

INTEGRATED ENVIRONMENTAL AUTHORISATION
(ENVIRONMENTAL AUTHORISATION and WATER USE LICENSE APPLICATION)
for the
**Proposed Retrofitting Flue Gas Desulphurisation (FGD) at Medupi
Power Station in Lephalale, Limpopo Province**
DEA REF: 14/12/16/3/3/3/110
Comments and Responses Report
Version 1: Draft Scoping Report

This Comments and Responses Report (CRR) captures the comments and issues raised by stakeholders during the announcement and scoping phase of the Integrated Environmental Authorisation (Environmental Authorisation and Water Use License Application) process for the proposed Retrofitting Flue Gas Desulphurisation (FGD) at Medupi Power Station in Lephalale, Limpopo Province.

For easy reference and review, comments / concerns / issues / recommendations have been categorised according to proposed impacts and captured alphabetically according to surname under each category.

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Abbreviations:

ADF	Ash Disposal Facility	AEL	Atmospheric Emission License
AQA	Air Quality Act	AQMP	Air Quality Management Plan (AQMP)
BID	Background Information Document	CER	Centre for Environmental Rights
DEA	Department of Environmental Affairs	EIA	Environmental Impact Assessment
ELA	Earthlife Africa	EPA	Environmental Protection Agency
FGD	Flue Gas Desulphurisation	I&APs	Interested and/or Affected Parties
Medupi	Medupi Power Station	MES	Minimum Emission Standards
RAL	Roads Agency Limpopo	WBPA	Waterberg Bojanala Priority Area
WML	Waste Management License	WUL	Water-use License

No	COMMENT / CONCERN / RECOMMENDATION	RAISED BY & WHEN	RESPONSE
1. AIR EMISSION COMPLIANCE / IMPACTS RELATED COMMENTS			
1.1	<p>Integration of FGD into the design, construction and commissioning of units: Condition 7.1.4 of the Medupi AEL provides as follows: <i>“The License (sic) Holder shall continuously operate and maintain a flue gas desulphurization (FGD) plant for control of SO₂ on all six units. The Flue Gas Desulphurisation plant shall be retrofitted in each unit within Six (06) years after the first commissioning of each unit and during the General Overhaul outages”.</i></p>	HUGO, Robyn Attorney: Centre For Environmental Rights Letter: 07 July 2014	The retrofitting of the Medupi FGD Plant to the power station six years after first commissioning of each unit is a World Bank loan agreement condition for Medupi Power Station and is being executed accordingly.
1.2	Our clients do not accept the 6 year delayed FGD retrofit on each unit, and have appealed Medupi's AEL, the outcome of the appeal is awaited.		<p>The six yearly phasing of the Medupi FGD Plant is not a delay but a requirement of the loan agreement with the Word Bank and linked to the statutory major overhaul outage scheduling of each running unit. Construction of the FGD is expected to commence ahead of each major outage with tie in of the FGD plant timed to align with each unit outage.</p> <p>The appeal responding statements referred to were submitted to Limpopo Department of Economic Development; Environment and Tourism (LEDET) in May 2014 and the outcome is awaited.</p>
1.3	In its application to postpone compliance with the MES in terms of the National Environmental Management: Air Quality Act, 2004 (AQA), ¹ Eskom seeks postponement of both the existing (3500 mg/Nm ³) and new plant (500 mg/Nm ³) MES. The former apply from 1 April 2015, and the latter, from 1 April 2020. In its postponement application, Eskom seeks an SO ₂ emission standard of 4000 mg/Nm ³ until 1 January 2027 – on which date it will comply with the April 2020 MES ² . In other words, from 1 April 2020 to 31 December 2027, Eskom seeks to emit 8 times the MES.		<p><u>Response from EAP:</u> 1) Eskom's MES postponement application for Medupi Power Station is based on the most conservative commissioning schedule, i.e. one unit per year commissioned from 2015 to 2020, and subsequent FGD retrofits of one unit per year from 2021 to 2026. The most optimistic commissioning schedule would be two units per year from 2015 to 2017, and then FGD retrofits on two units per year from 2021 to 2024. Unabated SO₂ emissions would thus be emitted from all six units for a maximum of one year for the conservative schedule, or up to three years for the optimistic schedule. Moreover, although Eskom applied for an SO₂ emission limit of 4000 mg/Nm³ in the MES postponement application for Medupi, this is the upper limit of expected emissions. SO₂ emissions from Medupi will vary primarily as a function of the sulphur content of the coal, prior to the installation of FGD. The expected sulphur content</p>

¹GN893 in GG37054 of 22 November 2013.

