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Our ref: CER/33.5/RH/SK
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Dear Dr Mdluli

ADDITIONAL SUBMISSIONS ON ESKOM'S APPLICATIONS FOR POSTPONEMENT OF COMPLIANCE WITH THE MINIMUM EMISSION STANDARDS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004: FOCUSSING ON ESKOM'S RESPONSES REGARDING HEALTH IMPACTS, FUTURE COMPLIANCE AND MONITORING DATA

1. We refer to our submissions dated 12 February 2014 and our correspondence dated 24 June 2014, to the Department of Environmental Affairs' (DEA) correspondence to Eskom on about May 2014, and to Eskom's July 2014 responses to the DEA correspondence. We are instructed to make additional submissions opposing Eskom's applications to postpone compliance with the minimum emission standards (MES) (and its accompanying variation applications), based on its July 2014 correspondence. We received copies of these additional submissions in late August 2014. Following discussions with our clients and technical experts, we make these additional submissions to ensure that, before decision-makers decide the MES postponement and variation applications, they are in possession of relevant information as required by the Promotion of Administrative Justice Act, 2000 (PAJA).

2. Upfront, we wish to point out that, in addition to its applications to vary its atmospheric emission licences (AELs) that were submitted together with its MES postponement applications, Eskom subsequently submitted several additional applications: to vary its AELs for Duvha, Kriel and Medupi, and to appeal its AEL for Grootvlei . In these applications, Eskom sought additional and immediate leniency in relation to emission limits in these AELs. Our clients have also appealed the Medupi AEL, and seek to have flue gas desulphurisation integrated into the design of as many units as possible, rather than being retrofitted 6 years after each unit is commissioned. The Kriel

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variation application was largely refused, and Eskom withdrew its Duvha variation application, purporting to replace it with a report in terms of section 30 of the National Environmental Management Act, 1998 (NEMA), although there was no "incident" as defined in NEMA. The Medupi and Grootvlei applications are ongoing.

3. We note that, in the DEA's requests for additional information from Eskom, it pointed out, amongst other things, that Eskom had not provided details regarding its future plans to comply with the MES. The DEA also indicated that Eskom had provided limited data to assess the impacts of its applications on human health and the environment. The DEA indicated that Eskom's applications would not be further processed unless and until the additional requested information was provided.

4. As set out below, Eskom has largely failed to provide additional information regarding health impacts and regarding its future compliance with the MES – despite being specifically required to so do by the DEA. The information it provided regarding monitoring reveals that elevated daily average SO_2 and PM_{10} concentrations occur frequently throughout the region in the vicinity of Eskom's power stations, and throughout the year; and that these concentrations are frequently several times higher than the ambient air quality standards (AAQS) and/or World Health Organisation (WHO) guideline value, with consequent health impacts. Since Eskom is by far the largest source of SO_2 emissions in the region, the implication is that its emissions are mainly responsible for the high ambient concentrations and these health impacts. In addition, the occurrence of high ambient particulate matter (PM) concentrations in the summer months contradicts Eskom's assertion that domestic solid fuel burning is the main source of PM, and that Eskom is only a very minor contributor to ambient PM. For these and the other reasons upon below, we are instructed to reiterate that Eskom's applications be refused.

5. We first address Eskom's response regarding the health impacts of its stations; and then its response regarding its future plans to comply with the MES. Thereafter, we make certain submissions regarding the additional monitoring data Eskom has provided.

6. <u>Eskom's response regarding the health impacts of its applications to postpone compliance with the MES</u>

6.1 As pointed out in our February 2014 submissions, and despite the requirement in the Framework for Air Quality Management (Framework) that the applicant for a postponement from the MES must show that the facility's current and proposed air emissions are not causing and will not cause any adverse impacts on the surrounding environment, Eskom failed to undertake detailed assessments of the health impact of the postponement and variation applications. As a result, Lauri Myllyvirta, an expert from Greenpeace International, was asked to analyse these impacts. His report forms part of our February 2014 submissions. As appears from our submissions, these health impacts are devastating, and will have enormous economic costs.[1]

6.2 For the purpose of these supplementary submissions, and in order to reflect these impacts in a more detailed way, Lauri Myllyvirta has provided further details derived from his earlier study. Figure 1 shows the annual average concentrations of $PM_{2.5}$ resulting from Eskom's coal-fired power stations (CFPS) emissions in an approximate 750km by 500km region, bounded by the 1.0µg/m^3 concentration contour. Figure 2 is a more detailed graphic of the inner region, bounded by the 2.0µg/m^3 concentration contour.

[1] http://cer.org.za/wp-content/uploads/2014/02/Annexure-5_Health-impacts-of-Eskom-applications-2014-_final.pdf

