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WATER USE LICENSE APPLICATION: PRE-APPLICATION CONSULTATION MEETING

12949 - MEDUPI POWER STATION FLUE GAS DESULPHURISATION (FGD) RETROFIT PROJECT

A G E N D A

		ACTION
1.	WELCOME AND INTRODUCTION	**Zitholele**
2.	MEETING OBJECTIVES	**Zitholele**
3.	PROJECT OVERVIEW – presentation	
3.1	Project Background	**Zitholele**
3.2	Project Activities & Scope	**Zitholele**
3.3	Associated Water Uses	**Zitholele**
4.	FGD WATER USE REQUIREMENTS	
4.1	Water required for power station and FGD	**Zitholele**
4.2	Mokolo and Crocodile River (West): Water Augmentation Project (MCWAP) Phase 2A	**Zitholele**
4.3	Socio-Economic Study	**Zitholele**
5.	MATTERS FOR CLARIFICATION (DISCUSSION)	**All**
6.	WAY FORWARD & CLOSE	**Zitholele**

Eskom	**CONTRACT NO: 12949** **Medupi Power Station Flue Gas Desulphurisation Project** **Water Use License Application** **ATTENDANCE REGISTER**	ZITHOLELE CONSULTING

DATE : 30 August 2016
VENUE : DWS, Room 661, Waterbron, Pretoria
DESCRIPTION : Medupi FGD retrofit Water Use License Pre-Application Meeting

TIME : 11:00am to 12:30pm
REFERENCE : 12949

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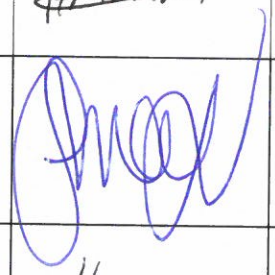
Ms	Sharon	Meyer		Zitholele Consulting	Tel No:	011 207 2073
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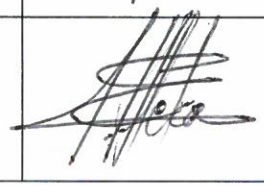
Ms	Love	Hlekane		Department of Water and Sanitation	Tel No:	015 290 1357
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Eskom Holdings SOC

DWS pre application meeting for WULA 1

Project No : 12949

ACTION

1. Present

Ockie van den Berg (OB)
Love Hlekane (LH)
Mulalo Nethengwe (MN)
Motlatso Machaba (MM)
Henry Nawa (HN)
Felicia Sono (FS)
Ian Midgley (IM)
Sharon Meyer (SM)
Shandré Laven (SL)

2. Apologies

Theuns Blom

3. Welcome and Introduction

SM welcomed attendees to the meeting. All attendees introduced themselves and their roles regarding the project.
SM briefly went through the agenda for the meeting and indicated that much of the discussion would occur during the presentation.

4. Meeting Objectives

SM proceeded to present a basic introduction to the project and highlight the meeting objectives:

- Present the project
- Understand the scope of the WULA
- Discuss the scope of the MCWAP Phase 2A and DWS issues raised at meeting 22/07/2016
- Agree on the way forward

5. Project overview

SM presented the project overview. The presentation will be sent out with these minutes for review and information.
SM discussed the water uses that will be included within the current Water Use License Application (WULA).

- 21(b) – storage of water in reservoirs or dams
- 21(c) & (i) for activities within 500m of water body

ACTION

- 21(e) for irrigation with dirty water – dust suppression on ADF
- 21(g) for disposal of waste at the ADF that may impact on a water resource.

OB queried why 21 a is not included? This is for abstraction of water.
SM indicated that abstraction is not included within this WULA and will be applied for under a separate WULA. This was confirmed by DWS in that bulk water abstraction must be applied for separately to other water uses. In addition, abstraction from MCWAP Phase 2A cannot be applied for until the MCWAP Phase 2A is authorised under NEMA and any other environmental legislation.
OB indicated that the bulk of the water required for the Medupi Power Station and FGD is already licensed under MCWAP Phase 1 and is supplied from the Mokolo Dam.
SM indicated that the requirement for 21(h) needed to be clarified. This is for the disposal of water or waste that has been heated within an industrial process.