² Postponement application p.5, available at: http://www.iliso.com/emes1/Postponement%20Applications_PDFs/Medupi%20PS_Postponement_Application_Final_2014%2002%2021.pdf

			<p>of the coal to be supplied to Medupi is 1.3% by weight (on a dry basis). The sulphur content rejection point is 2.2%. This means that the sulphur content of the coal supplied to Medupi is expected to average 1.3%, but may be as high as 2.2%. The SO2 emission limit needs to be based on the highest possible SO2 emissions resulting from burning the 2.2% sulphur coal (since there is no way of reducing the SO2 emissions prior to the installation of FGD). However, SO2 emissions from Medupi prior to installation of FGD are expected to average around 2700 mg/Nm3 (on a dry basis at 10% O2), which is below the “existing plant” SO2 limit of 3500 mg/Nm3.</p>
1.4	<p>Medupi’s 6 units will, according to Eskom’s postponement application, each be commissioned over a period of 6-12 months. Eskom states that based on December 2013 project schedule, commissioning of the first unit at Medupi will start in 2014 and be completed in early 2015. The first unit would therefore be retrofitted with FGD in 2021 – 6 years after its commissioning. Eskom states that <i>“the installation of the FGM equipment (i.e. retrofitting the generation units with FGD) will take place during the first Major General Overhaul (MGO) of each unit when they are “switched off” for maintenance. According to manufacturer’s specifications and prudent power plant operating procedures, the first MGO will be six years after commissioning of each generating unit”</i>.</p>		<p><u>Response from EAP:</u> The six yearly phasing of the Medupi FGD Plant is not a delay but a logistical requirement taking advantage of the statutory major overhaul outage scheduling of each running unit. Construction of the FGD is expected to commence ahead of each major outage with tie in of the FGD plant timed to align with each unit outage.</p>
1.5	<p>If each unit is commissioned sequentially, the total commissioning period of Medupi could therefore be 3 to 6 years. If each unit takes 6 months to commission, the last FGD would be installed in 2023. Although Eskom claims that it is “committed to this schedule”, it qualifies this immediately, indicating: <i>“however, the actual interval between the generating units’ commissioning will depend on construction progress could take place in the range of 6-12 months intervals as a result of any unpredictable delays in the construction and commissioning of the power station. Thereafter taking a 2 month interval into account, this would see the last FGD installed by end 2026”</i>³</p>		<p><u>Response from EAP:</u> The construction process duration is dependent on a lot of factors such as unforeseen and unpredictable industrial actions. This can have an impact on the planned timelines for construction completion. It is a prudent policy to allow for these unforeseen risks in construction planning and assumption in qualifying statements are a normal project management approach.</p>
1.6	<p>The total commissioning period may even be significantly longer if commissioning of any of the individual units is</p>		<p><u>Response from EAP:</u> The Medupi FGD is a separate project from the Medupi Power Station and has its own milestones and timelines. However it is</p>

³ Ibid.

	extended or delayed, as is not unusual in the commissioning of large complex plants. Indeed, Eskom may conceivably delay the commissioning of some of the 6 units, based on business/commercial considerations. In this regard, the Medupi plant is already well behind schedule.		noted that the Medupi project delay poses a moderate risk to the FGD plant in that its delay can affect the timing of the FGD plant per unit as an outage of each unit is required to complete the FGD plant installation.
1.7	The impact of FGD only being installed 6 years after the commissioning of each unit is that each unit will operate with unabated SO ₂ emissions during its commissioning period, plus an additional 6 years, if units are commissioned at 6 monthly intervals, the optimistic scenario is that all 6 units would be commissioned over 3 years, and unabated emissions would occur from all 6 units for a further 3 years, until FGD is retrofitted to the first. Unabated emissions will continue from the remaining units until each is retrofitted with FGD. Unabated emissions from at least one unit will occur over a period of 6 to 9 years, depending on the commissioning schedule, with simultaneous unabated emissions from all 6 units over a period of 1 to 3 years during this period.		<u>Response from EAP:</u> Medupi Power Station will be fitted with the emission's monitoring system to assist in optimisation of the power generation process. The FGD plant can be seen as an enhancement and extension of this emissions monitoring and control system. The FGD plant requires its' own funding and securing of loans for projects of this magnitude is a process that takes time. It is anticipated that by the time the first Medupi unit is ready for a major maintenance outage the process would have been finalised and construction of the FGD underway. Construction must be completed by the first major outage and funding must be in place before the first contract is placed.
1.8	Once commissioned, Medupi will emit PM ₁₀ and No _x additional to emissions already occurring in the area. Compliance with new plant standards does not mean zero emissions of these pollutants. Medupi is essentially adjacent to (less than 10km away from) the Matimba power station. Primary (directly emitted) PM ₁₀ emissions from Matimba are 4900 tons/year, ⁴ and are 4330 tons/year from Medupi, ⁵ representing an 88% increase in emissions. Medupi No _x emissions are 71200 tons/year ⁶ compared with current Matimba emissions of 67600 tons/year; ⁷ a 105% increase in these emissions in the area. This excludes the emissions from a number of other industrial and mining activities which are scheduled to commence in the Waterberg Bojanala Priority Area.		<u>Response from EAP:</u> Medupi Power Station will be complying with the atmospheric emission licence limits for PM10 and NO _x from commissioning. SO ₂ emissions will be compliant to legislated standards after FGD retrofits have been completed. Eskom cannot influence emissions stemming from other industrial sources.
1.9	Should Eskom's application for postponement be acceded to, Medupi annual average SO ₂ emissions may increase		<u>Response from EAP:</u>

⁴ Matimba AIR, Tab 21, p34 available at: http://www.iliso.com/emes1/Atmospheric%20Impact%20Reports_PDFs/Matimba_AIR_FINAL_2014%2002%2021.pdf

⁵ Medupi AIR Figure 3, p15.

