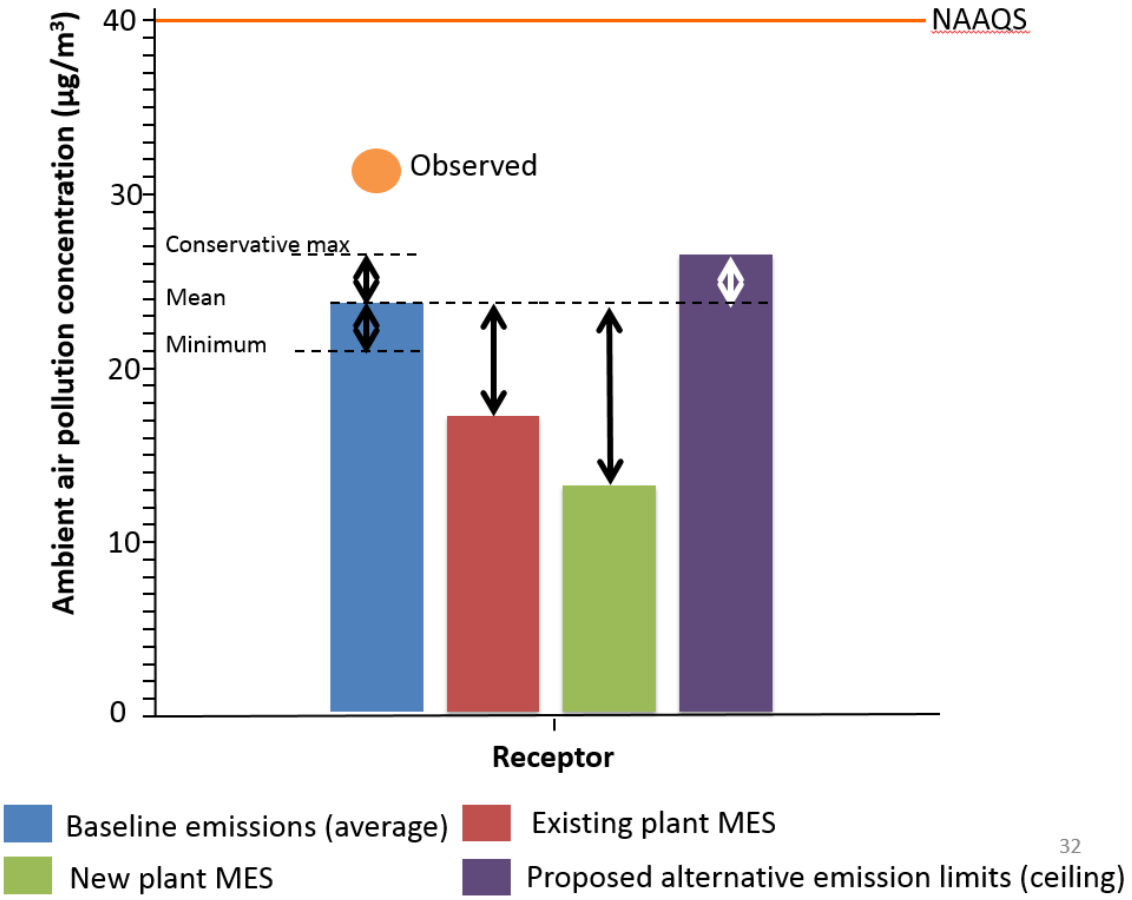

Figure 7-1: Schematic displaying how the dispersion modelling scenarios are presented, for each monitoring station receptor in the modelling domain

7.2.4 National Ambient Air Quality Standards

Once ambient concentrations have been predicted using the dispersion model, the predicted or measured concentrations are typically compared to defined standards or other thresholds to assess the health and/or environmental risk implications of the predicted or measured air quality. In South Africa, NAAQS have been set for criteria pollutants at limits deemed to uphold a permissible or tolerated level of health risk and the assessment has accordingly been based on a comparison between the predicted concentrations and the NAAQS. Where no NAAQS exists for a relevant non-criteria pollutant, health screening effect levels based on international guidelines are used. The measured concentrations have been used to ascertain the representativeness of the modelling and to assess the extent to which the NAAQS are met as a function of all sources of emissions.

7.2.5 Sensitive receptors

Prior to dispersion modelling, 52 receptors were identified in the vicinity of Sasolburg Operations (within the 50-by-50 km modelling domain). Sensitive receptors included residential areas, schools, hospitals and clinics and monitoring stations (Figure 7-2 and Table 7-1). Ambient air quality monitoring stations (AQMS) were the first receptors identified because comparison of the predicted concentrations could be compared with measured concentrations for model validation. Schools, hospitals and clinics within the domain were identified and included as sensitive receptors in the dispersion model. All receptors are presented in the isopleth plots, whereas the AQMS are included in results figures and 20 closest receptors are included in the results tables at increasing distance from the centre of SO.

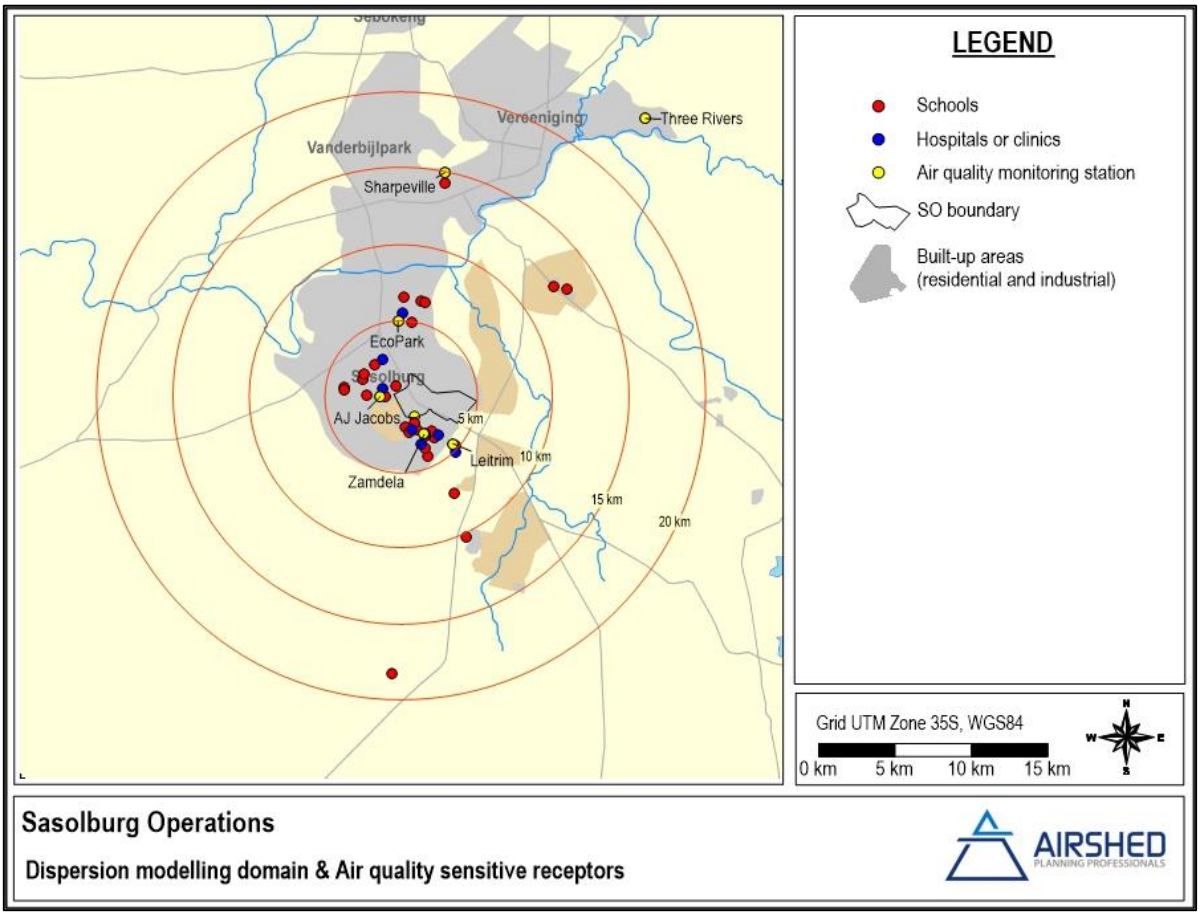

Figure 7-2: Map showing the positions of the 52 sensitive receptors identified for presenting the predicted ambient air quality