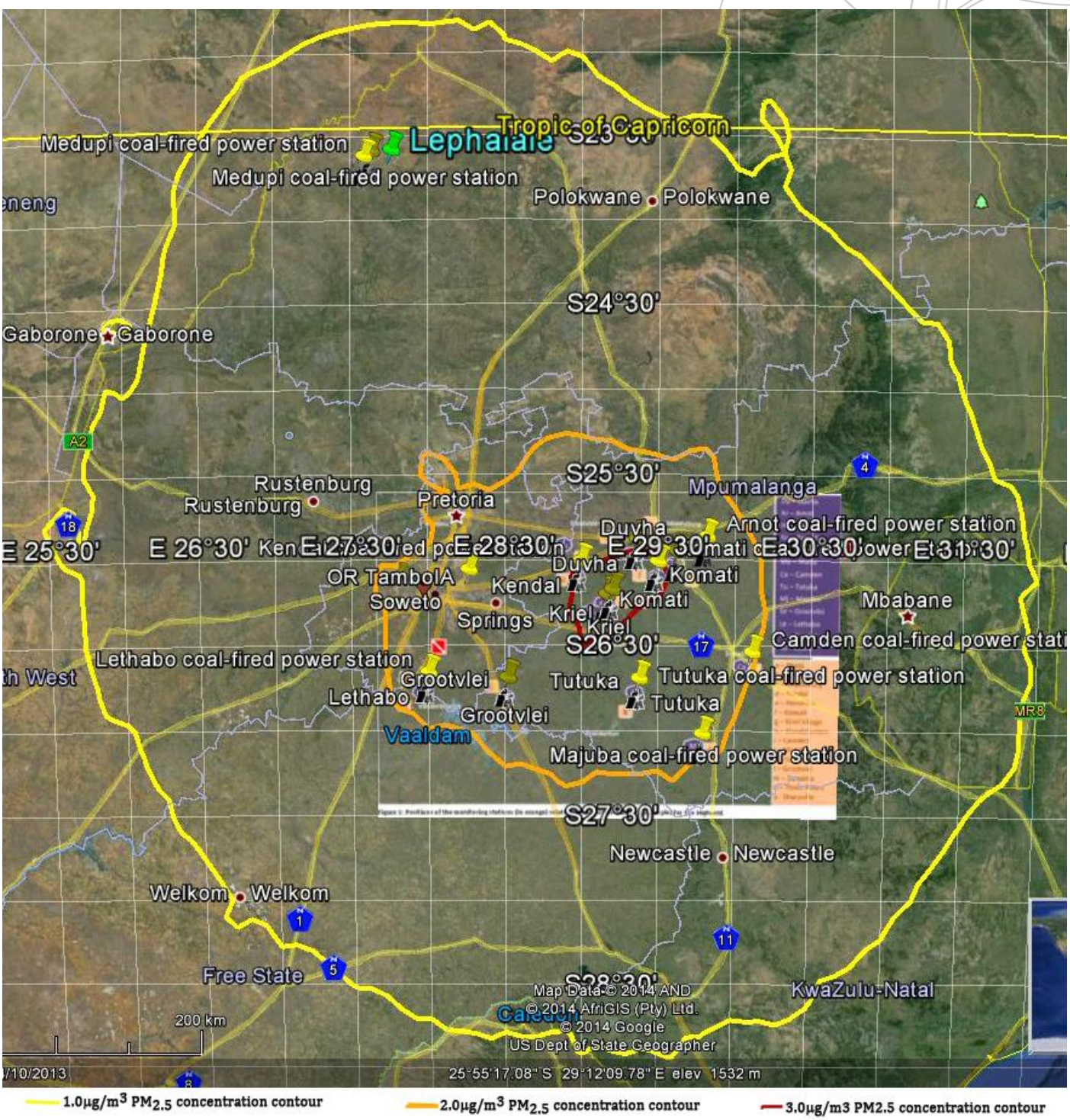

Figure 1: Contours of predicted annual average PM2.5 concentrations due to Eskom emissions, 750x500km region

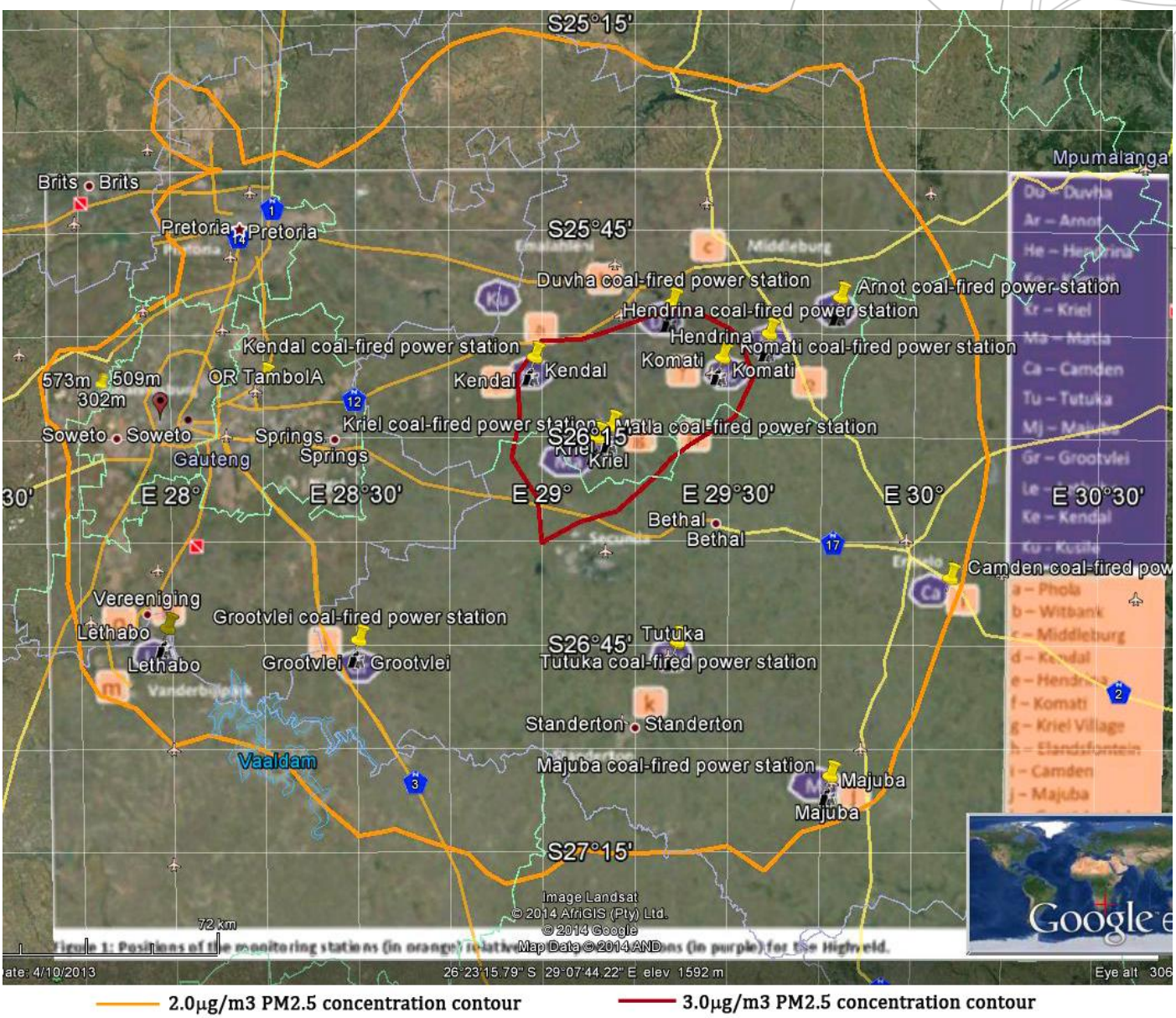

Figure 2: Contours of predicted annual average PM2.5 concentrations due to Eskom emissions, 325x200km region