⁶ Medupi AIR Figure 3, p15.

⁷ Matimba AIR Table 21, p34.

	from 69000 tons/year ⁸ with 1 unit online, to a total of 414000 tons/year when all 6 units are online without FGD. That is, under these circumstances, combined Matimba and Medupi emissions would increase from 309000 tons/year (Matimba only) to 723000 tons/year (Matimba plus all 6 units of Medupi online); an increase of 134%. This increase in SO ₂ emissions will not only result in a corresponding increase in ambient SO ₂ concentrations, but also will result in the increased formation of secondary sulphate particles, a major component of ambient PM _{2.5} .		Eskom's application for postponement is a separate process and was submitted to the Department of Environmental Affairs in February 2014 following input from interested and affected parties. It also includes an atmospheric impact report.
1.10	Our clients submit that these impacts illustrate the importance of integrating FGD into units 2-6. ⁹ The Project must address this, with full and detailed explanations if this is not possible.		<u>Response from EAP:</u> Eskom's application for postponement includes an atmospheric impact report related to the application. As indicated above, this is a separate process and the application was submitted to the Department of Environmental Affairs in February 2014 following input from interested and affected parties.
1.11	It is not clear whether or not Medupi's FGD system will be constructed with a by-pass option – which would allow Eskom to continue operation without the FGD system in operation. It must be stated upfront that a by-pass option is not acceptable to our clients: Eskom must be compelled to maintain and operate the FGD system as an integral part of the plant.		<u>Response from EAP:</u> Since this is a retrofitted plant, the bypass is incorporated into the design. By and large the power station will be operated with the FGD in service in accordance with the AEL and the provision of a bypass provides the opportunity to run the station in the event of unforeseen FGD plant unavailability such as severe drought periods, sorbent shortage and unplanned maintenance.
1.12	Implications of non-compliance with ambient air quality standards in the Waterberg Bojanala Priority Area Medupi is located in the Waterberg Bojanala Priority Area (WBPA), ¹⁰ which was declared in accordance with s.18 of AQA. AQA makes provision for the declaration of Priority Areas where ambient air quality standards (AAQs) ¹¹ are being, or may be, exceeded. The WPA is developing an Air Quality Management Plan (AQMP), as required by S.19 of AQA for every Priority Area.		<u>Response from EAP:</u> Eskom is aware of this and the AQMP will combine the outcomes of the baseline characterisation and threat assessment, and address these through timely interventions, with a view to preserve the areas of existing good air quality, while progressively realising better air quality in degraded areas.
1.13	At the time of the WBPA declaration, the Minister was "satisfied that the ambient air quality ... <u>may exceed</u> the		<u>Response from EAP:</u>

⁸ Medupi AIR Figure 3, p15, available at: http://www.iliso.com/emes1/Atmospheric%20Impact%20Reports_PDFs/Medupi_Final_AIR_2014%2002%2024.pdf. Total uncontrolled SO₂ emissions with all 6 units commissioned 414000 tons/year; 1/6th per unit, 69000 tons/year.

⁹ See fn 1.

¹⁰ Declaration of the Waterberg National Priority Area in GG35435 of 15 June 2012.

¹¹ GN1210 in GG32816 OF 24 December 2009 and GN486 in GG35463 of 29 June 2012.

	<p>national ambient air quality standards in the near future, and that a trans-boundary situation exists between the Waterberg District Municipality and the Bojanala Platinum District Municipality in the North West Province which may cause a significant negative impact on air quality in both areas". She also commented on the possible trans-boundary air pollution impact between South Africa and its neighbours – particularly Botswana. However, it is clear from a recent presentation by the DEA at the WPA multi-stakeholder reference group meeting on 26 June 2014 that permitted levels of PM_{2.5} (particulate matter with aerodynamic diameter less than 2.5 micron metres), PM₁₀ (particulate matter with aerodynamic diameter less than 10 micron metres) and ozone have been exceeded in all monitoring stations. In other words, there is now, subsequent to its declaration as a priority area, <u>non-compliance with the AAQS</u>. This presentation is attached hereto as annexure "1". The fact that there is currently non-compliance with AAQS emphasises the importance of ensuring FGD installation as soon as possible, by integrating FGD into the units.</p>		<p>The exceedance of PM10 and Ozone has nothing to do with the SO2 retrofit, Medupi will be retrofitted with Fabric filter plants on commission and we will not have any PM10 exceedances.</p>
<p>2. FGD TECHNOLOGY ALTERNATIVES RELATED COMMENTS</p>			
<p>2.1</p>	<p>Alternatives to wet-flue gas desulphurisation: The BID makes mention only of wet FGD as a means to control SO₂ emissions from the Medupi Power Station, describing the Project as follows: <i>"The FGD (flue gas desulphurisation) will be operated on wet systems; very small volumes of water will be circulated from the absorber reaction tank to spray headers. The water will be abstracted from the existing raw water reservoir."</i></p>	<p>HUGO, Robyn Attorney: Centre For Environmental Rights Letter: 07 July 2014</p>	<p><u>Response from EAP:</u> 474-10175 Medupi FGD Technology Study Report</p>
<p>2.2</p>	<p>Defining the project in this manner forecloses a discussion about whether SO₂ emissions from the Medupi Power Station would be better controlled through alternative technology such as dry (or semi-dry) FGD technology.</p>		<p><u>Response from EAP:</u> Studies have been undertaken on technology options for Medupi FGD (between wet and dry) and it has shown that there are no significant difference in total life-cycle costs. These two alternatives are considered equal on an overall technical and economic basis. It is further noted that since the Medupi Power Station is under construction and an adequate supply of limestone and water are available to the plant for operation, this should continue. Technology Selection Study Report appended to Scoping Report.</p>