Table 7-1: Summary listing of the sensitive receptors illustrated in Figure 7-2

Receptor code name [(a)]	Receptor details	Distance from centre of operations (km)
Zamdela	VTAPA Zamdela monitoring station	2.1
Leitrim	Sasol Leitrim monitoring station	3.1
AJ Jacobs	Sasol AJ Jacobs monitoring station	3.2
EcoPark	Sasol EcoPark monitoring station	5.7
Sharpeville	VTAPA Sharpeville monitoring station	15.1
Three Rivers	VTAPA Three Rivers monitoring station	23.4
25	Malakabeng Primary School	1.7
32	Cedar Secondary School	1.9
15	Bofula-Tshepe Primary School	2.0
49	Clinic A Zamdela	2.1
51	Zamdela Hospital Zumayear	2.2
35	Iketsetseng Secondary School	2.2
48	Clinic B Zamdela	2.2
29	Tsatsi Primary School	2.3
20	Isaac Mhlambi Primary School	2.3
37	Nkopoleng Secondary School	2.4
34	HTS Secondary School	2.4
44	Zamdela Community Clinic	2.8
14	AJ Jacobs Primary School	2.9
28	Theha Setjhaba Primary School	3.0
52	Sasolburg Clinic	3.2
18	Credo Primary School	3.3
23	Lehutso Primary School	3.6
50	Harry Gwala Clinic | Creche	3.7
36	Kahobotjha-Sakubusha Secondary School	4.1
43	Sasolburg Provincial Hospital	4.2

7.2.6 Model performance

Although atmospheric models are indispensable in air quality assessment studies, their limitations should always be taken into account. As detailed in the AIR, dispersion modelling has inherent uncertainty. The accuracy of the model predicted ambient concentrations are vulnerable to three main sources of errors resulting from: incorrect input emissions data; inaccurate meteorological data and inadequate scientific formulation of the model. Model uncertainty is discussed in further detail in Section 5.1.6 of the AIR.

7.2.7 Compliance with AIR Regulations

As summarised in Section 5.1.3 of the AIR, the air quality assessment was compiled in accordance with the Regulations prescribing the format of the Atmospheric Impact Report of 2013 (as contemplated in Section 30 of the NEM:AQA), unless otherwise indicated.

7.2.8 Peer review of the dispersion modelling methodology and datasets

The dispersion modelling methodology and datasets was reviewed by E^{x}ponent Inc, which was identified as the appropriate peer reviewer in light of its extensive international experience in the design, development, and application of research and regulatory air quality models. Airshed's Plan of Study, the peer reviewer's report and Airshed's comments on each of the findings are included as Annexure B.

7.3 Dispersion Modelling Results

7.3.1 Sulfur Dioxide (SO_2)

Simulated SO_2 concentrations are below the NAAQS for all four scenarios for all three averaging periods. Reductions in ambient SO_2 concentrations are evident, as expected, with theoretical compliance with existing and new plant emission standards. The alternative emission scenario results in a small increase in ground-level concentrations relative to the baseline but as indicated in Section 7.2.3 above this represents a worst case scenario assuming that SO were to operate at the ceiling limit constantly.

Simulated hourly SO_2 concentrations for the four scenarios are illustrated in Figure 7-3. Simulated daily and annual concentrations are illustrated in Section 5.1.8 of the AIR together with isopleth plot's and tabulated results of the modelling.

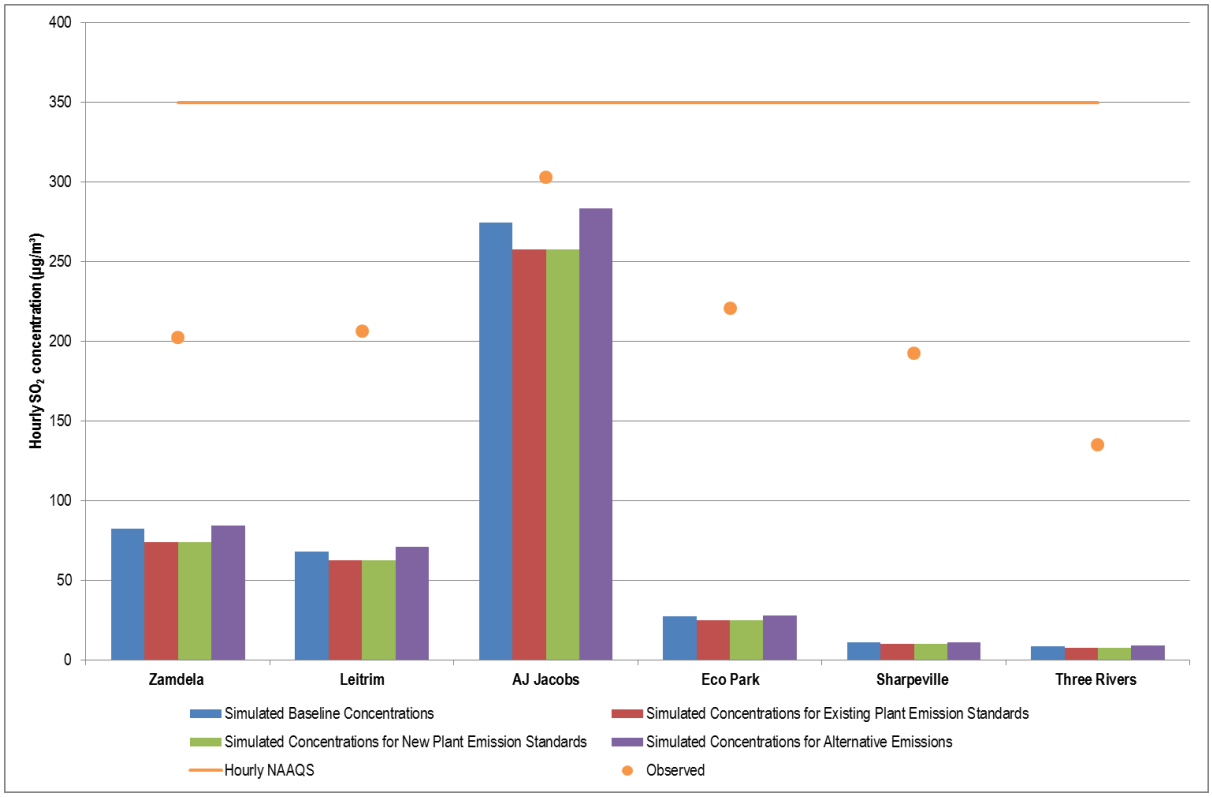

Figure 7-3: Simulated and observed hourly SO_2 concentrations

7.3.2 Nitrogen Dioxide (NO_2)

Simulated NO_2 concentrations are below the NAAQS for all four scenarios for both averaging periods. As expected, theoretical compliance with the existing and new plant emission standards will result in a reduction in ground-level concentrations. The alternative emission scenario results in slight increases in hourly and annual NO_2 concentrations.

Simulated hourly NO_2 concentrations for the four scenarios are illustrated in Figure 7-4. Simulated annual concentrations are illustrated in Section 5.1.8 of the AIR together with isopleth plot's and tabulated results of the modelling.

