MINUTES OF AUTHORITY MEETING (DRAFT)

CLIENT : **Eskom Holdings Limited – Generation Division**
PROJECT : **Eskom Nuclear-1 EIA and EMP**
PROJECT No : **J27035**
PURPOSE : **Clarify process for heritage resources mitigation**
PLACE : **SA Heritage Resource Agency (SAHRA) office, 111 Harrington Street, Cape Town**
DATE : **12 October 2009**
TIME : **11h00 – 15h00**

NAME	REPRESENTING	E-MAIL ADDRESS	DISTRIBUTION
PRESENT			
Reuben Heydenrych (RH)	Arcus GIBB	rheydenrych@gibb.co.za	Email
Tyrone Singleton (TS)	Eskom	tyrone.singleton@eskom.co.za	Email
Roderick Beckmann (RB)	Eskom	roderick.beckmann@eskom.co.za	Email
Gert Greeff (GG)	Eskom	bert.greeff@eskom.co.za	Email
Tim Hart (TH)	UCT Archaeological Contracts Office	tim.hart@uct.ac.za	Email
Antonieta Jerardino (AJ)	UCT	antonieta.jerardino@uct.ac.za	Email
Belinda Mutti (BM)	Heritage Western Cape	bmutti@pgwc.gov.za	Email
Nicolas Wiltshire (NW)	Heritage Western Cape	nwiltshire@pgwc.gov.za	Email
Phillip Hine (PH)	SAHRA	phine@sahra.org.za	Email
Jonathan Sharfman (JS)	SAHRA	jsharfman@sahra.org.za	Email
Mary Leslie (ML)	SAHRA	mleslie@sahra.org.za	Email
ADDITIONAL DISTRIBUTION			
Deidre Herbst	Eskom	deidre.herbst@eskom.co.za	Email
Jaana-Maria Ball	Arcus GIBB	jball@gibb.co.za	Email
Karin Neethling	Arcus GIBB	kneethling@gibb.co.za	Email

Item No. Comment by	Comment	Action

1 WELCOME AND INTRODUCTIONS

All around the table introduced themselves. All represented the organisations as indicated above. AJ is working for SAHRA on contract.

TS explained that the meeting was organised at Eskom's request to obtain guidance from the heritage authorities for requirements in terms of protection of archaeological and palaeontological resources.

2 ESKOM PRESENTATION ON PROJECT RATIONALE AND STATUS

TS TS gave a presentation on the motivation for the project. The presentation is attached as Appendix 1.

Key items from the presentation are as follows:

- Projections based on long-term economic growth rate of 6%
- Total 80 000 MW required by 2025, (additional 40 000 MW to current capacity)
- Up to 20 000 MW additional nuclear energy being considered
- Load growth points are in the Eastern Cape and Western Cape, therefore power needs to be produced here rather than transmitting it from the Mpumalanga highveld, since load losses over that distance are significant: an extra coal-fired power station needs to be built just to transmit the electricity from Mpumalanga to the Western Cape.
- Eskom wants to reduce the share that coal contributes to total power generation from the current 88% to 70% by 2025.
- Eskom needs to base-load power plants to produce power on consistent basis. Only coal-fired power plants and nuclear power plants can provide this.
- Other energy sources will provide the balance. Eskom's goal is to save 8 000 MW through demand-side management by 2025.
- Five sites (including two Northern Cape sites) were considered in the scoping phase of the EIA. The Northern Cape sites were rejected as being unfeasible at the end of scoping, amongst other reasons because there would be significant losses in transmission between these sites and the Western Cape.
- Eskom would like to break ground for the 1st Nuclear Power Station (NPS) by the beginning of 2011.