2.3	<p>Eskom has argued that using dry (or semi-dry) FGD technology for controlling SO₂ emissions at Medupi is not economically feasible. Further, Eskom has stated – in its responding statement to our client’s appeal for the Medupi AEL – that the comparable costs of the various technical options for controlling SO₂ emissions cannot be divulged because of “commercial sensitivity” The responding statement is attached hereto as annexure “2”. Without knowledge of these costs, I&APs cannot comment meaningfully on economic feasibility of various forms of FGD. As a result, these costs and the technical assessments associated with this decision have been requested.</p>		<p><u>Response from EAP:</u> Studies have been undertaken on technology options for Medupi FGD (between wet and dry) and it has shown that there are no significant difference in total life-cycle costs. These two alternatives are considered equal on an overall technical and economic basis. It is further noted that since the Medupi Power Station is under construction and an adequate supply of limestone and water are available to the plant for operation, this should continue. Technology Selection Study Report appended to Scoping Report.</p>
2.4	<p>Eskom’s statement regarding the economic feasibility of dry (or semi-dry) FGD technology is in contradiction to a statement by the Environmental Protection Agency (EPA) in the United State, as follows: <i>“Dry scrubbers have significantly lower capital and annual costs than wet systems because they are simpler, demand less water and waste disposal is less complex. Dry injection systems install easily and use less space, therefore, they are good candidates retrofit applications.”</i>¹²</p>		<p><u>Response from EAP:</u> Studies have been undertaken on technology options for Medupi FGD (between wet and dry) and it has shown that there are no significant difference in total life-cycle costs. These two alternatives are considered equal on an overall technical and economic basis. It is further noted that since the Medupi Power Station is under construction and an adequate supply of limestone and water are available to the plant for operation, this should continue. Technology Selection Study Report appended to Scoping Report.</p>
3. GYPSUM DISPOSAL ALTERNATIVES RELATED COMMENTS			
3.1	<p>The role of the EIA process is partially defined in the BID as follows: <i>“The EIA will identify, propose and assess:</i></p> <ul style="list-style-type: none"> • <i>Feasible sites for disposing the by-products,</i> • <i>Different technologies for the managing of commercial-grade saleable gypsum, ash and sludge disposal; and</i> • <i>Various possible designs for disposal facilities.”</i> 	<p>HUGO, Robyn Attorney: Centre For Environmental Rights Letter: 07 July 2014</p>	<p><u>Response from EAP:</u> Agreed. Specialist consultants will inform the EIA process</p>
3.2	<p>Working toward the fulfilment of the role of the EIA process, the BID further states that: <i>“The EIA team has thus far investigated all possible options for the use/disposal of gypsum, ash and sludge. It was found that the most feasible manner in which to co-dispose of all waste into the lined ADF.”</i></p>		<p><u>Response from EAP:</u> Agreed. The feasibility of alternatives will be informed by technical and financial factors as well as social and environmental implications.</p>

¹² USEPA “Air Pollution Control Technology Fact Sheet: Flue Gas Desulfurization (FGD) – Wet, Spray Dry, and Dry Scrubbers.” <http://www.epa.gov/ttn/catc1/dir1/ffdg.pdf>