6. Water Use License

SM discussed the existing WULA for the FGD and ADF versus the current application, and differences in the water uses.
SM indicated that the new application will document the existing water uses as well as the new water uses, so that a consolidated WUL can be issued.
MN indicated that existing lawful water uses must be listed with license numbers and description. Any additional water uses should be highlighted. The existing license is then integrated to provide a new consolidated license which is better for management purposes.
LM queried what the existing license includes.
FS indicated that the two issues that require licensing are:

- The liner from year 4 to 20 years
- The addition of gypsum for disposal at the ADF.

7. Medupi water requirements

SM indicated that Medupi Power Station currently has an abstraction allocation of 10.9 Mm^3/a licensed from MCWAP Phase 1. The shortfall for Medupi Power Station, including FGD, is about 4.5Mm^3/a. However, the WULA for 21(a) (to follow once MCWAP Phase 2A is authorised) will be for the full allocation of 15.4Mm^3/a. This is to allow for flexibility that water from MCWAP can be supplied to Medupi Power Station from either the Crocodile River and/or Mokolo Dam.
OB confirmed that DWS submitted a directive to Eskom to ensure that the Medupi Power Station was constructed to operate with lower water quality requirements. Other water users, such as Matimba and the Lephalale Municipality Waste Water Treatment Works, can only accept Mokolo Dam water qualities. Therefore, if Medupi Power Station can be accommodated from Crocodile River, then other water users can source the better quality water from Mokolo Dam.
OB indicated that there is a condition that MCWAP water users must accommodate 18 days of storage from MCWAP.

ACTION

FS confirmed that this has been accommodated within the design of storage facilities at the Power Station.
MN indicated that the 21(a) application must clearly provide the water allocation strategy in order to indicate that the new WUL for abstraction should "supercede" the older allocation. DWS will then be clear that allocation to Medupi is 15.4Mm^3/a, but that this volume can be allocated from either Crocodile River or Mokolo Dam.

8. MCWAP scope

SM requested that DWS confirm the motivation for and the proposed scope of the socio-economic study that was discussed at the previous meeting 22/07/2016.
OB indicated that MCWAP Phase 1 is operational. DWS undertook an EIA including a social impact assessment and macroeconomic assessment. The return flows to the north crocodile system in Gauteng indicates that there is surplus water from MCWAP Phase 2A for use within Lephalale. A reconciliation strategy has been carried out to inform allocation of the MCWAP Phase 2A water.
SM indicated that Eskom did not undertake any specific Socio-economic studies specific to the allocation of water from MCWAP. This is why Eskom and Zitholele would like some clarify around why this study is required for MCWAP Phase 2A and what this socio-economic study should investigate.
MN indicated that Section 27 motivation should be compiled to address the social and economic factors relating to decisions made and technology options selected that affect water consumption. A socio-economic study should be carried out to investigate the impacts of the options taken by the project.
MN also indicated that socio-economic studies carried out by DWS on MCWAP Phase 2A may not be available to the DWS official reviewing the application and so any pertinent information should be referred to within the WULA.
SM confirmed that all necessary studies and reporting would be carried out as per the points above. However, in the previous meeting it was specifically indicated that a socio-economic study was required specifically in terms of water allocation to Medupi Power Station.
MN advised that WULA should address issues as raised by stakeholders. This is the best method to avoid appeals or to address appeals adequately that DWS can uphold a decision.
SM queried what should be done if the MCWAP Phase 2A information and reporting is not available at the time that Zitholele needs to submit the WULA?
OB confirmed that MCWAP Phase 2A will not be submitted until mid- to end of 2017.
MN indicated that Section 27 must be completed according to requirements for non-consumptive water uses.
FS indicated that Medupi Power Station has a licensed allocation from MCWAP. Therefore it should be common sense that the Section 27 from the previous WULA into the new WULA. This should be accepted as it was previously acceptable to DWS for the previous WULA.

