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SOUTH AFRICAN HERITAGE RESOURCES AGENCY

111 HARRINGTON STREET, CAPE TOWN, 8000
PO BOX 4637, CAPE TOWN, 8000
TEL: (021) 462 4502 FAX: (021) 462 4509

DATE: 17 March 2010
ENQUIRIES: Mr Phillip Hine
Archaeology, Palaeontology and Meteorite Unit
E-mail: ajerardino@sahra.org.za
Web site: www.sahra.org.za

YOUR REF: 12/12/20/1789
OUR REF: 9/2/271/0001

Aurecon Group
P.O. Box 494
Cape Town
8000

Dear Sir/ Madam,

No:	File:	23		
Date:	23/03/2010			
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**PROPOSED BRINE AND GROUNDWATER TREATMENT WORKS AT
YOU ARE BEING WATCHED PHILLIP TUTUKA POWER STATION,
MPUMALANGA.**

Thank you for your indication that development is to take place in this area.

In terms of the National Heritage Resources Act, no 25 of 1999, heritage resources, including archaeological or palaeontological sites over 100 years old, graves older than 60 years, structures older than 60 years are protected. They may not be disturbed without a permit from the relevant heritage resources authority. This means that before such sites are disturbed by development it is incumbent on the developer (or mine) to ensure that a **Heritage Impact Assessment** is done. This must include the archaeological component (Phase 1) and any other applicable heritage components. Appropriate (Phase 2) mitigation, which involves recording, sampling and dating sites that are to be destroyed, must be done as required.

In your application received by SAHRA there was no indication of an assessment of the archaeological resources. The quickest process to follow for the archaeological

component is to contract an accredited specialist (see www.asapa.org.za for CRM practitioners) to provide a Phase 1 Archaeological Impact Assessment Report. This must be done before any large development takes place.

The Phase 1 Impact Assessment Report will identify the archaeological sites and assess their significance. It should also make recommendations (as indicated in section 38) about the process to be followed. For example, there may need to be a mitigation phase (Phase 2) where the specialist will collect or excavate material and date the site. At the end of the process the heritage authority may give permission for destruction of the sites.

Where bedrock is to be affected, or where there are coastal sediments, or marine or river terraces and in potentially fossiliferous superficial deposits, a Palaeontological Desk Top study must be undertaken to assess whether or not the development will impact upon palaeontological resources - or at least a letter of exemption from a Palaeontologist is needed to indicate that this is unnecessary. If the area is deemed sensitive, a full Phase 1 Palaeontological Impact Assessment will be required and if necessary a Phase 2 rescue operation might be necessary. (See attached list of accredited Palaeontologists).

If the property is very small or disturbed and there is no significant site the specialist may choose to send a letter to the heritage authority to indicate that there is no necessity for any further assessment.

Any other heritage resources that may be impacted such as built structures over 60 years old, sites of cultural significance associated with oral histories, burial grounds and graves, graves of victims of conflict, and cultural landscapes or viewsapes must also be assessed.

Attached please find a list of accredited archaeological and palaeontological specialists who may be contacted to undertake the necessary archaeological or palaeontological impact assessments.

Yours sincerely

PP Mary Leslie
SAHRA: Archaeology, Palaeontology and Meteorite Unit
For: CHIEF EXECUTIVE OFFICER



Copy: SAHRA Limpopo Office
Copy: PHRA Limpopo Office

Appendices: see www.asapa.org.za for list of CRM archaeologists.
List of accredited Palaeontologists and Mining Pamphlet

List of Professional Palaeontologist in SA (alphabetical)

July 2008

Dr John E. Almond

Natura Viva cc. P.O. Box 12410, Mill Street, Cape Town 8010

Tel: 021 - 462 3622

Fax: 021-462 3622

email: naturaviva@universe.co.za

Institute: *Natura Viva* cc. Natural History Education, Tourism & Research

Research speciality: Precambrian / Palaeozoic palaeontology

oOo

Dr Marion Bamford

BPI Palaeontology, School of Geosciences, University of the Witwatersrand

P.Bag 3, WITS 2050 Johannesburg

Tel: 011 717 6690

Fax: 011 403 1423

Cell: 084 327 2997

E-mail: bamfordm@geosciences.wits.ac.za

Research speciality: Palaeobotany, fossil woods, all ages.

oOo

Dr Lee Berger

Palaeoanthropology Unit for Research and Exploration; BPI Palaeontology, University of the Witwatersrand, P Bag 3, WITS 2050, Johannesburg

Tel: (011) 717-6664

Fax: (011) 339-7202

email: 106lrb@cosmos.wits.ac.za

Research speciality: Southern African Plio-Pleistocene fossils, hominids and taphonomy