3.3	Our clients object to this investigation having been conducted outside of the current process. We have requested information relating to this investigation in paragraph 5.6 above.		<p><u>Response from EAP:</u> The EIA process will motivate for co-disposal of the wastes at the Ash Disposal Facility but alternative disposal facilities will be investigated and discussed with the competent authorities throughout the process.</p>
3.4	The statement in the BID regarding the lack of possible alternatives to gypsum disposal in a lined AFD is in contradiction to the experience in the United States. As of 2008, more than half of gypsum produced by use of FGD systems at coal-fired power plants in the United States was reused, principally as gypsum panel products (i.e. construction drywall). ¹³ Similarly, more than 40% of bottom ash and fly ash from coal-fired power plants was reused, principally for the manufacture of concrete, concrete products and grout. This is not to say that our clients are necessarily in agreement with all of these alternative uses – but merely to illustrate that some alternatives are available.		<p><u>Response from EAP:</u> Agreed. The limitation in SA is that the Kusile gypsum sales can fulfilled the market and there is very little additional demand for the product at this stage. However, the client is hoping to investigate new markets and sell the gypsum rather than dispose of it in the long term. The reuse of waste products remains a viable alternative. It is believed that the availability of power station generated gypsum will stimulate the Gypsum market in South Africa. Even though allowance for Gypsum disposal is accommodated in the project development, an allowance for Gypsum sale and the FGD system by-product re-use in part of the development initiative</p>
3.5	The proposed co-disposal of the gypsum waste with the ash may sterilise both waste streams so that they cannot be reused. The BID should include a comprehensive examination of opportunities to minimise waste disposal by maximising the reuse of FGD gypsum, of bottom ash and fly ash from Medupi.		<p><u>Response from EAP:</u> The BID offers only a brief overview of the project and does not go into any detail in terms of the intricacies of waste reuse or disposal. The Scoping Report will offer some additional detail in this regard. A Waste Classification Study is also being commissioned in order to understand the constituents of the wastes and how they would react with one another should these be co-disposed. It is believed that the availability of power station generated gypsum will stimulate the Gypsum market in South Africa. Even though allowance for Gypsum disposal in accommodated in the project development, an allowance for Gypsum sale and the FGD system by-product re-use in part of the development initiative</p>
4. WATER RELATED COMMENTS			
4.1	Eskom will apparently depend on the Mokolo-Crocodile River augmentation scheme for the operation of Medupi Power Station, as well as the Project. This means that, in the case of a prolonged drought in the primary catchment, the Project will either stop operating or need to obtain water from another source.	HUGO, Robyn Attorney: Centre For Environmental Rights Letter: 07 July 2014	<p><u>Response from EAP:</u> Eskom has worked closely with the Department of Water and Sanitation which has identified the two sources of water for running the Medupi Power plant, including FGD. The MCWAP is being developed in two Phases to supply Medupi Power Station. MCWAP Phase 1 currently under construction will supply water from the Mokolo Dam to Medupi and Matimba power stations. Phase 2 will augment the Phase 1 water supply with surplus return flows from</p>

¹³ American Coal Ash Association "2008 Coal combustion Product (CCP) Production & Use Survey: Report http://acaaffiniscap.com/associations/8003/files/2008_ACAA_CCP_Survey_Report_FINAL_100509.pdf

			<p>water treatment works in the Crocodile River (West) Catchment. Capacity requirements are being finalised by DWS and it is expected to be implemented by the end of 2020.</p> <p>Eskom has water licence for MCWAP-1 for Matimba and Medupi power stations and will apply for a water licence for the MCWPA-2 to make up the shortfall from Phase-1 which is required in 2022.</p>
4.2	The BID should consider alternative water sources for the Project, which will affect both the scoping and EIA phases of the Project.		<p><u>Response from EAP:</u> DWS is the custodian and implementer of the MCWAP project. The EIA for Phase 1 was done and DWS will undertake an EIA for Phase 2 in due course.</p>
4.3	Since the water consumption rates for semi-dry FGD may be as much as 60% lower than for wet FGD, ¹⁴ the selection of wet FGD for Medupi clearly significantly increases the overall demand for water for SO ₂ abatement. This is another reason why the Project must include a detailed consideration of alternatives to wet FGD.		<p><u>Response from EAP:</u> Medupi has been constructed to be FGD-ready for wet FGD. This includes allocating space behind the stack for the absorber and common facilities, lining the stacks, and sizing the Induced Draught (ID) fans to include the additional system resistance due to the FGD. Should an alternative technology like semi-dry CFB technology be selected at this stage, substantial modifications to the existing design would need to be made to Medupi, which would significantly delay the commissioning of the units, and add significant costs to the project. The modifications to accommodate the change to semi-dry CFB technology include relocation of the existing fabric filter plant or construction of a new fabric filter plant; relocation of the ID fans; an increase in the size, height and location of the flue gas duct work after the CFB; and the addition of a recirculation duct for low load operation.</p>
4.4	It is submitted that the selection of semi-dry FGD over the currently selected wet FGD would have avoided the delay in the installation of FGD – apparently due to insufficiency of available water, since it appears that there is sufficient water for only 3 (of 6) units equipped with wet FGD ¹⁵ - but this would be sufficient for 6 units equipped with semi-dry FGD.		<p><u>Response from EAP:</u> The Scoping Phase is looking more closely at alternatives.</p> <p>Same response as above</p>
4.5	The BID should address all of these issues.		<p><u>Response from EAP:</u> The BID offers only a brief overview of the project and does not go into any detail in terms of specific issues. The purpose of the BID is to notify stakeholders of the project in order to stimulate comments</p>

¹⁴ IEA Clean Coal Centre: Low Water FGD Technologies. No 12/15 December 2012. <http://www.iea-coal.org.uk/At 1>.