ACTION

9. Water Conservation Strategy

SM indicated that a water conservation strategy will be submitted with the WULA. Current initiatives for water conservation at Medupi Power Station includes:

- Water accounting
- Process water reused/recycled
- Zero effluent discharge philosophy
- Dry cooled power station

OB confirmed that all water users that apply for allocation from MCWAP must have zero effluent discharge systems.

FS indicated that all of the above are directives from Eskom and these initiatives are required in terms of the Eskom water management strategy. In terms of the FGD all effluent is identified and recycled within the system. This will be included within the detailed water balance.

MM asked whether Matimba Power Station operates on the same water conservation strategy.

FS indicated that both Medupi and Matimba work on the 4 mentioned water conservation initiatives.

MN indicated that stakeholders are targeting the issue where there is an alternative to use the gas cooler to minimise water consumption, or to not use the gas cooler. Zitholele must respond to this question clearly and motivate for the decision.

MN advised that it is a mistake to provide technological and financial motivation for the technology.

SM responded that to date the only information around the gas cooler was techno-financial and this report was made available to the public to ensure transparency. However, the Eskom engineers are currently undertaking a comparative analysis of the FGD with and without gas cooler, taking cognisance of the difference in water consumption. This report will be made available to stakeholders during the IA Phase.

MN indicated that DWS and DEA will not accept a motivation based on technology or financial criteria. This decision should be made on water consumption and water minimisation.

10. Water allocations

Some discussion ensued regarding water allocations for Eskom for Matimba and Medupi. As this is not directly related to the current WULA, it is not documented here. Allocations will be available on the relevant licenses.

OB confirmed that all water allocation planning was carried out with FGD accommodated. In addition, allocations to Matimba also include consumption for FGD retrofit, should this be required in future.

11. Process going forward

SM discussed the proposed processes for the EIA and the WULA.

A key issue for clarification was to understand the requirement for public review of the WULA and Technical Report.

		ACTION
	MN requested that the WULA and Technical Report be submitted for public review simultaneously with the EIR prior to submission to the DWS for decision making. ***SM*** indicated that the WULA has been advertised and discussed with the stakeholders throughout the EIA Process. ***MN*** requested that a site visit be undertaken within the next week or two. This will inform the confirmation of the water uses. ***MN*** indicated that an advertisement should be placed requesting input to the WULA process. The period for stakeholder input should be 60 days. ***MN*** indicated that an aligned process can then allow for the public review period to be reduced from 60 to 40 days. ***MN*** indicated that DWS has draft timeframes of 300 days for decision making.	SM SL SM SM
12.	**Site visit** ***SL*** will arrange a site visit at Medupi Power Station. Ideally within next 2 weeks.	SL
13.	**Infrastructure Layout** ***MM*** asked whether there is a layout plan for the FGD infrastructure. ***SM*** indicated that a plot plan will be provided which indicates the existing infrastructure as well as the new infrastructure. ***FS*** indicated that the new infrastructure will be retrofitted within the existing footprint to existing Power Station infrastructure.	SM
14.	**Inputs from Kelvin Legge** ***MN*** asked whether any inputs have been obtained from Kelvin Legge. SM indicated that Kelvin has been engaged on this project regarding disposal of ash and gypsum. ***FS*** indicated that a future meeting would be arranged with Kelvin to discuss the concept designs.	
15.	**Inclusion of water use 21(h)** ***SM*** asked about the requirement for inclusion of water activity 21(h). ***FS*** indicated that this various on power station applications. ***MN*** indicated that at this stage it would be required that both 21(g) and 21(h) forms should be completed for this project.	
16.	**Timeframes for operation of FGD** ***LH*** asked when the FGD would become operational. ***FS*** and IM provided estimates for commissioning of the first unit with FGD which would be about 2021 – 6 years after commissioning of each unit.	
17.	**Way forward** ***SM*** provided a summary of the actions going forward. • SL will arrange a site visit. • A discussion after the site visit will confirm the water activities.	

	ACTION
• SM will send out minutes with the plot plan to show the layout of existing and new infrastructure. • 21(h) application forms will be required for the water use license. • All attendees to this meeting will be invited to the Kelvin Legge DWS engineering meeting. • PP will be carried out simultaneously to the Impact Assessment • A socio-economic study will be carried out and all required information on impacts will be documented for non-consumptive water uses. The Section 27 motivation will be completed for non-consumptive water uses.	