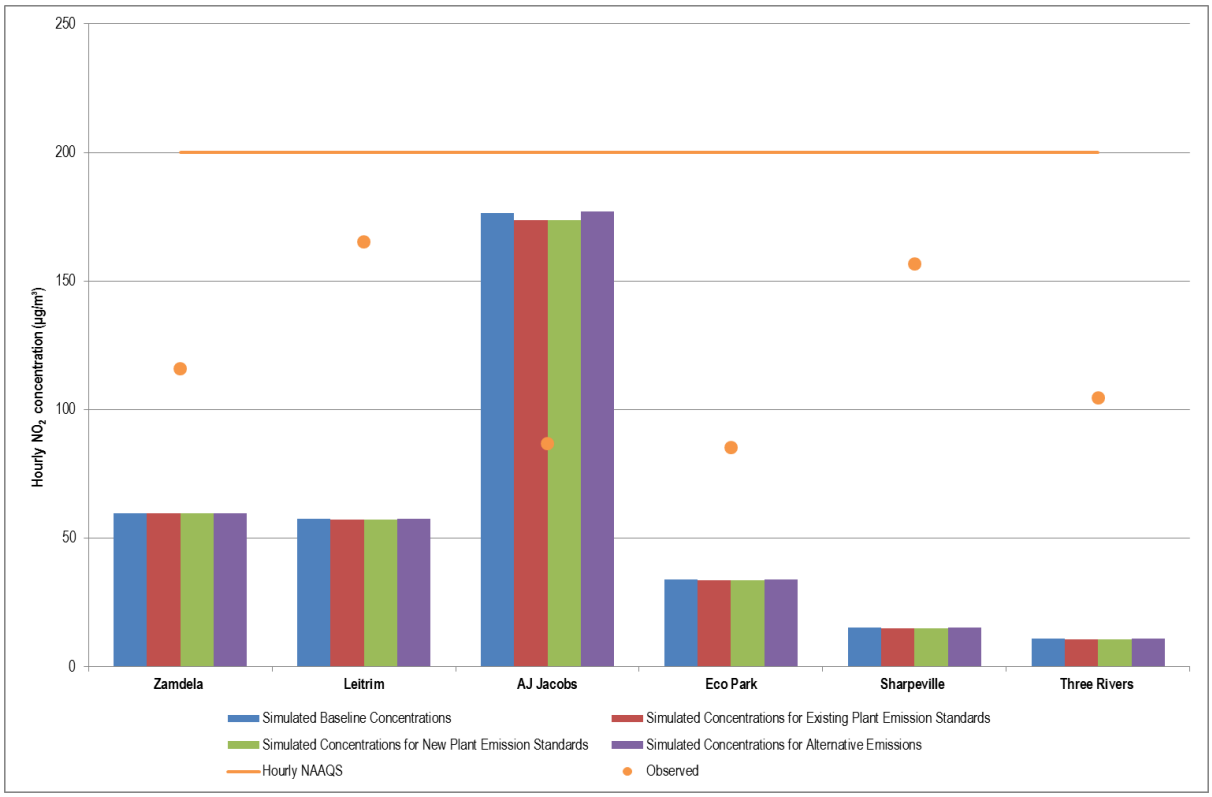

Figure 7-4: Simulated and observed hourly NO_2 concentrations

7.3.3 Particulate Matter ($PM_{2.5}$ and PM_{10})

NAAQS are available for both PM_{10} and $PM_{2.5}$. Ambient air quality impacts therefore need to be considered for both particulate fractions. Simulated concentrations of particulate matter (PM) were conservatively assumed to be $PM_{2.5}$ since it was not possible to establish the $PM_{2.5}$/PM_{10} split.

While the observed PM concentrations for both averaging periods are above the NAAQS the simulated concentrations are well below the NAAQS. This illustrates the impact of other sources of PM on ambient concentrations.

The predicted ground-level PM concentrations, as a result of emissions from the SO, are very low. Theoretical compliance with the existing and new plant emission standards would not result in a significant reduction in observed daily or annual PM concentrations.

Simulated daily PM concentrations for the four scenarios are illustrated in Figure 7-5. Simulated annual concentrations are illustrated in Section 5.1.8 of the AIR together with isopleth plots and tabulated results of the modelling.

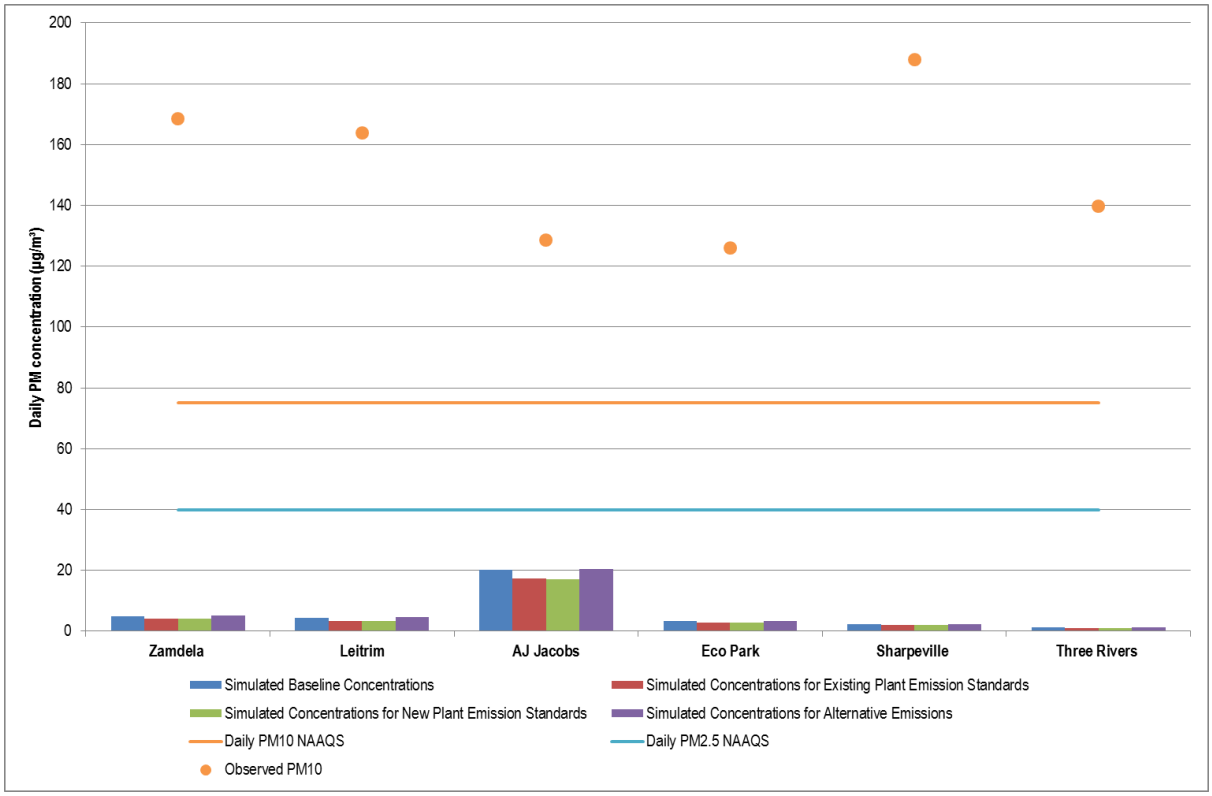

Figure 7-5: Simulated and observed daily PM concentrations

7.3.4 Carbon Monoxide (CO)

Only sources of CO included in the AEL were simulated, namely the incinerators. Simulated hourly CO concentrations are well within with NAAQS (about 0.05%). Theoretical compliance with the existing and new plant emission standards results in a reduction in ground-level concentrations while the alternative emission scenario results in increases in hourly CO concentrations. The large variation between the actual monitored CO concentrations is related to the small number of sources included for this pollutant with highly variable emission rates.

Simulated hourly CO concentrations are illustrated in Figure 7-6. Isopleth plots and tabulated results of the modelling are also provided in Section 5.1.8 of the AIR.