¹⁵ Eskom's Water Resources Assessment (Postponement Applications). Available at:

http://www.iliso.com/emes1/Annexure%20F_Water%20Resources%20Report/Water%20Resources%20Assessment_FINAL_2013.12.13.pdf

			and queries for address during the Scoping and EIA phases of the project.
5. WASTE RELATED COMMENTS			
5.1	On June 10, 2010, the United States EPA proposed a new regulation containing environmental safeguards for the disposal of coal combustion residuals. ¹⁶	HUGO, Robyn Attorney: Centre For Environmental Rights Letter: 07 July 2014	<u>Response from EAP:</u> For the benefit of a response, the summary of the referred to document states: <i>“SUMMARY: The Environmental Protection Agency (EPA or Agency) is proposing to regulate for the first time, coal combustion residuals (CCRs) under the Resource Conservation and Recovery Act (RCRA) to address the risks from the disposal of CCRs generated from the combustion of coal at electric utilities and independent power producers. However, the Agency is considering two options in this proposal and, thus, is proposing two alternative regulations. Under the first proposal, EPA would reverse its August 1993 and May 2000 Bevill Regulatory Determinations regarding coal combustion residuals (CCRs) and list these residuals as special wastes subject to regulation under subtitle C of RCRA, when they are destined for disposal in landfills or surface impoundments. Under the second proposal, EPA would leave the Bevill determination in place and regulate disposal of such materials under subtitle D of RCRA by issuing national minimum criteria. Under both alternatives EPA is proposing to establish dam safety requirements to address the structural integrity of surface impoundments to prevent catastrophic releases. EPA is not proposing to change the May 2000 Regulatory Determination for beneficially used CCRs, which are currently exempt from the hazardous waste regulations under Section 3001(b)(3)(A) of RCRA. However, EPA is clarifying this determination and seeking comment on potential refinements for certain beneficial uses. EPA is also not proposing to address the placement of CCRs in mines, or non-minefill uses of CCRs at coal mine sites in this action.”</i>
5.2	One key aspect of EPA’s proposed rule is strongly to discourage the disposal of coal ash in wet impoundments, encouraging, instead, the disposal of coals ash in dry form: <i>“Under the Subtitle C proposal, EPA is adopting measures intended to phase out the wet handling of CRRs and existing surface impoundments; under the Subtitle D proposal, existing impoundments would require liners, which will create strong incentives to close these</i>		<u>Response from EAP:</u> Noted. The ash disposal facility (a dry ashing facility as Medupi is a dry-cooled power station) has already been authorised and licensed by the relevant process carried out in 2008. Only changes to the Ash Disposal Facility (additional wastes) will require that we look at significant changes to design. Your comment will be taken cognisance of in this instance.

¹⁶ U.S. EAP (2010) “Hazardous and Solid Waste Management System: Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities.” <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-RCRA-2009-0640-0352>

	<i>impoundments and transition to safer landfills which store coal ash in dry form.</i> ¹⁷		The South African legislation requires an EIA to be conducted for the storage of hazardous waste in lagoons excluding storage of effluent, wastewater or sewage. Moreover, the ash disposal facility (a dry ashing facility as the power station is dry-cooled) has been authorised and has a waste management license. The first 2 years of the dump has been lined with a Class A liner, to cater for the co-disposal of Gypsum and ash. Medupi might continue with the same liner as there is a possibility that the FGD chemical waste be disposed at the dump.
5.3	Therefore, the BID should specifically require consideration of the elimination of wet impoundments for the disposal of coal ash and FGD gypsum and, to the extent that these wastes cannot be beneficially reused, disposing them in dry form consistent with internationally-accepted best practice.		<u>Response from EAP:</u> The BID is a background information document providing only an introduction to and an overview of the proposed project in order to notify stakeholders of the process and encourage engagement. Specific project detail is generally not included in a BID, but will be included within the Scoping and EIA phases of the project.
6. WAYLEAVE RELATED COMMENTS			
6.1	No objection regarding the proposed project. They are hoping that the project will not interfere with their roads. Where such is necessary, RAL will grant authorisation with applicable conditions.	TSHIKONELO, Mr Joseph Dept of Roads & Transport BID Comment Sheet: 09 June 2014	Site alternatives have not yet been identified for depositing the by-products (i.e. gypsum) and it is believed that the by-products will be transported from the stack area to the waste site by conveyor. However, should the by-products be transported by truck or any other means where the surrounding road network will be utilised, Zitholele Consulting will notify the RAL thereof. Sharon Meyer-Douglas, EAP Eskom will apply to the relevant departments (RAL/SANRAL/Roads & Transport) should there be a potential for impact to roads.
7. ENVIRONMENTAL PROCESS COMMENTS			
7.1	Overview: The CER act for groundwork and ELA Johannesburg. Their clients are I&APs in Eskom’s EIA, WML and WUL (to be “initiated later within the EIA process”) Applications for the proposed Medupi Power Station FGD project (“the Project”). Kindly ensure that our clients are also registered as I&APs in relation to the WUL, and any other processes relevant to the project.	HUGO, Robyn Attorney: Centre For Environmental Rights Letter: 07 July 2014	<u>Response from EAP:</u> Noted and the mentioned entities will be registered on the database as IAPs and will be kept informed of the status of the EIA.
7.2	The EIA process would be the proper avenue for scrutiny of Eskom’s claims that controlling SO ₂ emissions by use of dry (or semi-dry) FGD technology are		<u>Response from EAP:</u> Technology alternatives will be addressed during the Scoping and EIA phases and will be presented for decision making purposes.