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ML	Stressed that this is a preliminary meeting and that no decisions can be taken b y SAHRA prior to having reviewed detailed reports. Also noted concern that heritage authorities were not consulted when the decision was made to exclude the two Northern Cape sites from further consideration at the end of Scoping.	
NW	How will SAHRA be consulted in future in the EIA process?	
TS	The public participation process is continuous and will be carried through to the conclusion of the EIAS process. Agreed that this is a preliminary meeting, probably one of a series of engagements between Eskom and heritage authorities. No matter what site is chosen, some form of mitigation will be required for heritage resources. Eskom would therefore like to engage with heritage authorities so that mitigation can take place timeously, as it may require long lead times.	
NW	What is the current generating capacity? How will the shortfall be addressed?	
TS	The 40 000 MW shortfall will be made up from a variety of sources, including demand-side management (DSM), Open Cycle Gas Turbines (OCGT), coal-fired power stations and nuclear.	
NW	Where are the two coal-fired power stations located and what is their cost?	
TS, RB	Kusile (Mpumalanga) and Medupi (Limpopo Province). Cost approximately R120 billion.	
NW	What coal reserves are still available?	
TS	There are 12 existing coal-fired power stations. Coal production from existing sources in Mpumalanga is expected to peak in 10-20 years' time. Limpopo province has enough coal for approximately 24 more power stations, but there are significant constraints in terms of water availability and air quality.	
NW	Why is more wind power not used in South Africa?	
TS	Eskom has an experimental wind farm and is investigating expansion. There are, however, constraints associated with wind power e.g. electrical surges and high cost. A balance needs to be maintained between peaking power (of which wind is an example) and base-load power.	
RB	Wind power generation is dependent on times when wind is available. SA has an average availability of approximately 20 %, which is low compared to other countries where wind power provides a greater proportion of generation capacity. SA lies outside the "roaring forties" latitude band where a lot of wind is available.	
NW	How much power does Koeberg generate and what is its lifespan?	

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RB	Koeberg generates approximately 1 900 MW and it has a 40 year lifespan. It was commissioned in 1984 and can therefore expect to continue operating until 2024. In the long-term, Koeberg and the other older coal-fired power stations need to be replaced. New coal-fired power stations will be built for a 50 year lifespan and the new NPS will be built for a 60 year lifespan. NB: The new NPS is not a replacement for Koeberg – SA needs additional generation capacity in the next 10-15 years.	
NW	How many power stations could be built on each of the three sites?	
TS	If there are no other constraints, up to three NPSs could be built on each site (the current EIA only considers one NPS per site).	
NW	Is the PBMR considered in Eskom's current planning?	
TS	No, the PBMR is unproven technology and is therefore not considered in current plans for generating capacity improvement. The new NPS is based on proven "off-the-shelf" technology.	
TS	TS gave a presentation on the footprint of each site. Questions and answers are not captured chronologically, but according to sites. Generic issues, even through they may have been included in discussions for particular sites, are captured separately.	
	Thyspunt site	
AJ	How far is the site from the gold course? There were significant impacts at the gold course that needed to be mitigated and it seems that mitigation left a lot to be desired. SAHRA is not satisfied with the measures that were taken at the golf course.	
TS	One of the access roads does cross through the area affected by the golf course.	
	Bantamsklip	
?	Will the area north of the road be impacted?	
TS	No, the area north of the road will not be impacted.	
	Generic issues (not site-specific)	
Not captured	Not captured	
TS	The new NPS will be different to Koeberg in that there will be no offshore inlet and outlet structures built. Water will be pumped in and out via pipelines. Koeberg has Emergency Planning Zones (EPZ) of 5 km and 16 km, whilst the new NPS is expected to have EPZs of 800 m and 3km.	
NW	Why is the EPX for Koeberg larger?	