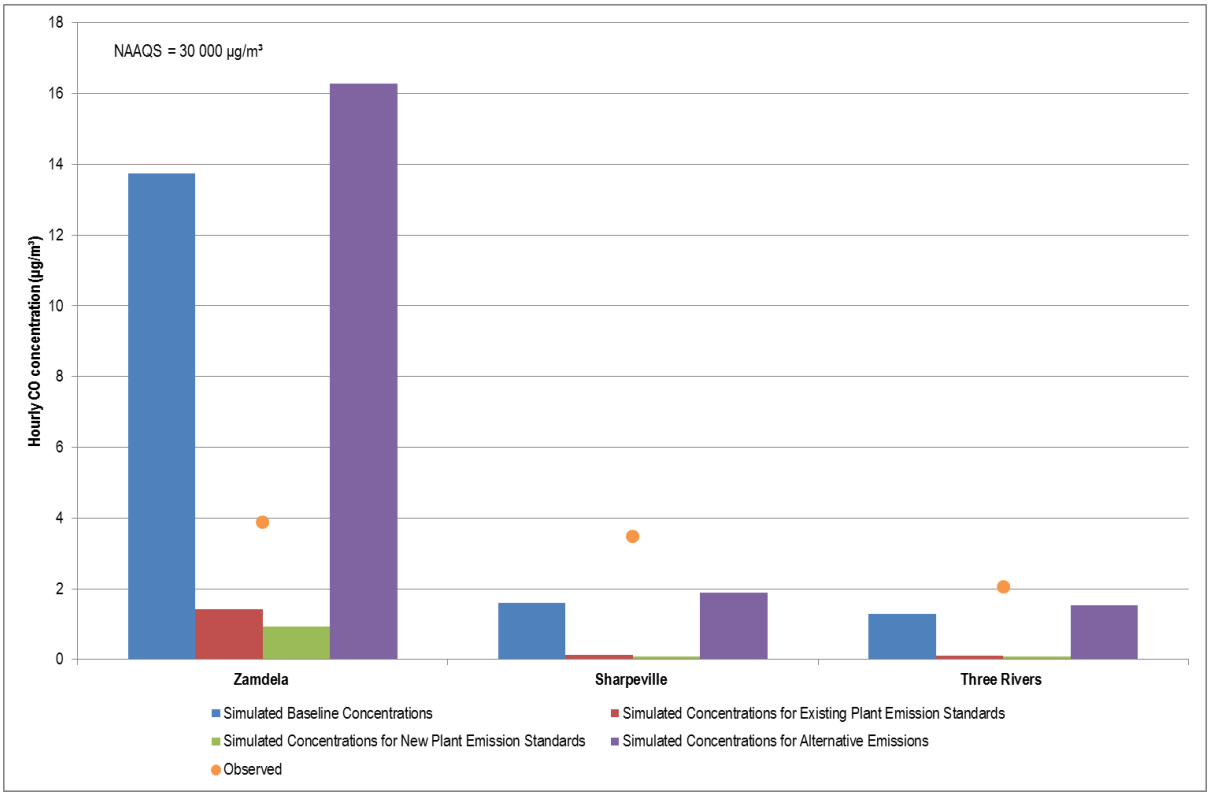

Figure 7-6: Simulated and observed hourly CO concentrations

7.3.5 Non-Criteria Pollutants

In South Africa, NAAQS have been set for criteria pollutants. A number of the emissions from the incinerators however are not criteria pollutants. NAAQS have therefore not been set for these emissions. In these instances, health-effect screening levels were identified by Airshed from literature reviews and internationally recognised databases. The health-effect screening levels identified through literature reviews and internationally recognised databases are included in 5.3.5 of the AIR.

A screening exercise of non-criteria pollutants emitted from the incinerators at SO was undertaken. As, Cr, Co, Mn, Ni, and V were noted as pollutants that would require further analysis based on the initial screening. Further analysis used the averaged normalised fraction of sum of metals represented by each metal element. This resulted in a normalised contribution of 94% of the 'sum of metals' from Mn as a result of an outlier data point. This is reduced to a 52% contribution when the outlier is removed. The use of the 94% contribution is therefore considered to be additionally conservative. It was found that based on the more detailed modelling, all pollutants fell below the strictest health effect screening levels barring Mn.

Potential Mn exceedances of the health effect screening level occur only on-site for the baseline scenario but extend up to 800 m from the western site boundary under the alternative emission scenario when using a 94% contribution and 350m when using the 52% contribution. The plume extends over the nearby Sasol Mining and Ash dump site to the west of the facility therefore the potentially elevated Mn concentrations would only affect individuals travelling on the public road that separates the western boundary of the SO facility from the Mining and Ash dump site and not any of the sensitive receptors identified.

7.4 Overall findings of the AIR

7.4.1 Meeting the NAAQS

The purpose of the MES aims to achieve the intent of the NEM:AQA which means ensuring that ambient air quality is achieved that does not threaten the health or well-being of people and the environment. To all intents and purposes that means ambient air quality that meets the NAAQS. Thus in assessing the request for postponements, the effect of granting such a request should be assessed in terms of the implication for ambient air quality.

For all criteria pollutants barring PM both the simulated and observed ambient concentrations are below the NAAQS. For PM while the observed ambient concentrations are above the NAAQS the simulated ambient concentrations of PM emanating from SO's sources are well below the NAAQS demonstrating the contribution to ambient concentrations from other sources. To address these other sources SO is in the process of executing a Joint Offset Implementation Plan with Natref that aims to achieve a reduction in PM emissions from community based sources.

7.4.2 The effect of the alternative emissions limits

The alternative emissions limits proposed by SO to be applicable during the extended compliance period, are in some instances significantly higher than the MES, i.e. as reported on a concentration basis. It is reiterated that the administrative basis of the MES is to comply under all operational circumstances, with emissions exceeding the MES only being tolerated for shut down, start up and upset conditions. That administrative requirement means that SO must request ceiling emissions limits rather than average emissions limits to ensure that it can comply under all operating conditions given the known variability of emissions under normal operational circumstances.

The predicted ambient concentrations for the alternative emissions limits are a worst-case depiction because they have been modelled as if the emission will be maintained at those levels continually, which they will not. Yet even under the worst-case emissions scenario meeting the NAAQS is predicted in all circumstances for SO's emissions.

The key finding is that compliance with the MES will in most (but not all) circumstances reduce ambient concentrations, but in a circumstance where the NAAQS are met. In the case of PM, compliance with the MES will not achieve meeting the NAAQS hence the need for the Offset Implementation Plan being executed in terms of the 2015 MES Postponement decision.

7.4.3 Health effects

The AIR Regulations prescribe an assessment of the health effects of the emissions for which temporary relief is sought from the MES through a request for extended compliance periods based on the degree to which the NAAQS are met. The World Health Organisation indicates that there is no safe limit in respect of exposure to PM. However, the NAAQS prescribe a permissible or tolerable level of health risk. The overall findings of the AIR are that the alternative emissions limits requested by SO in the interim will not result in an increase in ambient pollutant concentrations beyond the permissible health risk thresholds of the NAAQS.

7.4.4 Ecological effects

The impact of emissions on the environment is assessed in terms of Section 5.2 of the AIR. The analysis covers impacts to vegetation, of dustfall, potential corrosion and impacts associated with sulfur and nitrogen deposition.

The simulated off-site annual concentrations of SO_2 may exceed the critical levels for lichen (the most sensitive vegetation type). However, off-site NO_2 concentrations are likely to be below the

critical levels for all vegetation types including lichen. Estimated dustfall rates ranged between 0.12 and 1 319.8 mg/m^2/day. Theoretical compliance with existing and new plant standards are expected to result in lower dust fall rates. No exceedances of the target dustfall rates of 600 mg/m^2.day (residential) and 1 200 mg/m^2/day required by the National Dust Control Regulations (Government Gazette No. 36974) were simulated off-site. Corrosion rates were calculated using the ISOCORRAG method and are listed in Table 5-48 of the AIR. It is noted that corrosion rates for the baseline and alternative emissions scenario are generally higher than corrosion rates for the MES compliance scenarios.

Estimates of S and N deposition rates for the Highveld are comparable with some of the industrialised regions of Europe and North America raising concern that the acidic loading of sulfur and nitrogen on the ecosystems of the Highveld could have implications for ecosystem functioning. Investigating the impact of S and N deposition rates as a result of industrial emissions including SO require long term investigation beyond the scope of the AIR, however some research findings suggest that while grassland ecosystems of the Highveld are not yet affected by S and N deposition, some areas may be approaching critical loads. More details regarding these investigations are provided in Section 5.2.4 of the AIR.

8 Postponement request

SO applies for a further five-year postponement from the MES (1 April 2018 to 1 April 2023) for three incinerators under Category 8.1 of the MES, as indicated in Table 8-1. As the postponement period of five years requested extends beyond 1 April 2020, the date when the new plant standards take effect, this application consequently simultaneously includes a request for postponement of both the compliance timeframes for existing plant standards for the period 1 April 2018 to 31 March 2020 and the new plant standards for the period 1 April 2020 to 1 April 2023 in order to align with the five year postponement being requested. This postponement provides for the conclusion of the feasibility studies, in order to select the optimal compliance solution, and thereafter, pending the outcome of that decision, to allow for the approval and commencement of the safe execution of the associated projects, which, if proved feasible, will eventually bring about simultaneous compliance with the existing and new plant standards. This total project timeline will extend beyond the five year extension requested in this postponement application.