¹⁷ U.S. EPA “Frequent Questions: Coal Combustion Residues (CCR) – Proposed Rule.” <http://www.epa.gov/solidwaste/nonhaz/industrial/special/fossil/ccr-rule/ccrfaq.htm>

	not feasible because of cost concerns. Therefore, examination of this issue should not be excluded by how the project is defined in the BID. Rather, proof of an examination of all alternatives to wet FGD should be included in the BID.		Technology selection study report will be an appendix to the Scoping report.
8. PROJECT RELATED COMMENTS			
8.1	The first major FGD unit was installed in 1931 at Battersea Power Station in the United Kingdom. ¹⁸ Internationally, it is not a new technology, but it is relatively new in South Africa where there is currently no coal-fired power station running the technology. ¹⁹ Additional employees and training will be needed to run the Project, and the processes surrounding the EIA and WML should make provision for these, to ensure that the Project is not delayed.	HUGO, Robyn Attorney: Centre For Environmental Rights Letter: 07 July 2014	<u>Response by EAP:</u> The Skills used for the construction of Medupi Power Station is mostly similar to the skills required for the FGD and related plants. Eskom will gain experience at Kusile during the construction, operation and maintenance of the FGD systems. The first system will be in operation for approximately 4 years before the Medupi system commissioning starts.
8.2	In the event that the Project is delayed, there would be serious economic and environmental implications. For this reason, we submit that the project timeline should be included in the BID. Our client submits that there should be penalties for non-compliance with this timeline.		<u>Response from EAP:</u> The BID is a background information document providing only an introduction to and an overview of the proposed project in order to notify stakeholders of the process and encourage engagement. Specific project detail is generally not included in a BID, but included within the Scoping and EIA phases of the project. A delay in the schedule (project timeline) for FGD project would be a factor of a delay in the overall Medupi project.
8.3	We have received a letter on the proposed EIA for the proposed Medupi Power Station FGD. Please note that in order to comment on the proposed EIA, we will need the specific property description of where the proposed development is to be implemented.	RADIPABE, Oteng Town and Regional Planner Department: Development Planning Division: Spatial Planning and Land Use Management Lephalale Municipality E-mail: 24 July 2014	<u>Response from EAP:</u> Property description, including farm names and portion numbers were provided, and the stakeholder was referred to Eskom for any further detailed property information. An e-mail was sent to Ms Oteng Radipabe on 27 July 2014 with the required information and a response was received from her confirming receipt of the required information.
9. LEGAL COMPLIANCE RELATED COMMENTS			
	Background to the Project:	HUGO, Robyn	<u>Response from EAP:</u>

¹⁸ Biondo, SJ and Marten, JC. (1977). A History of Flue Gas Desulphurisation Systems since 1850. *Journal of the Air Pollution Control Association*, 27(10), 948-961.

¹⁹ Although these boilers are much smaller than a typical Eskom power station, it is worth mentioning that Mondi paper mill installed FGD on its coal fired/ missed fuel boilers in 2005. <http://www.angloamerican.com/media/releases/2005pr/2005-12-05.aspx>

9.1	Medupi is a coal-fired power plant project currently under construction west of Lephalale in the Limpopo Province, south Africa. It will be made up of six units with a gross nominal capacity of 800MW each, so that Medupi will have a total capacity of 4 800MW. Construction activities commenced in May 2007, with the first of six units of the power plant planned to operate by the end of 2014.	Attorney: Centre For Environmental Rights Letter: 07 July 2014	Agreed.
9.2	The funding for Medupi came in part from a World Bank loan, for which the loan agreement is dated 16 April 2010. The agreement sets out the terms of the loan, and includes a section on Environmental and Social Safeguards. This section requires the installation of FGD at Medupi as follows:		Funding for the construction of Medupi and funding for the FGD Plant are separate. Medupi FGD is a separate project to Medupi that is currently in development phase to address the loan conditions for Medupi as mentioned in the comment.
9.2.1	<p><i>"2. The Borrower shall:</i></p> <p><i>(a) not later than June 30, 2013, develop, adopt and thereafter implement a program, satisfactory to the Bank, to install FGD equipment in each of the six power generation units of the Medupi Power Plant, taking into account technical, environmental and financial criteria in accordance with terms of reference to be discussed with the Bank, such program to be designed such that the installation of the FGD equipment for the first power generation unit shall commence in the later of (i) the sixth anniversary of the Commissioning Date or (ii) March 31, 2018 or such later date as the Bank may establish following consultations with the Borrower), and, thereafter, continue the installation of the FGD equipment sequentially, in each case thereafter at the time each of the remaining five power generation units is taken out of service for the first major planned outage, it being understood and agreed that all the FGD equipment for the six power generation units shall be installed and fully operational not later than December 31, 2021, or such later date as the Bank may establish following the said consultations with the Borrower; and</i></p> <p><i>(b) afford the Bank a reasonable opportunity to exchange views with the Borrower on such</i></p>		<p>Noted.</p> <p>Annual reporting and every six month engagements with the World Bank take place to share information on the developmental efforts of the FGD project.</p>