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RB	The risk with the new NPS is smaller due to the advanced in safety systems over the past 20 years. The new NPS will have easier control over what could potentially happen. It can be demonstrated that the safety measures for the new NPS are more advanced.	
AJ	Need active approach to obtaining comments from government authorities. The EIA team and Eskom cannot reply only on the normal public participation process to solicit comment from SAHRA.	
TS	Arcus GIBB to provide an extra copy of the NPS Scoping Report to SAHRA.	**RH**

3 ARCUS GIBB PRESENTATION ON THE STATUS OF THE EIA PROCESS

RH RH have a short presentation on the history of the EIA process and the current status thereof. They key aspects are:

- Final Scoping Report submitted to the Department of Environmental Affairs and Tourism (DEAT) in July 2008. This report recommended that ther Northern Cape sites be scoped out.
- DEAT approved this report in November 2008 but requested that the Plan of Study for EIA be revised.
- The PoS has been revised and serves as notification of Eskom's intention to apply for authorisation on all three sites.
- The POS has been available for public comment from May to June 2009 and the final one will be submitted to DEAT shortly.
- It is anticipated that the draft EIA Report will be provided for public comment in the 1st quarter of 2010.
- Thereafter the EIA report will be finalised and submitted to DEAT for decision-making (other authorities such as SAHRA make a recommendation to DEAT).

4 PRESENTATION BY TIM HART

TH

- TH has been involved in the project since the Scoping Phase
- He favoured the Northern Cape coast sites from a heritage point of view, although the decision of the EIA team as a whole was that the Northern Cape sites needed to be eliminated from further consideration.
- In a nutshell, the impacts at all currently considered sites may be significant.

Duynefontein

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TH	• Existing Koeberg NPS • Late Stone Age (LSA) sites: few and of poor quality • However, well-established palaeo-archaeological resources near surface (200 000 yrs before present) and widespread across the site • Pre-human palaeontological resources (up to 30 m deep) was present at Koeberg site • Mitigation: difficult to estimate extent of impact, suggest repetition of excavation that was done for Koeberg, but would need to excavate deeper. Excavation took 5 years at Koeberg. • The impact on palaeontological resources could be positive, since the project would provide palaeontologists with an opportunity to get access to fossils and thereby improve knowledge. This is the opposite of the impact on other heritage resources, which would be predominantly negative.	
	Bantamsklip	
TH	• Dense LSA occupation 300-400m from shoreline, very little further inland • No particular palaeontological concerns • Level of impact will be determined by placement of the NPS relative to the shoreline: if more than 400 m from shore, then impact will be minimal • Mitigation: sites are uniform, therefore may be possible to do sampled excavation and to sacrifice some sites.	
AJ	Need to caution against regarding all sites as similar, as they may look similar on the surface but be quite different once they have been excavated.	
	Thyspunt	
TH	• Severe restrictions on surveying because of thicket vegetation, which completely covers the surface and makes moving around the site difficult. The only area that is relatively easy to survey is the strip within 100m of the shoreline. • Approximately 200 shell middens have been recorded in the dunes and coastal strip. The occurrence of these sites is suspected to be less dense further inland, but it is not known to what extent. Therefore high degree of uncertainty. • Siting > 300m from shoreline would lessen the impact, but due to the difficulty with excavation, it is difficult to assess the significance of the impact.	