6.3 It is clear from Figure 1 that Eskom's emissions have a regional impact. Figure 2 shows that the area within the annual average 2.0µg/m^3 $PM_{2.5}$ concentration contour includes the densely-populated metropolitan areas of Johannesburg/Soweto and Tshwane/Pretoria. Eskom's emissions therefore contribute significantly to the elevated pollution levels in these metropolitan areas and the Vaal Triangle Airshed (Vereeniging, Vanderbjlpark, Sasolburg) and Highveld Priority Areas.

6.4 Tables 1 and 2 show the health impacts on the population living in these areas.

Table 1: Increase in risk of death associated with different levels of exposure to PM2.5 (as used for Global Burden of Disease 2010 by Lim et al 2012; original source American Cancer Society study, Krewski et al 2009; except LRI: Mehta et al 2011).

PM2.5 concentration level, µg/m3	1	2	3
Lung cancer	1.4%	2.8%	4.2%
IHD	2.6%	5.2%	7.8%
COPD	0.5%	1.0%	1.5%
Stroke	1.2%	2.4%	3.6%
Lower respiratory infection (children under 5)	1.2%	2.4%	3.6%
Total mortality	0.17%	0.34%	0.50%
Total mortality from non-communicable diseases	0.95%	1.22%	1.61%

Table 2: Estimated number of people exposed to different levels of PM2.5 due to emissions from Eskom's coal-fired power stations, and total number of deaths attributable to the exposure.

PM2.5 concentration level, µg/m3	Exposed population, million	Attributable mortality, deaths per year
1.0-2.0	10.4	370
2.0-3.0	9.2	560
3.0+	0.4	30

6.5 The health effects of exposure to $PM_{2.5}$ have been extensively studied. The Review of Evidence on Health Aspects of Air Pollution (REVIHAAP) project of the WHO Final Technical Report,[2] prepared by a large group of scientists, presents detailed answers to 24 questions on the health aspects of air pollution. Although the REVIHAAP project occurred in the context of a review of European Union policies, the answers to the 24 questions are of universal relevance. This study, which focussed on the scientific evidence published since the 2005 global update of the WHO, reached a number of pertinent conclusions. In relation to $PM_{2.5}$, these include the following:

> "*The scientific conclusions of the 2005 global update of the WHO air quality guidelines about the evidence for a causal link between PM2.5 and adverse health outcomes in human beings have been confirmed and strengthened and, thus, clearly remain valid. As the evidence base for the association between PM and short-term, as well as long-term, health effects has become much larger and broader, it is important to update the current WHO guidelines for PM. This is particularly important as recent long-term studies show associations between PM and mortality at levels well below the current annual WHO air quality guideline level for PM2.5, which is 10 µg/m3*."[3]
>
> "*The risk of ischaemic heart disease, which includes heart attacks, has particularly strong and consistent associations with PM2*.5."[4]
>
> *"…. [T]he scientific evidence supports the health impacts and the need to regulate concentrations for both short-term averages (such as 24-hour averages) and annual means*."[5]

[2] WHO, 2013. Review of evidence on health aspects of air pollution – REVIHAAP Project. Final Technical Report, available at: http://www.euro.who.int/__data/assets/pdf_file/0004/193108/REVIHAAP-Final-technical-report-final-version.pdf?ua=1

[3] Ibid at 6.

[4] Ibid at 8.

[5] Ibid at 32.

"***Thresholds.*** *For studies of short-term exposure, there is substantial evidence on associations observed down to very low levels of PM2.5. The data clearly suggest the absence of a threshold below which no one would be affected. Likewise long-term studies give no evidence of a threshold. Some recent studies have reported effects on mortality at concentrations below an annual average of 10 µg/m3.*

Linearity. *The European studies of short-term exposure that have rigorously examined concentration–response functions have not detected significant deviations from linearity for ambient levels of PM2.5 observed in Europe*."[6]

6.6 Therefore although Eskom's emissions may or may not be the largest contributor to ambient PM concentrations in localised areas - for example in the vicinity of other large sources of PM emissions – Eskom, due to the magnitude of its emissions, contributes to a raising of PM concentrations over a very large area inhabited by a large population. This exposes a substantial population to an increased risk of death and disease. In paragraphs 6.2 to 6.4 above, only estimates of the health impacts due to increased annual average $PM_{2.5}$ concentrations are presented. In other words, notwithstanding Eskom's focus on the localised impact of the emissions from coal and wood fuels, particularly in winter in poor households, the impact of Eskom's emissions occurs over and above the impacts of the use of highly-polluting fuels in certain areas, and extends over a much larger area.

6.7 Estimates of the health impacts due to increased short-term (daily average) $PM_{2.5}$ exposures in the same impacted area are not available.

Eskom has failed to provide additional health information requested

6.8 In the DEA's May 2014 correspondence to Eskom re Arnot, Camden, Grootvlei, Kendal, Komati, Kriel, Lethabo, Majuba, Matimba, Matla, Medupi and Tutuka, the following is stated:

"*There is limited data supplied to undertake the $PM_{2.5}$ health and environment impact*".

6.9 In the DEA's letter re Duvha, it states:

There is no indication of assessments of emissions' impact to human health and the environment given; and
Assessment for environmental impact was only conducted for FGD and not for the impact of the facility of the receiving environment as required by legislation.