DATE: **01 September 2016**

SIGNATURE: 

ZITHOLELE CONSULTING

Table 1: Abbreviations used in these minutes

ADF	Ash Disposal Facility
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
FGD	Flue Gas Desulphurisation
MCWAP	Mokolo Crocodile Water Augmentation Project
Mm^3/a	Million cubic meters per annum
WULA	Water Use License Application
WUL	Water use License

Eskom	**CONTRACT NO: 12949** **Medupi Power Station Flue Gas Desulphurisation Project** **Water Use License Application** **ATTENDANCE REGISTER**	ZITHOLELE CONSULTING

DATE : 23 September 2016 **TIME** : 08h30 to 13h00

VENUE : Medupi Power Station, Lephalale **REFERENCE** : 12949

DESCRIPTION : Medupi FGD retrofit DWS site visit

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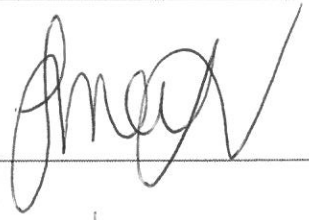
Sharon	Meyer		Zitholele Consulting	Tel No:	011 207 2073
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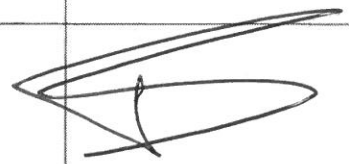
Tobile	Bokwe		Eskom	Tel No:	011 800 2303
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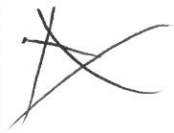
Mpetjane	Kgole		Eskom	Tel No:	011 800 4121
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DWS Section 21 C & I Meeting

12949 - MEDUPI POWER STATION FLUE GAS

DESULPHURISATION (FGD) RETROFIT PROJECT

ASH DISPOSAL FACILITY WULA, WML AMENDMENT & EIA

Thursday, 30 November 2017 @ 10am

Sedibeng Building, Francis Baard Street, PTA

A G E N D A

		ACTION
1.	WELCOME AND INTRODUCTION	**Zitholele**
2.	MEETING OBJECTIVES	**Zitholele**
	2.1 Provide feedback on updated Wetland Impact Assessment	
	2.2 Feedback from DWS on S21 c&i issues	
	2.3 Eskom and DWS Agreement on way forward	
3.	PROJECT OVERVIEW – presentation	
	3.1 Project Background	**Zitholele**
	3.2 Updated Ecology IA	**NSS**
4.	QUESTIONS AND DISCUSSION	**All**
5.	WAY FORWARD & CLOSE	**Zitholele**

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ZITHOLELE MEETING

12949 – Environmental Authorization Process for the Proposed Medupi Power Station FGD Technology Retrofit

DEA Ref: 14/12/16/3/3/3/110

DWS S21 C&I MEETING

THURSDAY, 30 NOVEMBER 2017

SEDIBENG BUILDING, FRANCIS BAARD STREET, PTA

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Eskom Holdings SOC Limited

12949 - MEDUPI POWER STATION FLUE GAS DESULPHURISATION (FGD) RETROFIT PROJECT

ASH DISPOSAL FACILITY WULA, WML AMENDMENT & EIA

DEPARTMENT OF WATER AND SANITATION SECTION 21(C) AND (I) MEETING

Project No : 12949

		ACTION
1.	**Present**	
	Please refer to the Attendance Register included in Appendix 1.	-
2.	**Apologies**	
	No apologies were tendered.	-
3.	**Opening and Welcome**	
3.1	**Mathys Vosloo (MV)** opened the meeting and asked that everyone present introduce themselves and states their role in the project / capacity. MV also asked that everyone complete and sign the attendance register.	-
3.2	**MV** explained the meeting objective is centred on presenting the findings of the updated wetland assessment study to the Department of Water and Sanitation.	-
4.	**Discussion**	
4.1	**Pieter Ackerman (PA)** enquired whether a letter of review on the project at hand was received from the Department of Water and Sanitation (DWS).	-
4.2	**Felicia Sono (FS)** responded and explained that a previous meeting was held with the DWS, but at that point the project had only progressed to site selection for a new Ash Disposal Facility (ADF). The aforesaid prior meeting was centred on discussion of site alternatives namely Site 12, Site 2 and Site 13. **FS** explained that at the meeting the DWS indicated that the Department was not in favour of site 12. This is owing to the fact that the footprint of the site alternative extended across a tributary of the Sandloopspruit. Since the initial meeting with the DWS, a decision was taken by Eskom to continue ashing on the existing Ash Disposal	-