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AJ	Concerned that damage has already been done to some sites due to drilling	
TS	No new access roads have been created. All drilling has been done from existing roads, where possible, or by driving a short distance from the road into the veld.	
	Considerations common to all three sites	
TH	• Time frames for mitigation are very challenging • Storage of excavated material is challenging, as there is a lack of properly curated storage space. • It will be necessary to recruit qualified staff, possibly even from overseas, to assist in excavations and curation of material, since the required resources are currently not available in South Africa to take on a mitigation exercise of this scale.	
ML	Is it not possible to place the NPS further from the coast?	
RB	• It is technically possible, but there are other constraints such as wetlands, sensitive plant communities, etc. The current design is 100m from the coast. • It is important to understand how these sites were identified in the 1st place. A NPS's site needs very stable seismological conditions. The original Nuclear Sites Investigation Programme (NSIP) identified such suitable sites. There are not many such sites available along our coastline.	
ML	Concerned that alternatives are limited to moving infrastructure on sites. Heritage sites are dense on all three sites. Why are only three sites considered along the vast South African coastline?	
TS	We understand your concerns, but site decisions for NPSs are heavily dependent on geological and seismological conditions. Function and safety are of overriding importance for an NPS location. NPSs cannot be placed in heavily populated areas, they therefore of necessity have to be placed in remote areas where heritage resources have not yet been destroyed by other forms of development. Eskom does not have any other feasible sites. NPS sites are very rare resources. NSIP was undertaken in 1980's and 1990s and considered earth sciences and social sciences. This programme identified five sites, including Northern Cape sites, namely Brazil and Schulpfontein. Eskom realises that all sites currently being considered are very sensitive from a heritage point of view.	
NW	Are Brazil and Schulpfontein suitable geologically?	

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TS	Yes they are geologically suitable, but they would be difficult to integrate with the grid as they are located far from the area where power is required.	
RB	Due to the long distance over which power would need to be transmitted from these sites, there would be a vast reduction in load that would reach the end destination. This was one of the prime considerations in deciding against these sites.	
BM	Do load forecasts consider only growth at the coast?	
RB	The Western Cape currently requires approximately 5 500 MW. Only 2 000 MW is currently generated here, the rest is imported from other provinces. If power is transmitted from elsewhere (e.g. Mpumalanga), there are huge losses because of the distance. An additional coal-fired power station is required just to ensure that the power generated by one coal-fired power station can reach the Western Cape.	
AJ	It is probably inevitable that the NPSs will be built and that heritage resources will be impacted. Significant mitigation will be required. Lessons have been learnt from other large projects (e.g. golf courses) that mitigation is ineffective and has failed to improve knowledge. The volumes of material that would be excavated are huge, and museums would need to be improved to deal with this. Could Eskom consider providing scholarships for the proper excavation, storage and study of material over the several years it would take to do this properly? This would require extensive radio-carbon dating (most material is currently sent overseas for this). This might create an opportunity to create capacity for undertaking radio-carbon dating in South Africa. Possibly a partnership could be created with a body like the CSIR to create local capacity for this.	
TH	He has identified the opportunity for a scholarship programme as part of mitigation. Storage is one of the main issues that would need to be addressed. It is true that large-scale mitigation projects (such as at the gold course) can go wrong. A setback of the NPS from the coast will help, but even with that, it is inevitable that some mitigation would be required. The challenge of a large scale mitigation project such as this is partly getting the material out of the ground, and partly managing it properly thereafter.	
TS	Eskom acknowledges that mitigation requires a long-term commitment and that partnerships with academic institutions would be necessary, not only for heritage resources. To this end, Eskom would like an indication, if only in principle, of the way that SAHRA would like mitigation to be approached.	
AJ	SAHRA would have to study a more detailed findings report (including an indication of the footprint) to provide recommendations in this regard.	
TS	Is it necessary to wait for the outcome of the EIA process before SAHRA provides an indication of the way forward? Is it not possible to work in parallel to the EIA process?	