6.10 In the letter re Hendrina, the DEA points out that:

No assessment of emissions impact to human health and the environment was conducted.
Assessment for environmental impact was only conducted for FGD and not for the facility; and
A detailed assessment of emissions impact on human health and the environment has not been conducted.

6.11 The DEA's correspondence indicates that the postponement applications will be placed on hold until information is provided to address these issues.

6.12 In its responses, Eskom failed to conduct any additional assessments. In relation to Camden, for example, it responded:

[6] Ibid at 38.

Unfortunately, PM2.5 concentrations are not monitored at the Camden ambient monitoring station, and sufficient information on particle size distribution is not available to model the impact of PM2.5 emissions from Camden Power Station on ambient air quality. However, PM10 concentrations are monitored at the Camden ambient monitoring station and are presented in Figures 9 and 11 of the Atmospheric Impact Report submitted in support of Eskom's application for postponement of the Minimum Emission Standards compliance timeframes for the Camden Power Station, and presented in Figure 8 to 10 above. Moreover, the impact of total particulate emissions from Camden Power Station on ambient air quality has been modelled.

Based on these results, it is submitted that the conclusions with respect to the impact of Arnot's particulate emissions on health and the environment will be similar to that for the other stations:

- The ambient levels of PM10 and PM2.5 are in non-compliance with South African Ambient Air Quality Standards
- Particulate emissions from Camden Power Station make only a very small contribution to total ambient particulate levels, and further emission reductions from Camden Power Station will not result in a meaningful improvement in ambient PM levels.

The general conclusions regarding the impact of Camden's PM2.5 emissions on human health and the environment are expected to be the same as the conclusions for PM10.

6.13 In its response regarding Duvha, Eskom simply refers to the documents it has previously submitted:

Please refer to the Atmospheric Impact Report in support of Eskom's application for postponement of the Minimum Emission Standards compliance timeframes for the Duvha Power Station (Annexure C). The analysis of emissions impact on human health is in Section 5.6 of the Atmospheric Impact Report and the analysis of emissions impact on the environment is in Section 5.7 of the Atmospheric Impact Report.

...

The analysis of emissions impact on the environment is in Section 5.7 of the Atmospheric Impact Report of Duvha's Postponement Application. The assessment is based on atmospheric dispersion model calculations of the impact of SO_2, NO_x and PM emissions from Duvha Power Station on ambient air quality – see sections 5.5.2 and 5.5.3 of the Atmospheric Impact Report.

6.14 Eskom adopts the same approach in its response re Hendrina:

Please refer to the Atmospheric Impact Report in support of Eskom's application for postponement of the Minimum Emission Standards compliance timeframes for the Hendrina Power Station (Annexure C). The analysis of emissions impact on human health is in Section 5.6 of the Atmospheric Impact Report and the analysis of emissions impact on the environment is in Section 5.7 of the Atmospheric Impact Report.

…

The analysis of emissions impact on the environment is in Section 5.7 of the Atmospheric Impact Report of Hendrina's Postponement Application. The assessment is based on atmospheric dispersion model calculations of the impact of SO_2, and NO_x emissions from Hendrina Power Station on ambient air quality – see section 5.4 of the Atmospheric Impact Report. The impact of PM emissions from Hendrina Power Station on ambient air quality was not considered, because Hendrina already complies with the 'new plant' PM emission limit, and there is very little that can be done to further reduce PM emissions from Hendrina.

6.15 In other words, despite the DEA requiring Eskom to provide additional information so that its applications could be evaluated, Eskom simply stood by the information it has previously provided. Eskom continues to fail to acknowledge that SO_2 and NOx emissions are major contributors to secondary $PM_{2.5}$ ambient concentrations throughout the region, and to fail to address the consequent health impacts of secondary $PM_{2.5}$.

Eskom has failed to provide such health impact information as is available

6.16 Eskom's failure not only to conduct these health impact assessments for purposes of the postponement applications, but its failure to provide additional information on these impacts when specifically required to do so by the DEA, is exacerbated by the fact that is also failed – on both of these occasions - to disclose the results of the health impact assessments it had itself commissioned in 2006 – at a time when Eskom only operated ten CFPS.

6.17 Eskom had commissioned Airshed Planning Professionals to "*compile an air quality compliance assessment and health risk analysis study for current and future baseline operations and proposed future operations. The specific objectives of the study were as follows:*

a. *Determine the compliance of existing, return-to-service and proposed Eskom power stations with current and proposed South African and international ambient air quality limits, taking cumulative air pollutant concentrations due to other major sources into account (e.g. industry, household fuel burning, mining, vehicle exhaust emissions).*
b. *Quantify inhalation-related health risks occurring due to existing, return-to-service and proposed Eskom power stations, and compare such risks to risks predicted to arise due to other major sources.*
c. *Identify which of the existing, eligible Eskom power stations should be targeted for sulphur dioxide control measure implementation based on health risk considerations, and quantify the benefits of selected emission control scenarios in terms of improving compliance and reducing health risks."*[7]

6.18 The two reports, entitled "Eskom Mpumalanga Highveld Cumulative Scenario Planning Study" and "Air pollution health risk analysis of current and proposed Eskom power stations located in the Limpopo Province" reveal that Eskom's stations result in significant health impacts – including mortalities and hospital admissions.[8]

6.19 Given Eskom's failure to conduct health impact assessments, the only evidence of these impacts for the DEA to consider is contained in our February 2014 submissions and in the 2006 reports – although these are now outdated and likely too conservative – commissioned by Eskom.

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7 Eskom Mpumalanga Highveld Cumulative Scenario Planning Study at i.

8 http://cer.org.za/virtual-library/letters/eskoms-health-studies

6.20 Our clients reiterate their submission that these health impacts make clear that Eskom's postponement and variation applications cannot succeed.

7. Eskom's response regarding its future plans to comply with the MES

7.1 The majority of the DEA's May 2014 letters to Eskom point out that Eskom's applications have failed to indicate its future plans to comply with the MES, and that this information is required before Eskom's applications can be processed further.