ACTION

Facility (ADF) including disposal of gypsum on the existing ADF.

4.3 **MV** noted that a separate Application for Environmental Authorisation (EA) process will be done for a new ADF. -

MV provided an overview of the Flue Gas Desulphurisation (FGD) System. He laid emphasis on the following aspects of the FGD System:

- Limestone will be transported via rail to the siding;
- The limestone is then taken to a limestone preparation and handling area, prior to entering the FGD system;
- After the FGD treatment process, the treated flue gas with a reduced SO_2 concentration is released; and
- Gypsum is a by-product of the FGD process. Provision will be made for the temporary storage of gypsum.

4.4 -

An application to amend the existing Waste Management License to allow the disposal of gypsum on the existing ADF will be submitted to the licensing authority. Wastewater that is generated from the FGD process is treated at the wastewater treatment plant within the existing Medupi Power Station. The treated water is then re-used in the FGD Process.

4.5 **PA** enquired about the size of the area required for the FGD System.
MV responded by explaining that the both the ADF and FGD System fall within the existing footprint of the Medupi Power Station. -

MV provided an overview of the layout of the Medupi Power Station in relation to the existing ADF. **MV** also explained that the existing rail is located to the south of the Medupi Power Station and pointed out the location of the siding and position of the limestone storage and handling area.

4.6 **MV** described that a conveyor will transport the gypsum from the FGD system to the ADF. Once off-takers have been secured the gypsum will be diverted from the FGD plant to a temporary storage area. The salts and sludge that are produced by the FGD process will also be stored until such time it is disposed of at an appropriate licensed facility. -

4.7 **MV** presented the most recent shape of the ADF, and noted that the extent of the ADF had been reduced to reduce impact on the identified wetlands. He also explained that three PCDs are planned and will be located alongside / adjacent to the ADF.

4.8 **PA** enquired whether the existing Environmental Management Programme (EMPr) will be amended to make provision for the additional areas.
MV responded that a separate EMPr will be developed for the planned FGD. The aforesaid EMPr will however integrate the management and mitigation measures of the existing EMPr to avoid

ACTION

contradictions between the two documents.

Tyron Clark (TC) explained that in 2006 and 2008 an Integrated Water Use License Application (IWULA) and Environmental Impact Assessment (EIA) Processes were carried out. During the IWULA and EIA Processes the wetland systems were overlooked largely due to the cryptic nature of ephermal systems which are associated with the development site.

4.9 In 2009 Eskom was granted an EA and IWUL for the ADF, but the authorisations did not Section 21(c) and (i) as a Water Use. However in 2015 a wetland assessment which was done for the ADF found a number of depressions and semi-arid ephermal washes. The identified wetland systems provided a challenge with regards to protecting the watercourses at such a late stage in the project development process.

The Sandloopspruit is a Freshwater Ecosystem Priority Area (FEPA) and is considered to be in a largely natural state. This FEPA is of particular importance because it is regarded as a good reference site. The wetland systems are situated on a watershed and most of the wetlands drains in a southerly direction. The Sandloopspruit catchment covers an area which exceeds 4000 hectares.

A number of wetlands were identified on site and they were grouped into four hydrogeomorphic (HGM) units, namely Semi-arid ephermal wash 1, 2, 3 and 4. In terms of current health the wetland systems, the depressions are in a largely natural state.

4.10 **TC** explained that high concentrations of chromium and nickel were picked up in the sediment of the pans and is associated with industrial activities. However no adequate reference prior to the coal mining (Grootegeluk Mine) commencing in the area is available. The high concentrations of chromium and nickel were picked up in the sediment of the pans are toxic to aquatic organisms at the concentrations observed. The hatching of critters in the sediment is poor (hatch rate) and this is attributed to heavy metal concentrations.