As indicated above, the request for the extended compliance timeframes is required to conduct the necessary investigations to confirm viability of the identified options as well as to commence the implementation of the feasible options to bring the site into compliance. In place of the MES, SO proposes the maximum emission concentrations set out in Table 8-1 as alternative emissions limits as well as alternative special arrangements to be incorporated in its AEL for the duration of the postponement. The alternative emissions limits are informed by actual emissions measured and the alternative special arrangement by actual flue gas temperature measured.

It will be noted from the Table below that some of the alternative emissions limits proposed are higher than the limit values initially granted and requested during the 2014 postponement application, whilst some have reduced. The reasons for this increase in the proposed alternative emissions limits are two-fold:

1. As a consequence of the additional sampling conducted and with a specific focus on oxygen correction and measurements, it was determined that the oxygen content in the flue gas is higher than the oxygen sensitivity calculations which informed the 2014 application. The necessary oxygen corrections have required a mathematical increase in concentrations. Thus, although the concentrations have doubled, the emission rate of the baseline and alternative limit concentrations for the B6930 incinerator is almost identical. Similarly, in the B6993 incinerator

and increase in moisture content is also responsible for some of the increases in alternative limit values. This does not mean that SO intends to increase its emissions.

2. During the 2014 baseline sampling campaigns for the B6993 and B6990 incinerators, SO_2 emissions were virtually non-existent in the stacks. On this basis, SO did not apply for a postponement in this regard. Subsequent stack measurements and feedstock analyses have confirmed that both incinerators have sulphur components and hence these incineration processes produce SO_2 emissions which are different to the best available information which informed the 2014 baseline with similar feedstock. Additionally, the dust emissions for the B6990 incinerator could be quantified and hence this is included.

SO is engaging with the Department of Environmental Affairs' Enforcement Inspectorate as well as its licensing authority regarding the elevated emissions measured and in order not to act in contravention of the limits contained in its AEL, it has temporarily ceased operation of the three incinerators; instead taking the waste stream to landfill as a provisional solution.

SO has proposed the alternative emissions limits on the basis of sampling information which it believes to be both correct and representative of the best available information and with due regard to measurements, and statistical analysis which it believes to be accurate and reliable.

Even though the temperature within the B6990 incinerator remains high, the utilisation of a titanium probe assembly has enabled SO to conduct measurements at elevated temperatures and this postponement application therefore contains a request for specific alternative emission limits, rather than on the basis of the more interim qualitative measures requested during the 2014 postponement application.

Since the flue gas temperature on incinerator B6990 exceeds the 200 ºC temperature limit SO also applies for a five-year postponement (1 April 2018 to 1 April 2023) of the compliance timeframe for special arrangement 8(a)(vi), and requests that it be permitted to continue operating at current flue gas exit temperatures (between 500 and 1000 °C).The constraint regarding the measurement of emission concentrations for some of the emission components at high exit gas temperatures has been resolved through the utilisation of the titanium probe.

Table 8-1: Alternative emissions limits and alternative special arrangement request for SO incinerators

Emission component	MES for existing plants	MES for new plants	Incinerator B6930		Incinerator B6993		Incinerator B6990		Averaging period for compliance monitoring
			Limit granted in decision on 2014 postponement application	Alternative Emissions Limit Requested (ceiling limit) [a]	Limit granted in decision on 2014 postponement application	Alternative Emissions Limit Requested (ceiling limit) [a]	Limit granted in decision on 2014 postponement application	Alternative Emissions Limit Requested (ceiling limit) [a]	
	All values specified at 10% O_2, 273 K and 101.3 kPa, mg/Nm^3 unless otherwise specified								
PM	25	10	50	100	180	360	No visible plume	600	Daily average
SO_2	50	50	1 800	3 600	50	340	50	1 500	
CO	75	50	50	NA	1 050	1 700	75	NA	
NO_x	200	200	750	880	420	420	360	640	
Pb+As+Sb+Cr+ Co+Cu+Mn+Ni+ V	0.5	0.5	1	16	22	20	No visible plume	60	
Cd+Tl	0.05	0.05	0.05	0.06	0.05	NA	No visible plume	NA	
Hg	0.05	0.05	0.05	NA	0.05	NA	Feed stream analysis	NA	
NH_3	10	10	10	NA	10	NA	10	NA	
HF	1	1	1	NA	1.2	NA	1.5	3.3	
HCl	10	10	10	NA	15	NA	10	NA	
TOC	10	10	50	15	10	20	25	15	
Dioxin & Furan [ng I-TEQ/Nm^3, dry at 10% O2]	0.1	0.1	0.1	NA	0.1	NA	Feed stream analysis	NA	
Flue gas temperature	200 ºC	200 ºC	NA	NA	NA	NA	Between 500 ºC and 1 000 ºC	Between 500 ºC and 1 000 ºC	

[a] Since the MES prescribes ceiling limits, the alternative emissions limits requested are aligned with the maximum emission concentrations expected under normal operating conditions, to cater for natural process fluctuations. The alternative emissions limits proposed are based on a daily averaging period for compliance monitoring, corrected for pressure, temperature, water vapour and to 10% oxygen.

9 Roadmap to Compliance

Following pre-feasibility studies conducted to date, and in particular, the new options identified through on-going technology scans, SO is now of the view, based on presently available information, that it may be able to feasibly comply with the new plant standards for its Thermal Oxidation plant. More time is required to confirm this position through the conclusion of feasibility studies and to advance solutions to implementation. Progress on advancing the project through the required governance processes as outlined in Table 6-1 will be reported to the DEA.

Figures 9-1 to 9-3 illustrate the various current SO incinerator roadmaps with alternatives that are currently being investigated per incinerator, to meet the new plant standards. Current indications are that a decision taking into consideration the feasibility of all options will be taken by the third quarter of 2019. Once the final option(s) decision is made, the engineering phase of the selected compliance technology option(s) will commence, in accordance with a project schedule aligned with that technology choice, since all options must be advanced to the same level of technical and business definition, for an informed decision to be taken. It must be noted that dates provided herein are estimated based on best available information at the time of compiling this report and reliant on assumptions made with regards to the plant shutdown schedule, vendor capacity and internal resources availability. Any unforeseen changes in any of these assumptions could result in changes to the project schedule.

9.1 Alternate Fuel Resource [AFR] Option:

The AFR option substitutes fossil fuel resources with waste streams as alternative fuels. This initiative involves the blending of the high calorific value wastes to form a suitable fuel resource for the cement kiln industry. This initiative involves the following actions:

a. Continue AFR trials with various third Parties

b. A dedicated team is allocated to manage this trial work and the results thereof in collaboration with the third Parties.

c. Decision points are defined to ensure that the trial runs will indicate viability and sustainability of the option. Based on the outcome of the trial runs at the specific decision point, this will influence the progress of the alternatives to this option.

9.2 Option to Abate the Incinerators

This option involves the retrofitting or replacement of existing incinerators to ensure that abatement technologies are fully inclusive. The following actions are planned:

a. The abatement option for the incinerators will follow Sasol's project governance framework as detailed earlier in this report, to assess feasibility of the options.

b. The date to commence engineering of these options [abatement of B6930, B6990 and B6993] is dependent on the AFR trial runs. Based on the outcome of the AFR trial runs, the engineering for the abatement options would proceed (if AFR trials are unsuccessful) or be halted (if AFR trials are successful).

9.3 Option to Implement one Incinerator in Secunda

This option entails a common incineration facility for the bulk of the waste streams generated at Secunda Synfuels Operations and SO. This project is currently in the Pre-Feasibility phase. Actions to assess the viability of this option are provided hereunder:

a. The engineering for this option will proceed in parallel with other options up to completion of the Feasibility phase, when a final option(s) to implement decision will be made. The current schedule is to complete the applicable Engineering phase (as defined in Sasol's project governance framework outlined above).

9.4 Spent Caustic to Secunda Biological Treatment Facility [Bioworks]

The spent caustic that was incinerated in the B6993 incinerator can be beneficially processed via the Biological treatment facility in Secunda.

a. The engineering and further impact assessment for this initiative is in progress.