7.2 Again, Eskom largely relies on what was stated in its postponement application – despite the DEA's requirement that it provide additional information. In many cases, it is clear that it does not ever intend to comply with the MES. In this regard, it has stated that it will apply for "rolling postponements" until its stations are decommissioned. Our clients reiterate that the impact of granting such postponements would be no different from granting Eskom exemption from the MES – which is not legally permissible.

7.3 For instance, in relation to Camden, Eskom states:

> Eskom has no plans to upgrade Camden to enable compliance with the 'new plant' PM emission limit, and the old and new plant NOx and SO_2 emission limit. Since Camden is an old power station (commenced commissioning its units in the late 1960's), it is also expected that it will be decommissioned between 2020 and 2023, according to the 50-year life plan. Decommissioning date, however, is dependent on ensuring that there is sufficient generating capacity to meet national electricity demand.

> Camden is already fitted with fabric filter plants on all units. It is thus not possible to upgrade the station to significantly reduce PM emissions. Note that *average* PM emissions from April 2013 to March 2014 were around 16 mg/Nm^3, thus well below the new plant emission limit. Because Camden is such an old power station (the first unit was commissioned in 1967), achieving these levels consistently is problematic, which is why leniency from compliance with the new plant emission limit has been requested. Moreover, SO_2 and NOx emissions were recorded to be around 2800 mg/Nm^3 and 1000 mg/Nm^3 at 10% O_2, respectively, during spot measurements conducted in 2011. Again, given variations in coal qualities and process conditions, SO_2 and NO_x emissions will not consistently remain below the existing plant limits, but they probably will average below the existing plant limits. Eskom's reasons for not recommending a flue gas desulphurisation retrofit at Camden are presented in the postponement application.

> Eskom's planned compliance proposal is captured in Section 2 of the Camden Postponement Application. Eskom considers that it is not practically feasible or beneficial for South Africa (when considering the full implications of compliance) to comply fully with the MES by the 2015 and 2020 timeframes stipulated. As a result, Eskom prefers to adopt a phased and prioritised approach to compliance with the MES. Figure 1 (as also on page 6 of the Camden Postponement Application) captures Eskom's planned emission abatement retrofits and power station decommissioning dates.

7.4 Insofar as its compliance plans for Arnot, Eskom states:

Eskom has no plans to upgrade Arnot to enable compliance with the 'new plant' SO_2 emission limit and the old and new plant NOx emission limit, for reasons given in the postponement application. Since Arnot is an old power station commissioned in 1979, it is also expected that it will be decommissioned between 2031 and 2035, according to the 60-year life plan. Decommissioning date is dependent on ensuring that there is sufficient generating capacity to meet national electricity demand.

Eskom's planned compliance proposal is captured in Section 2 of the Arnot Postponement Application. Eskom considers that it is not practically feasible or beneficial for South Africa (when considering the full implications of compliance) to comply fully with the MES by the 2015 and 2020 timeframes stipulated. As a result, Eskom prefers to adopt a phased and prioritised approach to compliance with the MES. Figure 1 (as also on page 10 of the Postponement Application) captures Eskom's planned emission abatement retrofits and power station decommissioning dates.

7.5 Eskom adopts a similar approach for other stations. For instance, in relation to Komati, it states:

Eskom has no plans to upgrade Komati to enable compliance with the 'new plant' PM, SO_2 and NOx limit, as well as the old plant NOx emission limit. Since Komati is an old power station, commissioned between 1961 and 1966, it is also expected that it will be decommissioned between 2024 and 2028, according to the current plan. Decommissioning date, however, is dependent on ensuring that there is sufficient generating capacity to meet national electricity demand.

Komati was fitted with SO_3 plants to improve the performance of the electrostatic precipitators and a taller stack to aid in the dispersion of pollutants was constructed prior its return-to-service between 2009 and 2013. Compliance with the new plant SO_2 limit would require an FGD retrofit, and compliance with the new plant NOx limit would require a retrofit of low NOx burners and overfire air. Eskom's reasons for not recommending a flue gas desulphurisation or low NOx burner and overfire air retrofit at Camden are presented in the postponement application, and include the fact that Komati is a relatively small power station nearing the end of its life. Resources can much more effectively be spent on a larger, newer power station which makes a much greater contribution to ambient pollution levels.

Eskom's planned compliance proposal is captured in Section 2 of the Komati Postponement Application. Eskom considers that it is not practically feasible or beneficial for South Africa (when considering the full implications of compliance) to comply fully with the MES by the 2015 and 2020 timeframes stipulated. As a result, Eskom prefers to adopt a phased and prioritised approach to compliance with the MES. Figure 1 (as also on page 6 of the Postponement Application) captures Eskom's planned emission abatement retrofits and power station decommissioning dates.

7.6 In other words, in relation to several of its stations, Eskom simply does not intend ever to comply with the MES. As set out above, this approach is equivalent to seeking exemption from the MES – which is not legally permissible – and emphasises why Eskom's applications should be refused. The impacts of this non-compliance are further exacerbated by indications that Eskom is likely to extend the lives of its CFPS from 50 to 60 years, should electricity demands require.

8. Eskom's response re additional monitoring data

8.1 All Eskom's CFPS are located in the three declared priority area – the Highveld Priority Area (HPA), the Vaal Triangle Airshed Priority Area (VTAPA) and the Waterberg Bojanala Priority Area (WBPA) – where non-compliance with AAQS is already a problem. Our clients reiterate that, in these circumstances, Eskom should not even have been permitted to apply for MES postponements, given the requirement in the Framework that such applications can only be made if AAQS are in compliance and will remain in compliance even if postponement is granted.

8.2 The additional information supplied by Eskom provides further details of the short-term (hourly and daily) average values of PM (mainly PM_{10} and to a very limited extent, $PM_{2.5}$), SO_2 and NO_2 measured at 11 monitoring stations (Hendrina, Kendal, Komati, Kriel, Camden, Three Rivers, Majuba, Marapong, Elandsfontein, Grootdraai and Grootvlei). For ease of reference, the location of these monitoring stations in relation to Eskom's CFPS is shown in Figure 3, reproduced from Eskom's Summary Atmospheric Impact Report of 12 February 2014.