With regards to the Wetland Ecosystem Services essentially the systems are important for phosphate removal and sediment trapping.

4.11 African Bull frogs were identified near the ADF site. Impact on wetlands will be the main impact if the entire site ADF site is cleared. **TC** stated that part of the existing WUL, the harvesting of hillwash slope material was granted, with mitigation and management measures.

4.12 **TC** explained that a number of alternatives for protection of the wetlands were considered. The alternative included the following:

- Alternative 1: No activities may take place within 1km of the

ACTION

Sandloopspruit buffer. This is largely due to a 1km buffer being advised for systems where activities which relate to mining are planned. The production and storage of ash is covered by legislation as activity associated with mining.

- Alternative 2: No activities may take place within the 500m buffer of the wetlands;
- Alternative 3: The 1km buffer does not apply to disturbed areas;
- Alternative 4: No measures are put in place to remain outside of wetland areas;
- Alternative 5: A 1km buffer for the FEPA will apply.

Kishaylin Chetty (KC) asked what is meant with mitigation measures in relation to hectare loss.

4.13 **TC** responded to **KC** and stated that without mitigation refers to the absence of any management measures to reduce impact significance. The mitigation measures refers to Stormwater Management and lining of the ADF. Without this mitigation a broader extent would be impacted.

4.14 **TC** stated that although the strategy is to minimise the loss of catchment and encroachment on the FEPA wetland, Alternative 5 will be feasible and practical, even though it is sub-optimal. It is also proposed to capture and relocate bullfrogs which are found at the pans and implement wetland rehabilitation and an Wetland Offset Plan. The wetland offset ratio will be high by default because it is a protected system.

PA asked how the wetlands will be protected in the event where the ADF needs to be extended.

4.15 **FS** responded that although the initial master plan included the south of the ADF (Site 12) as a potential site for a future ADF, this site has since been abandoned.

PA stated that provision will need to be made for a new ADF.

4.16 **MV** responded that a separate EA process will be followed for the new ADF.

4.15 **PA** asked how many pans will be lost.
TC responded that an estimated 14% of the pans will be lost. -

PA asked that the infrastructure in relation to wetlands be provided on a map.

4.16 **M**V enquired whether the wetland offset requirements will be incorporated in the WUL conditions. NSS
PA responded that it will have to be discussed with the panel, before a decision can be made.

4.17 **PA** enquired whether the pans can be recreated elsewhere. -

		ACTION
	TC responded that it can be done and shallow scraping to catch rainwater and runoff will be required. **PA** stated that the recreated pans should be as close as possible to a natural system.	
4.18	**PA** stated that the Master Plan must show the new ADF. **FS** responded that it would not be possible at this stage to show the new ADF as site selection still have to be undertaken.	-
4.19	**PA** indicated the buffer in relation to the ADF should be shown on a map. **TC** explained that large portion of the infrastructure encroaches on 1km buffer and that provision has been made to optimise for enough storage space for gypsum and ash. The final designs will only be done after authorisation is granted.	-
4.20	**FS** explained that FGD must be retrofitted in accordance with the Air Emissions License conditions and World Bank loan agreement. The SO_2 abatement technology must therefore be installed six (6) years at the latest after each unit is commissioned. **PA** stated that before offsets are implemented, it needs to be approved.	-
4.21	**TC** stated that a search and rescue plan for the bullfrogs will be implemented. **PA** responded that the best option for the bullfrogs is to recreate pans to recreate their habitat.	-
4.22	**FS** indicated that the WULA will be submitted to DWS during the first quarter of 2018.	
4.23	**PA** noted that there is a small time gap to relocate bullfrogs in order to allow adequate time for them to survive the rainy season. A programme for relocation must be included in the submission.	NSS
5.	**Close**	
5.1	No further items were discussed and **MV** closed the meeting at 11am.	-

DATE: **06 December 2017**

SIGNATURE:

ZITHOLELE CONSULTING

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