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Dr Jennifer Botha

National Museum, Karoo Palaeontology, P. O. Box 266, Bloemfontein, 9300

Tel: 051-447 9609

Cell: 082 403 0604

Fax: 051-447 6273

email: jbotha@nasmus.co.za

Research speciality: Karoo Therapsids, particularly Early Triassic fauna

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Mr. James S. Brink

Florisbad Quaternary Research, National Museum, P.O. Box 266, Bloemfontein, 9300

Tel: (051) 447-9609 or 072-257-1717

Fax: (051) 447-6273

email: jbrink@nasmus.co.za

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Dr Billy de Klerk

Curator: Earth Sciences, Albany Museum, Somerset Street, Grahamstown 6139

Tel: (046) 622-2312

Fax: (046) 622-2398

Cell: 084-582-6072

email: b.deKlerk@ru.ac.za

Research speciality. Vertebrate palaeontology - Cretaceous dinosaurs and Permo-Triassic Karoo reptiles. General geology - igneous petrology, sedimentology.

Dr Francois Durand

PO Box 31517, Totiusdal, 0134

Tel: (012) 333-6078

Fax: (012) 333-6078

email: skarab@icon.co.za

Institute: University of Johannesburg (old RAU)

Area of research speciality: Karoo vertebrates: synapsids, dinosaurs, geotourism.

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Mr Robert W. Gess

P.O. Box 40, Bathurst, 6166

Tel: (046) 625-0009

Cell: 082-634-2149

email: robg@imagnet.co.za

Institute: GEODATEC / Albany Museum

Area of research : Cape Supergroup - fossil plants, vertebrates (fishes) and invertebrates. General palaeontology.

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Dr G.H. Groenewald

Metsi Mesteng Geological Services cc

Private Bag X62, Suite 91, Bethlehem, 9700

Tel: 0828294978

Fax: 058 3038412

email: Gideonppf@bhm.dorea.co.za

Institute BPI WITS. Snr lecturer University of the North.

Area of research speciality. Tourism, Karoo Geology and Palaeontology.

Registered Pr Sci Nat, Professional Insurance, Permit to collect fossils, Registered to do complete Environmental Impact Assessments in SA, Registered companies in South Africa, Lesotho and Nigeria, Comply with capacity building (RPD) due to company association with University of the North

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Dr P. J. Hancox (John)

General Manager - Africa and Australasia

Caracle Creek International Consulting Inc. (CCIC)

Geological Consultants - Project Management

www.cciconline.com

Cell: - 27-(0)83-488-1066

Fax: - 27 11 447 4814

Email: jhancox@cciconline.com

Research speciality: Permo-Jurassic aged Karoo sedimentary strata and their included fossils. Plio-Pleistocene fans (Mpumalanga), donga fills (Free State), rivers (Free State) and caves (Gauteng), and their included fossils.

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Dr Herbert C. Klinger BSc BSc Honns MSc Dr rer nat , FGS (London), FGS (S Afr.) FGS (USA)

South African Museum, P.O. Box 61, Cape Town 8000

Tel: 021-4243330

Fax: 021-4246716

e-mail: hklinger@iziko.org.za

Institute: SouthAfrican Museum, Iziko, Museums of Cape Town

Research: Invertebrate palaeontology, especially Cretaceous ammonoidea and bivalvia and biostratigraphy.

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Dr Thalassa Mathews

Institution: University of Cape Town (UCT)
Qualification: MA (currently completing PhD)
Tel\Fax: (021) 789 2814
email: thalassa@beattie.uct.ac.za
Speciality: Tertiary and Quaternary small mammals

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Dr Johann Neveling

Council for Geoscience, Private Bag X112, Pretoria, 0001
Tel: 012 841 1388 Fax: 012 841 1401
Cell: 082 929 8314
email: jneveling@geoscience.org.za
Research speciality: Karoo stratigraphy and sedimentology

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Dr Rose Prevec

Dept of Earth Sciences, Albany Museum, Somerset Street, Grahamstown 6139
Tel: (046) 622-2312
Fax: (046) 622-2398
Cell: 083-354-7972
email: rose.adendorff@ru.ac.za
Research speciality: Palaeobotany.

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Dr Mike Raath

BPI Palaeontology, University of the Witwatersrand, P Bag 3, WITS 2050, Johannesburg
Tel: (011) 717-6683
Fax: (011) 403-1423
email: 106mar@cosmos.wits.ac.za
Research speciality: Triassic- Jurassic Karoo deposits and associated fauna, particularly dinosaurs.

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Dr Dave Roberts

Tel: (021) 948 4754
Fax: (021) 948 8788
email: dave@geobell.org.za
Area of research speciality: Tertiary and Quaternary mammalian trackways; marine & terrestrial molluscs (Western Cape).