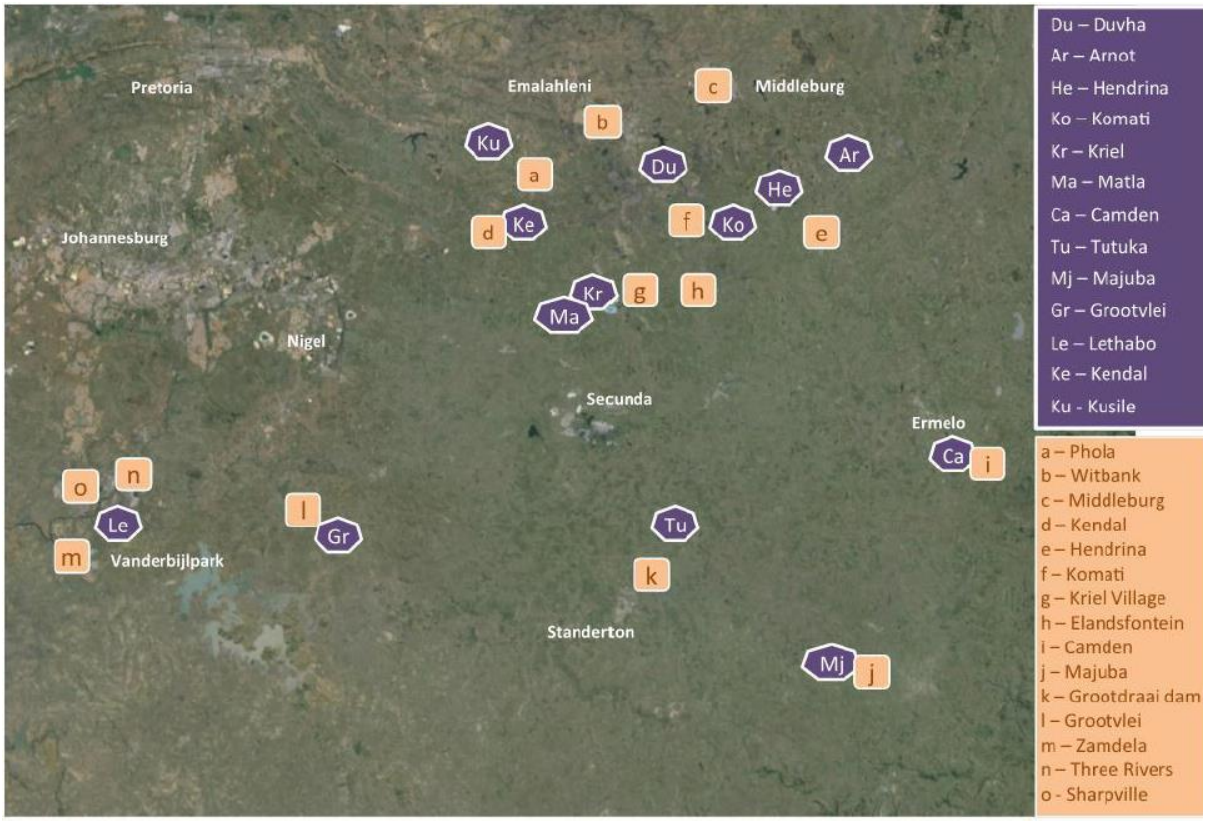

Figure 1: Positions of the monitoring stations (in orange) relative to the power stations (in purple) for the Highveld.

Figure 3: Location of the monitoring stations in relation to Eskom's power stations

8.3 The daily average SO_2 concentrations show that elevated ambient concentrations occur essentially throughout the year, illustrated in the composite graph of 2012 data for the 11 monitoring stations for which Eskom supplied additional short term monitoring data, shown in Figure 4.