9.5 Spent Methanol Alternatives

a. The spent methanol streams [from Solvents and Rectisol processes] are currently incinerated in the B6993 incinerator.

b. The viability of sending the Rectisol spent methanol stream to the Sasolburg Bioworks facility for processing is currently being investigated.

c. There is a potential to blend the Solvents spent methanol stream with fuel oil and thus sell this in the fuel market, via the Sasol Southern Africa Energy team.

9.6 Fuel Blending Option:

a. This option is based on proposals received from third parties for the processing of the identified waste streams.

b. More detailed development of alternatives is still required to understand its viability and hence associated timelines.

After the evaluation of each alternative option's feasibility, a decision will be made on whether the option will be a sustainable alternative. Should an alternative be seen as viable and sustainable and ready for implementation, a complete project plan for implementation will be developed and shared with interested and affected parties if required by applicable law. The reason individual project plans for alternatives cannot be developed currently, is because each alternative poses its own unique challenges to be overcome at both SO as well as the 3rd party's premises. Therefore, the implementation and everything associated with that alternative can only be addressed once the feasibility and sustainability of the alternative has been confirmed.

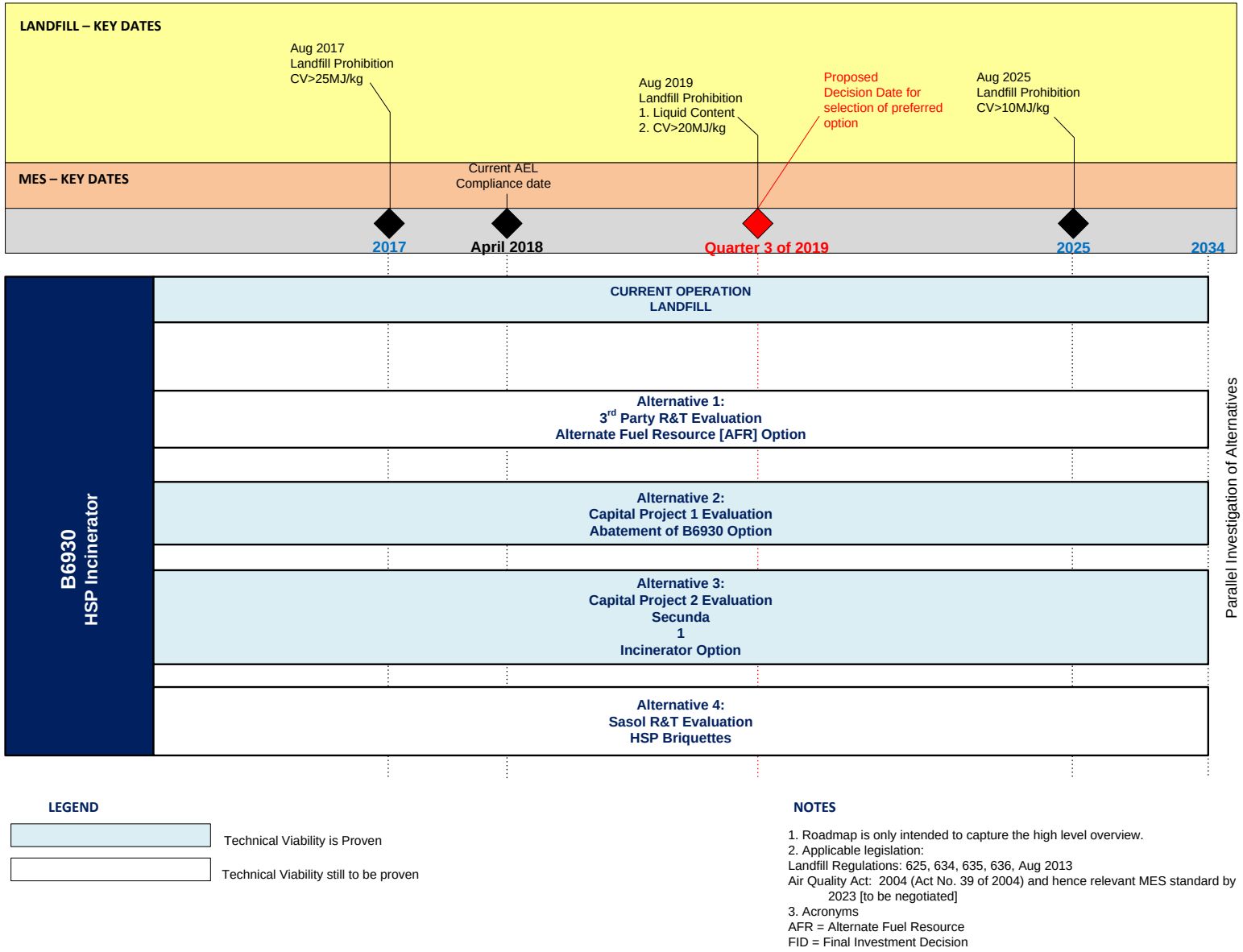

Figure 9-1: SO Roadmap to Compliance for the B6930 Incinerator

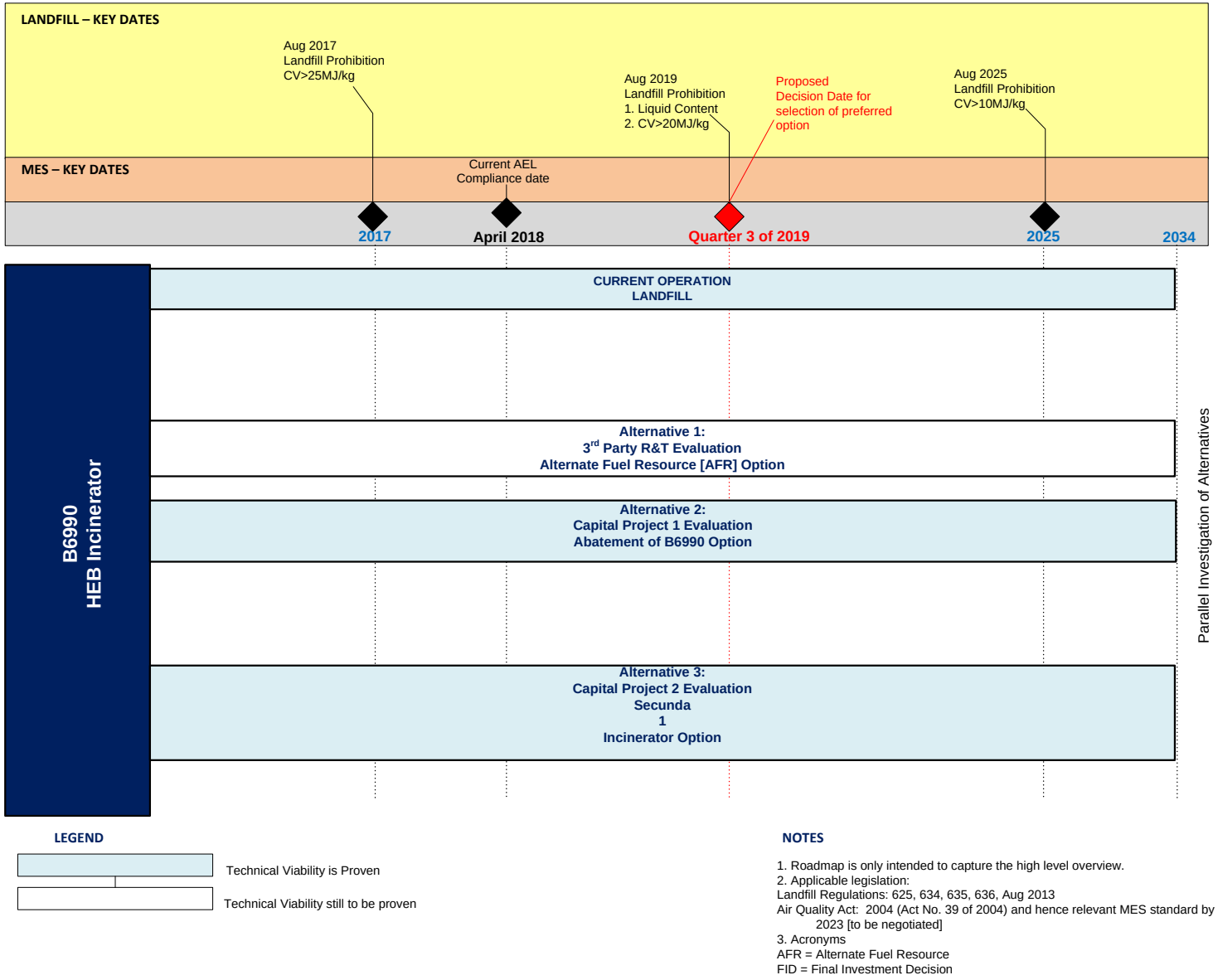

Figure 9-2: SO Roadmap to Compliance for the B6990 Incinerator

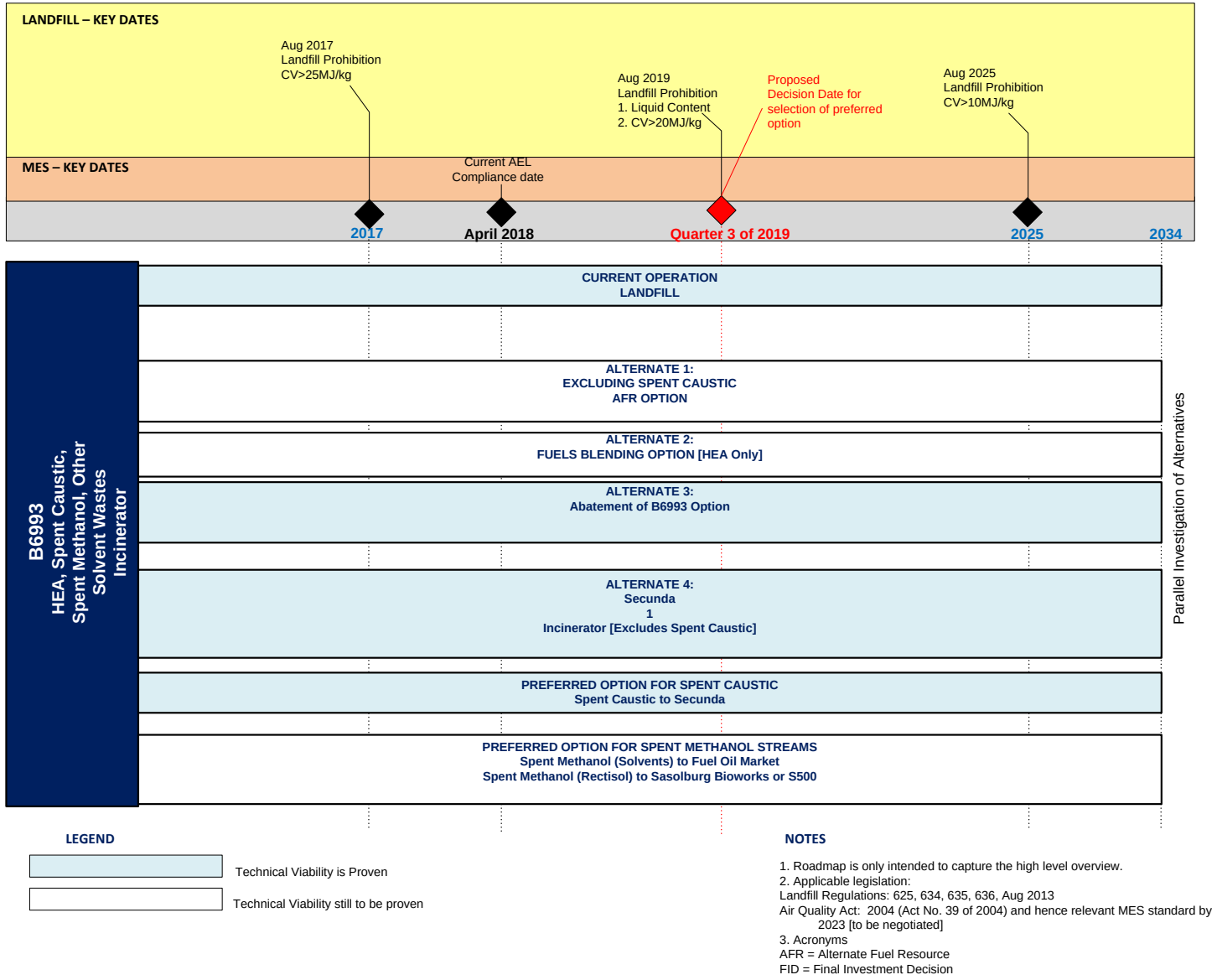

Figure 9-3: SO Roadmap to Compliance for the B6993 Incinerator

10 Public Participation

10.1 Approach to Public Participation

In terms of the MES (Government Notice No. 893, 22 November 2013) a postponement application must include – "*a concluded public participation process undertaken as specified in the NEMA Environmental Impact Assessment Regulations*."

As such the Public Participation Process (PPP), undertaken as part of Sasol's application for postponement of the compliance timeframes, was structured to meet the requirements of Chapter 6 of the EIA Regulations (Government Notice No. 733, 29 August 2014) published under the National Environmental Management Act (Act 107 of 1998) (NEMA), as specified in the MES.

A Public Participation Report, detailing the project Public Participation Process undertaken to date is attached in Annexure C.

The public participation process is an important component of the application process and is closely linked to the technical activities required for the preparation of the Motivation Report (Figure 10-1).