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Mr Lloyd Rossouw

National Museum, PO Box 266, Bloemfontein 9300
Tel: 051 4479609
Cell: 082-507-7764
Fax: 051 4476273
email: lloyd@nasmus.co.za
Research speciality: Quaternary mammal palaeontology; phytolith analysis

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Professor Bruce Rubidge

Bernard Price Institute for Palaeontological Research, Universtiy of Witwatersrand, PO Wits 2050
Tel: 011 717 6685
Cell: 072-575-7752

Fax: 011 4031423
email: rubidgeb@geosciences.wits.ac.za
Research speciality: Karoo vertebrate faunas (particularly therapsids), sedimentology, stratigraphy and basin analysis.

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Professor Louis Scott

Department of Plant Sciences, University of the Free State, PO Box 339, Zastron Street, Bloemfontein, 9300, South Africa
Tel: (051) 4012594
Fax: (051) 4488772
email: scottl@sci.uovs.ac.za
Institute: University of the Free State..
Area of research speciality: Fossil pollen analysis (palynology).

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Dr Roger M.H. Smith

Iziko South African Museum, PO Box 61 Cape Town 8000
Tel: 021 481 3879
Cell: 082 723 2804
Fax: 021 481 3993
email: rsmith@iziko.org.za
Research speciality: Field based studies of Karoo vertebrate fossils (including trackways) and their sedimentary environments (mainly the Beaufort Group of Western Cape, Northern Cape and southern Free State). Excavating and researching Cenozoic vertebrate fossil occurrences on the West Coast at Langebaanweg.
Excavating and researching Cretaceous crater lake deposits of the Northern Cape.

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Ms Christine Steininger

Institute for Human Evolution, BPI for Palaeontological Research, University of the Witwatersrand
PO Box 413477, Craighall 2024
Cell: 083-679-0686
Fax: 011 447 6548
email: steinic@science.pg.wits.ac.za
Research speciality: Dietary and Environmental Reconstruction of the Plio-Pleistocene.

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Dr J. Francis Thackeray

Transvaal Museum, P.O. Box 413, Pretoria. 0001
Tel: 012 322 7632
Cell: 083-414-3772
Fax: 012 322 7939
email: thack@nfi.co.za
Research speciality: Plio-Pleistocene fossils and associated palaeontological deposits.

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water affairs

Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

ACTING REGIONAL HEAD: GAUTENG

Bothongo Plaza East, 285 Schoeman Street, Pretoria

☎ (012) 392-1359	✉ P/Bag X995	✉ Dr P. Meulenbeld
e-mail: meulenbeldp@dwa.gov.za	PRETORIA	☎ (012) 392-1371
	0001	📁 16/2/7/C114/B045

Mrs. Louise Corbett
Environmental Services: Aurecon
81 Church Street
Cape Town
8000
Fax: 086 667 3532

Dear Mrs. Corbett

COMMENTS ON THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS: PROPOSED BRINE AND GROUNDWATER TREATMENT WORKS AT TUTUKA POWER STATION, MPUMALANGA

Reference is made to the above-mentioned application.

The project will be subjected to various water use licensing (Pages 16, 17) under the National Water Act, 1998 (Act No. 36 of 1998) pertaining to groundwater abstraction and use in the power station (Section 21a), pipeline crossings over watercourses (Sections 21c&i), potential discharge of cleaned water into streams (Sections 21f&i), etc.

The groundwater component (Pages 35, 42) of the project needs to consider a thorough geophysical survey (including CVES) so that paleochannels, dolerite dykes and sills, areas of deeper weathering, etc. can be appropriately determined. This will influence the placing of boreholes and assist in pollution plume mapping. Chemical analysis of the borehole water shall include a full spectrum of heavy metal analysis, including Cr⁶⁺ as it is a product of the milling process. The adequate disposal/treatment of heavy metals shall be discussed in detail.

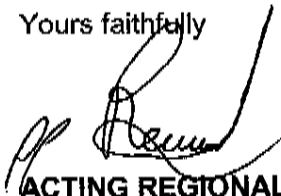
The water quality of the surface dam adjacent to the north of the ash dams will be determined and the potential existence of any pollution plume in that area. As the ash dam is covering a natural stream, the pollution load into this covered stream shall also be determined through geophysical techniques and might require a specific drilling program into this feature as its geohydrological characteristics are different from the surrounding environment.

A hydrocensus of a 2km radius is required to provide information on groundwater users, background water qualities and quantities and the impact of a drawdown in water levels.

Clarity to be provided about the end-use of the treated groundwater.

If there are any queries, please contact Dr. P. Meulenbeld.

Yours faithfully



ACTING REGIONAL HEAD

DATE: 2010/4/1