	<i>FGD installation program at each of its preparation and implementation phases.”</i>		
9.2.2	Therefore, although the BID refers to compliance with the minimum emission standards (discussed below), Eskom is contractually obliged to install FGD technology at Medupi also to comply with its loan agreement with the World Bank.		Both are required by Eskom.
10. CONSULTATION RELATED COMMENTS			
10.1	Overview: Upfront, we are instructed to state that it is essential that the Project be brought to the attention of all the stakeholders in the Waterberg Bojanala Priority Area – so that all I&APs can register, and that the implications of the Project can be discussed in meetings relating to the Priority Area.	HUGO, Robyn Attorney: Centre For Environmental Rights Letter: 07 July 2014	<u>Response from EAP:</u> Agreed. Zitholele will undertake to notify the stakeholders.
10.2	In these submissions, we make representations for the expansion of the EIA and WML to include the areas of concern mentioned below.		See response to 10.3 below
10.3	In summary, our clients submit that Eskom's BID for the EIA and WML is incomplete and should also consider the following:		<u>Response from EAP:</u> The BID is a background information document providing only an introduction to and an overview of the proposed project in order to notify stakeholders of the process and encourage engagement. Specific project detail is generally not included in a BID, but will be included within the Scoping and EIA phases of the project.
10.3.1	Integration of FGD into the design, construction and commissioning of units 2-6 ⁱ , with unit one retrofitted as soon as possible, and not later than 6 years after it is commissioned;		No response required as these issues are covered under 10.3 at 10.3.1 to 10.3.8 are the issues that have been requested to be included in BID.
10.3.2	The implications of the fact that there is non-compliance with ambient air quality standards in the Waterberg Bojanala Priority Area;		
10.3.3	Alternatives to wet FGD in the scoping stage; including, but not limited to semi-dry and dry FGD;		
10.3.4	Alternatives in the scoping stage to disposal of gypsum in lined ADFs; specifically the reuse of gypsum;		
10.3.5	Alternative water sources for the Project;		
10.3.6	An independent examination of international best practices for the disposal for coal combustion		

	residuals/waste as a basis for a decision on the practice to be adopted in the Project;		
10.3.7	Provision for additional employees and their training prior to commencement of the Project; and		
10.3.8	A project timeline, together with penalties for non-compliance with this timeline.		
10.4	Documentation required: In order for our clients to participate meaningfully and make submissions in the process, to interrogate the bases for the applications, and in keeping with their rights in terms of the Promotion of Administrative Justice Act, 2000, we have, at this stage, been instructed to request copies of the following documents:		
10.4.1	copies of all contract Eskom has with coal mines that will supply Medupi;		The Stakeholder is requested to please follow due process in terms of PAJA and to request the information from Eskom through the appropriate channels.
10.4.2	the construction schedule for the whole Medupi plant;		The Stakeholder is requested to please follow due process in terms of PAJA and to request the information from Eskom through the appropriate channels.
10.4.3	the construction and commissioning schedule, including the preliminary design, construction and commissioning schedules, for the retrofitting of the FGD units;		The Stakeholder is requested to please follow due process in terms of PAJA and to request the information from Eskom through the appropriate channels.
10.4.4	the costing, technical assessments, and water use requirements for FGD, including the comparative assessment of wet, dry and semi-dry FGD systems;		The Stakeholder is requested to please follow due process in terms of PAJA and to request the information from Eskom through the appropriate channels.

10.4.5	detailed information regarding Medupi's water demand projections, including: the time when water from each water source will become available for Medupi; the amount of water that will be available at the relevant times; and copies of all contracts relating to Medupi's water use;		The Stakeholder is requested to please follow due process in terms of PAJA and to request the information from Eskom through the appropriate channels.
10.4.6	all documentation relating to the investigation of "all possible options for the use/disposal of the gypsum, ash and sludge"; including the terms of reference and proof of public participation in this process; and		The Stakeholder is requested to please follow due process in terms of PAJA and to request the information from Eskom through the appropriate channels.
10.4.7	the most recent Environmental Management Plan for the disposal of coal combustion residuals/wastes.		The Stakeholder is requested to please follow due process in terms of PAJA and to request the information from Eskom through the appropriate channels.
10.5	In the circumstances, it is submitted that the BID should be revised in order to include the following:		<u>Response from EAP:</u> The BID is a background information document providing only an introduction to and an overview of the proposed project in order to notify stakeholders of the process and encourage engagement. Specific project detail is generally not included in a BID, but will be included within the Scoping and EIA phases of the project.
10.5.1	Integration of FGD into the design, construction and commissioning of units 2-6, ²⁰ with unit one retrofitted as soon as possible, and not later than 6 years after it is commissioned;		
10.5.2	the implications of the fact that there is non-compliance with ambient air quality standards in the4 WBPA;		
10.5.3	alternatives to wet FGD in the scoping stage; including, but not limited to semi-dry and dry FGD;		
10.5.4	alternatives in the scoping stage to disposal of gypsum in lined ash disposal ADFs; specifically the reuse of gypsum;		
10.5.5	alternative water sources for the Project;		
10.5.6	an independent examination of international best practices for the disposal of coal combustion		

²⁰ See fn 1.

	residuals/wastes as a basis for a decision on the practice to be adopted in the Project;		
10.5.7	provision for additional employees and their training prior to commencement of the Project; and		
10.5.8	a project timeline, together with penalties for non-compliance with this timeline.		