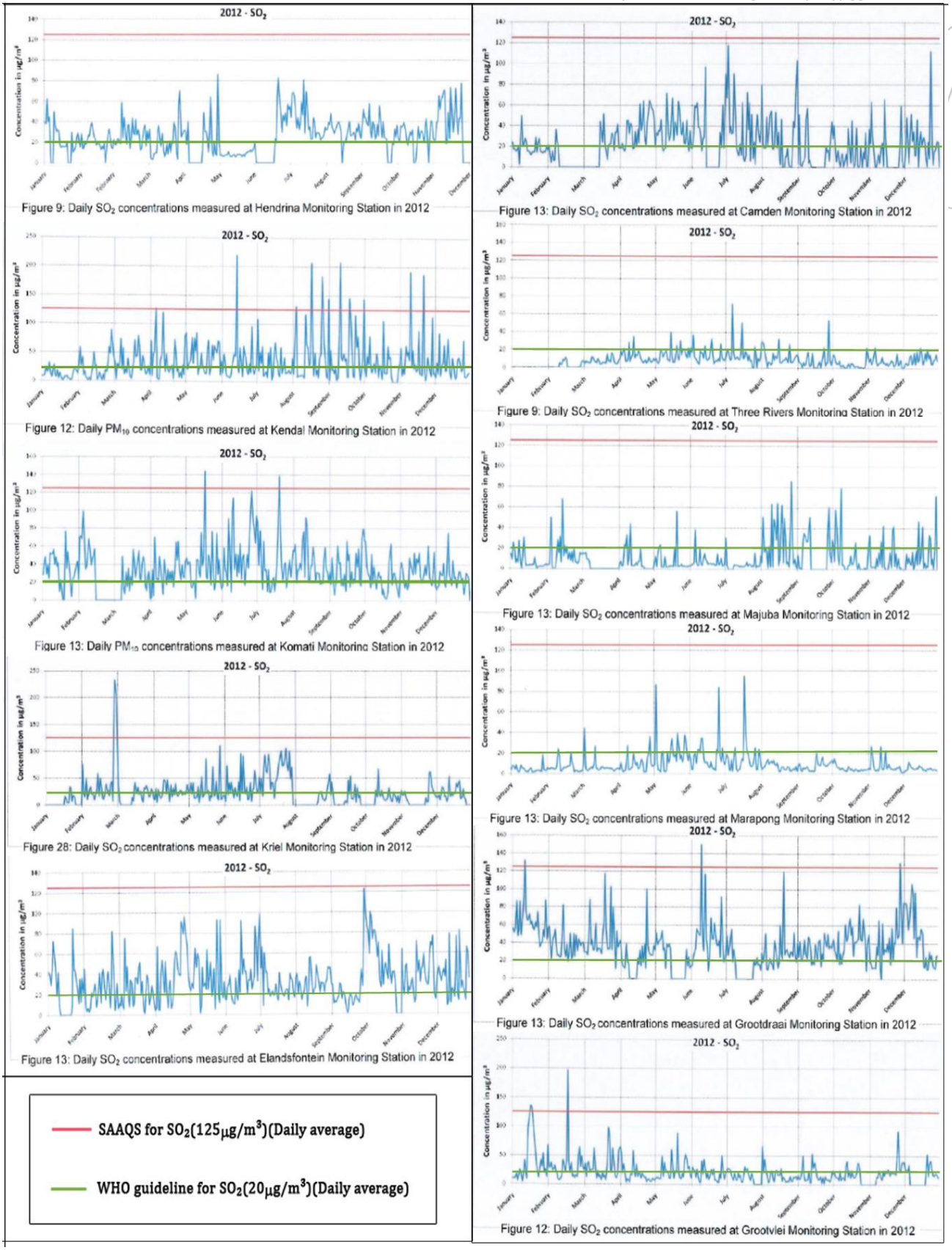

Figure 4: Daily average SO_2 concentrations at 11 monitoring stations in proximity to Eskom's coal fired power stations, 2012 (Source: Eskom supplied data as 'additional information', August 2014. WHO Guideline[9] value inserted.)

[9] WHO Air Quality Guidelines Global Update 2005. WHO, 2006.

8.4 The WHO guideline value for daily average ambient SO_2 concentrations is 20µg/m^3,[10] while the South African daily average standard is 125µg/m^3. The daily average South African standard for SO_2 is thus exceptionally lax, more than 6 times greater than the WHO guideline value. Figure 4 shows the occurrence of daily average concentrations many times the WHO guideline value throughout the year, and, on numerous occasions, at 9 of 11 monitoring stations. At the Marapong and Three Rivers monitoring stations, numerous exceedences of the WHO SO_2 daily average guideline do occur, but mainly during the winter months. The general pattern of numerous year-round exceedences of the WHO guideline implies that the adverse health effects of exposure to elevated daily average SO_2 concentrations occur year-round throughout the region impacted by Eskom's emissions.

8.5 Apart from extremely-delayed compliance at Medupi, Eskom has declared in its applications that it does not intend ever complying with the 2020 new plant emission standard for SO_2 emissions of 500mg/Nm^3. Compliance with this standard would reduce emissions from Eskom's existing CFPS by about 80%. In all three priority areas, Eskom's SO_2 emissions are by far the largest contributor to total SO_2 emissions. In the HPA, power generation is responsible for 82% of total SO_2 emissions;[11] and in the VTAPA, power generation is responsible for 86% of total SO_2 emissions.[12] Although an emission inventory for the WBPA is not available, the Matimba power station is by far the largest source of SO_2 emissions in the area.[13] Eskom's refusal to reduce its SO_2 emissions from its existing power stations through compliance with the 2020 new plant standards amounts to a refusal to reduce and minimise the health impacts associated with not only the consequent direct exposure to ambient SO_2, but also to the significant impacts of secondary sulphate $PM_{2.5}$ formation.

8.6 The daily average PM_{10} concentrations show that elevated ambient concentrations occur essentially throughout the year, illustrated in the composite graph of 2012 data for the 11 monitoring stations for which Eskom supplied additional short term monitoring data - Figure 5.

[10] WHO Air Quality Guidelines Global Update 2005. WHO, 2006. SO2 guidelines at 18.

[11] Highveld Priority Area Air Quality Management Plan, 2011, Table 5.

[12] The Medium-term Review of the 2009 Vaal Triangle Airshed Priority Area Air Quality Management Plan Draft Review Report, Table 5-4. DEA Report compiled by EScience Associates (Pty) Ltd. June 2013.

[13] Developing an Air Quality Management Plan: Lessons from Limpopo. Terri Bird et al. Airshed Planning Professionals (Pty) Ltd. 2012. Table 4.