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TH	A mitigation study would be required to determine the approach thereto. For permitting purposes, the boundaries of the footprint would be required. Once the footprint is known, it is a relatively simple process to apply for a permit. It will be more difficult to determine the staffing requirements for a mitigation project.	
TS	The footprint will be narrowed down in the next two months (especially after the EIA team integration meeting in November).	
AJ	Given that the level of detail is very sketchy at the moment, SAHRA is unable to give constructive input at present.	
TS	Eskom cannot give a definite answer about the footprint until vendor negotiations for the supply and installation of the NPS have been concluded. However, in view of the long time frames that will be required for effective mitigation, it is critical to apply for the necessary permits timeously.	
AJ	Due to the large size of the current envelopes, heritage authorities will only be able to give proper guidance about mitigation very much later.	
RB	Would it not be possible to consider options for mitigation in the next 2-3 months? That way partnership proposals could start to be conceptualised, so that Eskom has an idea what will be required.	
AJ	It may be possible, but it would be an "orders of magnitude" approach to mitigation and would contain no specifics.	
RB	Understood. What Eskom wants to avoid is a situation that the NPS cannot be built because the mitigation is not feasible. Therefore Eskom would prefer an early indication of the nature of the mitigation so that they can also move forward with more certainty. Eskom would like to start unpacking the mitigation requirements at a high level.	
BM	Mitigation will be at a very large scale. A separate study to confirm the nature and scale of mitigation would be required.	
ML	SAHRA would need to study the Scoping Report and would also need an independent mitigation survey. A separate archaeological management committee meeting would also be required to decide on the approach to such a study.	
TH	• I would like Arcus GIBB and Eskom's permission to discuss the heritage implications of the project more broadly. Possibility of holding an experts workshop. Such a meeting could draw a preliminary roadmap for mitigation.	Eskom and Arcus GIBB
TS	There is no reason for the confidentiality agreement for specialists on the Nuclear 1 project to prevent TH from consulting with his peers.	
AJ	Agree it will be necessary to consult more widely, in other academic institutions as well, especially with parties who have experience of large scale mitigation.	
ML	Possibility of SAHRA hosting such a workshop.	

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NW	On many projects there is a requirement for external verification of the process – a project manager type role to confirm that mitigation is properly implemented.	
TS	On other Eskom projects (e.g. Ingula pumped storage scheme), this is exactly what is done. An independent Environmental Control Officer (ECO) has been appointed to report directly to the Department of Environmental Affairs and Tourism (DEA). There is also an independently chaired Environmental Management Committee (EMC), including relevant specialists, which acts as a watchdog and reports directly to the DEA. On the Ingula project, Eskom has entered into a partnership agreement with an NGO (Birdlife South Africa) to assist with mitigation. On the NPS project, Eskom would be happy to have a heritage working group within an EMC.	
NW	Independence of the watchdog is paramount. The ECO must report directly to the heritage authorities.	
TS	Such an arrangement would be acceptable to Eskom.	
AJ	TH and Arcus GIBB would need guidance about what mitigation would be required. A meeting of heritage specialists will be necessary. It will be important to have an indication of the volume of material, the footprint and other details. Furthermore, mitigation must contribute to the volume of knowledge and must not simply be focused on saving what is there.	
ML	A parallel authorisation process would be required: • A scientifically—driven process to decide on the mitigation that would be necessary. This must be managed by SAHRA; and • Official applications for excavation of material, based on detailed descriptions of the extent and nature of the impacts.	
6	**CLOSURE**	
RB	Thanked SAHRA for the opportunity to meet and discuss the Nuclear 1 project. It is understood that the project will have huge impacts on heritage resources, and the need for certainty about the nature of these impacts is also understood. Eskom realises the guidance it requires from SAHRA to manage these impacts effectively and is looking for a win-win situation where Eskom is able to fulfil its mandate and SAHRA is satisfied that all possible measures have been take to mitigate the impacts and contribute to knowledge in the process. To this end, Eskom would like to work in collaboration with the heritage specialists to understand the impacts and how to mitigate them effectively.	
ML	Request copies of the relevant documentation from the Scoping phase of the EIA.	

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TL	Copies of the Scoping Report and heritage impact assessment from the Scoping phase will be arranged.	RH
	Specialist reports for the EIA phase would probably only be ready for end of January 2010. Eskom would like to enter into further discussions with Eskom at that stage.	
AJ	Recommend applying for permits for test pit excavations so that an indication how deep resources are at each site. This would be necessary to give a better indication of the nature of the mitigation that would be required.	

Minuted by: Reuben Heydenrych
Project No: J27035

Reuben Heydenrych
Senior Environmental Scientist