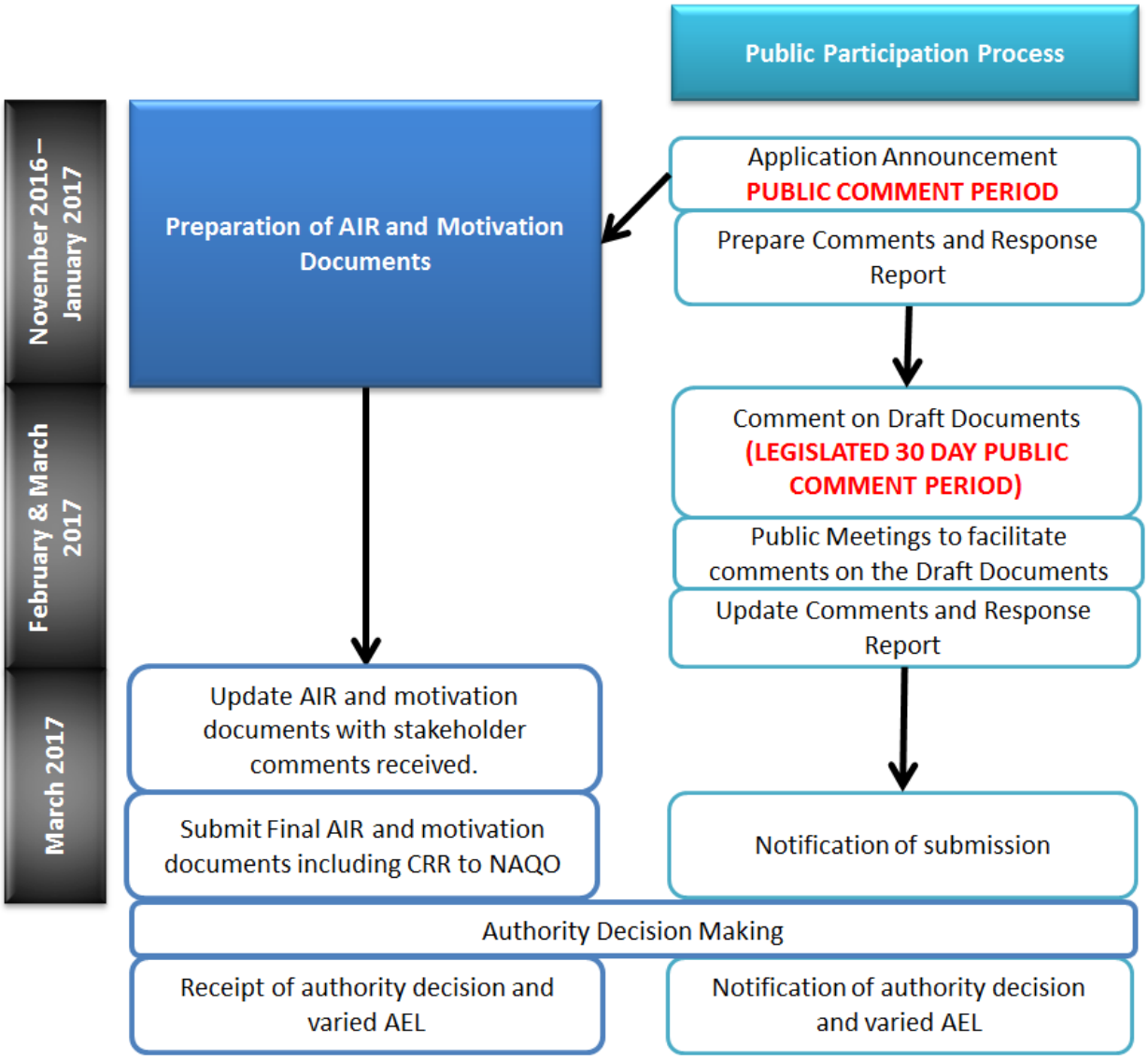

Figure 10-1: Technical and Public Participation Process

10.2 Announcement of application process

The postponement application announcement phase was conducted between 16 November 2016 and 09 December 2016. I&APs received notification of Sasol's intention to apply for postponement, a Background Information Document (BID) and an invitation to register as an Interested and Affected Party (I&AP) in the process. I&APs were invited to participate in the process as follows:

- A letter of invitation was sent to all I&APs that have registered in previous postponement applications public participation process.
- Advertisements were placed in two local newspapers on 16 November 2016.
- Site notices, BIDs and Comment Forms were placed, at the Sasolburg Public Library, Zamdela Library, Metsimaholo Local Municipality and Sasolburg Operations Main Reception on 16 November 2016.
- BIDs, invitation letters and comment forms were placed on SRK's website at http://www.srk.co.za/en/za-sasol2017postponement.

Where email addresses for I&APs were not available, facsimile and SMS notification were made to I&APs to inform them of postponement application.

10.3 Public comment on Draft Motivation report

The Draft Motivation Report and AIR were made available for public comment for a period of 30 days from Monday **6 February 2017** to **Wednesday 8 March 2017**.

Notification of the availability of the documents and an invitation to attend the public meetings to facilitate comment on the Draft Motivation Report and AIR was made as follows:

- Distribution by email, of notification letters, 6-8 February 2017.
- Advertisements were placed in two local newspapers between the 7 and 13 February 2017.

Where email addresses for I&APs were not available, facsimile and SMS notifications were sent.

Electronic versions of the reports and comment sheets were made available on the SRK website, http://www.srk.co.za/en/za-sasol2017postponement. Electronic copies of the report where made available on request.

In addition, printed copies of the report and comment sheets are available at the following publicly accessible venue for I&APs to view and comment on.

Table 10-1: Availability of printed copies of the Draft Motivation Report and AIR

Public Place	Locality	Contact	Telephone
Public Library	John Vorster Road, Sasolburg	Yvette Herbst Griesel	016 973 8463
Zamdela Library	Next to Zamdela Hall on the Main Road, Zamdela	Reception	016 974 2163
Metsimaholo Local Municipality	Fichardt Street, Sasolburg	M Molala	016 973 8316
Sasolburg Operations Main Reception	1 Klasie Havenga Road, Sasolburg	Reception	016 960 2014 / 2976

I&AP's were able to comment and make suggestions on any aspect of the Draft Motivation Report or AIR as follows:

- Completing the registration and comment form and submitting it to the Public Participation Office at SRK.
- Written letters or additional written submission by post, email or fax.

Comments received were collated and responded to, where appropriate, in the Comments and Responses Report (CRR) (Annexure D). These comments and suggestions will be submitted together with final documents to the authority to inform the authorities' decision.

10.4 Public Meeting

Public meetings to facilitate comment on the Draft Motivation Report and AIR were held as follows:

Table 10-2: Public Meeting Details

Date	Time	Venue
Tuesday 21 February 2017	14h00 – 16h00	Vaalpark Primary
Tuesday 21 February 2017	17h30 – 19h30	Boiketlong Community Hall
Wednesday 22 February 2017	17h00 – 19h00	Multi-Purpose Centre, Zamdela

The primary objectives of the public meetings were to:

- Foster robust engagements and build relationships with Sasol's host communities.
- Share information on Sasol, its activities and Air Quality impacts relating to the postponement application.
- Provide an opportunity for neighbouring communities to raise any issues regarding the postponement application process.
- Facilitate comments on the Motivation Report and AIR.

All comments raised at the public meetings are captured in the CRR (Annexure D).

10.5 Follow up with I&APs

Due to the level of attendance at the public meetings reminder emails where sent to all I&APs with email addresses. The letter guided I&APs to a copy of the public meeting presentation that was made available on the SRK website at http://www.srk.co.za/en/za-sasol2017postponement. SRK also undertook telephonic follow up with key I&APs to elicit comment.

10.6 Comments Received

To date, SRK have received requests for I&APs to be registered on the database as well as requests from some I&APs to be removed from the database. Other than requests for registration and issues raised at the public meeting, the only comment received was from the Department of Water and Sanitation regarding how these applications would impact on the Water Use Licence for the site.

All comments received on the Draft Motivation Report or AIR either at public meetings or via post, email or fax, including responses thereto as appropriate, have been included in a CRR (Annexure D). The CRR will be submitted with the Motivation Report and AIR to the NAQO for consideration.

Comments received via post, email, fax or the online comment form are attached as Annexure 1 of the Comments and Response Report.

11 Conclusions and Way Forward

Sasol operates large complex industrial facilities in Sasolburg and Secunda both of which generate atmospheric emissions due to the nature of the activities. The publication in 2010 and the subsequent amendment in 2013 and 2015 of Minimum Emissions Standards (MES) has meant that Sasol is obliged to reduce many of its emissions to comply with the MES requirements.

SO supplies utilities and services (including infrastructure, waste management, site support and site governance) to various Sasol business units as well as external businesses in Sasolburg. The 2014 Postponement Application noted that a feasible solution to meet the MES had not been identified for the SO incinerators. SO has however, as was committed in the 2014 Postponement Application, continued to explore alternatives to find potentially feasible compliance options. Based on the investigations, SO now believes that, based on presently available information, it may be feasible to comply with the existing and new plant standards.

SO has engaged with a number of third parties to investigate alternative waste management solutions for waste streams that will be prohibited from landfill in the near future as well as waste streams that are currently being incinerated at the SO Thermal Oxidation facility. Some alternatives have been developed successfully whilst others are taking longer due to challenges posed by the chemical and physical nature of some of the cumbersome waste streams.

SO therefore seeks to operate in terms of limits that are reasonable, achievable and most importantly provide a benefit in air quality improvement which is commensurate to the costs of compliance. SO is therefore applying for a further five-year postponement (1 April 2018 to 1 April 2023) of compliance timeframes for existing plant standards and a concurrent three-year postponement on new plant standards (1 April 2020 to 1 April 2023) for the Incinerators. SO requests alternative emissions limits and alternative special arrangements to be incorporated as licence conditions during the requested postponement period.

As part of this application an independent an AIR has been prepared that details the implications of the proposed alternative emissions limits and alternative special arrangements for ambient air quality. For all criteria pollutants barring PM both the simulated and observed ambient concentrations are below the NAAQS. For PM while the observed ambient concentrations are above the NAAQS the simulated ambient concentrations of PM emanating from SO's sources are well below the NAAQS demonstrating the contribution to ambient concentrations from other sources. Compliance with the MES will in most (but not all) circumstances reduce ambient concentrations, but in a circumstance where there is already full compliance with the NAAQS. In the case of PM, compliance with the MES will not achieve compliance with the NAAQS.

Sasol is committed to supporting government in efforts to manage, and where required, reduce atmospheric emissions in the priority areas where its major operations are located. Compliance with the MES is a priority and Sasol believes that its roadmap to sustainable air quality improvement will ensure that its emissions are responsibly managed and practicably minimised, in a manner aligned with the intent of the Constitution, the NEM:AQA and the National Framework for Air Quality Management (NAQF).