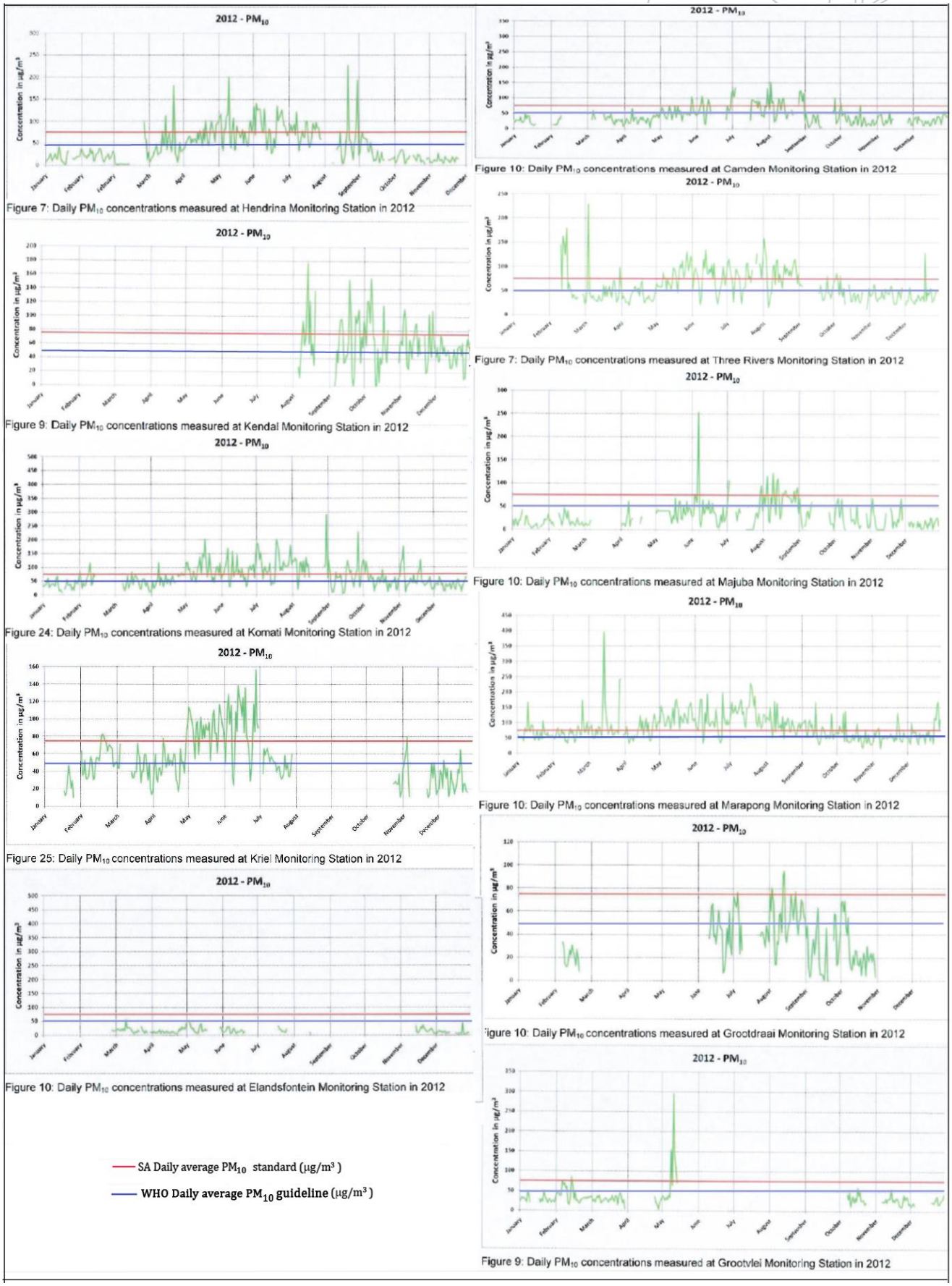

Figure 5: Daily average PM10 concentrations at Hendrina, Kendal, Komati, Kriel and Marapong monitoring stations, 2012 (Source: Eskom supplied data as 'additional information', August 2014. WHO Guideline value inserted)

8.7 Figure 5 reveals that, while exceedences of the daily average AAQS for PM_{10} may occur more frequently during the winter months, significant and frequent exceedences of the South African daily average standard (and the WHO guideline) occur during the summer months as well; for example, during October through to December at the Komati, Kendal, Marapong and Three Rivers stations. On numerous days, daily average PM_{10} concentrations are two to three times higher than the AAQS. The occurrence of high ambient concentrations of PM_{10} during the summer months when domestic fuel burning is likely to be low contradicts Eskom's assertion that its emissions are a negligible contributor to ambient PM_{10} levels.

8.8 The data show that the frequent occurrence of daily average PM_{10} concentrations several times the South African AAQS and the WHO guideline value, throughout the year. In this regard, we point out that the WHO guideline daily average PM_{10} concentration is significantly stricter (50 $\mu g/m^3$) than the SA standard (75 $\mu g/m^3$). The implication is that the adverse health effects of exposure to elevated daily average PM_{10} concentrations occur on many days throughout the region impacted by Eskom's emissions.

9 Conclusion

9.1 Despite being specifically required by the DEA to provide additional information on various aspects in order to have its postponement applications processed, Eskom largely failed to provide additional information regarding health impacts and regarding its future compliance with the MES.

9.2 The information it provided regarding monitoring reveals that elevated daily average SO_2 concentrations occur frequently throughout the region in the vicinity of Eskom's power stations, and throughout the year; and that these concentrations are frequently several times higher than the WHO guideline value, with consequent health impacts. Since Eskom is by far the largest source of SO_2 emissions in the region, the implication is that its emissions are mainly responsible for the high ambient concentrations and these health impacts.

9.3 The additional information also shows that elevated daily average PM_{10} concentrations occur frequently throughout the region and throughout the year; and that these concentrations are frequently several times higher than the AAQS and the WHO guideline value, with consequent health impacts. The occurrence of high ambient PM concentrations in the summer months contradicts Eskom's assertion that domestic solid fuel burning is the main source of PM and that it only a very minor contributor to ambient PM.

9.4 Eskom has not acknowledged or attempted to quantify these health impacts, despite the requirements of the Framework and the DEA correspondence requiring Eskom to do so.

9.5 In conclusion, Eskom has failed to meet the legislative requirements for MES postponement. For the reasons set out in these and our previous submissions, Eskom's applications – both for postponement and for AEL variation – should fail. Eskom should be required to comply with the 2015 MES in their entirety with effect from 1 April 2015. No applications for "rolling postponements" should be considered. Should Eskom require postponements of the 2020 MES, such applications must be delivered to the National Air Quality Officer by 31 March 2019.

9.6 Our clients again submit that any decision made by the National Air Quality Officer to grant the applications for postponement as requested by Eskom would be reviewable under PAJA.

9.7 Without in any way acknowledging that Eskom is entitled to any postponement, it is submitted that any limited postponement granted to Eskom must be subject to the most stringent conditions, including:

9.7.1 an accelerated plan for installation of effective pollution controls to meet the MES – at the very latest, within 5 years of the MES compliance date; and

9.7.2 a significantly-accelerated plan for decommissioning of the most polluting power stations; including, in particular, Arnot, Hendrina and the "return-to-service" stations at Grootvlei, Camden and Komati.

10. Please contact us, should you require more information regarding any aspect of these submissions.

Yours sincerely
CENTRE FOR ENVIRONMENTAL RIGHTS

per:

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