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Attention: Simon Charter/ Werner Petrick

Archaeological impact assessment: Proposed Rössing Uranium desalination plant

QRS Job 211

Background:

Rössing Uranium (Pty) Ltd (RUL) proposes to construct a desalination plant to be sited about 6 km north of Swakopmund. RUL has appointed SLR (Namibia) in association with Aurecon (Namibia) to carry out a social and environmental impact assessment (SEIA), including the preparation of a social and environmental management plan (SEMP), as required under the Environment Management Act (2007) and its Regulations (2012). SLR appointed Quaternary Research Services (QRS) to carry out an archaeological field survey and assessment of the proposed scheme.

Archaeological remains in Namibia are protected under the National Heritage Act (27 of 2004) which makes provision for archaeological impact assessment of projects such as the proposed desalination plant. Previous field surveys in the Erongo Region located a significant number of archaeological sites dating to the late Pleistocene and Holocene periods (i.e. the last half million years), as well as recent historical sites representing late pre-colonial and early colonial-era occupation of the area.

Baseline:

The proposed desalination plant will affect an environment that has been extensively modified by the construction of evaporation ponds, berms and pump stations associated with the existing Swakopmund Salt Works and the Guano Company and their ongoing operations. The intake for the proposed plant will be sited near the northern portion of the Salt Works property (just south of the existing salt works intake jetty), while the discharge point will be located on a stretch of open sandy pebble beach approximately 1 km to the south (and an alternative located in the far north at the old, and now derelict, salt work intake structure).

These two points will be linked to the proposed desalination plant approximately 1 km to the east, by an open channel (or pipeline), respectively. Additional trenching is envisaged on the western margin of the Henties Bay road for the provision of the clearwater transfer pipeline and electrical supply cable. The desalination plant and associated infrastructure will be situated in site area 1 (although two other site alternatives are being assessed), the preferred site is situated on the eastern margins of the Salt Works evaporation pans. For greater detail on the project description and the various alternatives under assessment, please refer to the main SEIA report.

The Salt Works evaporation pans cover approximately 4 km² representing an area of naturally low elevation bounded on the western, or seaward, side by a wide bar of sandy gravel. This latter

feature appears to have been augmented by artificial embankment construction, but remains a largely natural remnant of a late Pleistocene sea level high stand.

The area occupied by the evaporation pans may therefore represent a natural palaeo-lagoon feature associated with a series of sea level high stands, culminating in the mid-Holocene Optimum high stand of approximately 6 500 years b.p. which is associated with evidence of a 2.5 m sea level rise at several points on the Namib coast. The eastern margin of the evaporation pans corresponds with the western edge of the Namib gravel plains in this area which are characterized by a coarse quartz gravel float and occasional outcrops of dolerite.

Site visit:

A detailed inspection of the site was carried out on 6th August, 2014, covering the entire eastern margin of the Salt Works as far as the M0044 road reserve, and the entire seaward side of the Salt Works including the current and disused pump-station facilities. No trace of any archaeological or historical remains as relevant to the National Heritage Act 27 of 2004, were found in this area.

Concerning evidence of shoreline processes associated with gross sea level fluctuations on the Namib coast, it is possible that the site of the proposed desalination plant will affect these features although disturbance of the area through previous industrial activity would have already compromised any such evidence. Evidence relating to sea level fluctuations is well represented elsewhere on the Namib coast.

It is unlikely that significant archaeological evidence of precolonial occupation will be found at the site, mainly due to the absence of fresh water in the immediate area. More recent evidence of historical activity including both salt mining and possible shipwrecks may well occur at the site, although there are no records to indicate these.

The old Salt Works intake structure is not considered to be a valuable heritage item worth preserving. However, a photographic record of the structure should be added to the final assessment report.

This assessment is based on the presence or absence of visible surface indications, on inference from other parts of the Namib coast that have been surveyed in detail, and on a perusal of historical records especially concerning shipwrecks. None of these sources suggest that the project area is in any way sensitive archaeologically.

Impact assessment:

Due to the relative homogeneity of archeology resources across the study area, the assessment provided below relates to all project alternatives described for this project in the SEIA, namely the three project site alternatives, the two brine discharge location alternatives and the overhead powerline vs buried cable electrical supply alternative.

In the unlikely event that archaeological traces are exposed during site works, the expected nature of impact would be in the form of direct physical disturbance or destruction. The expected magnitude of this impact would be LOW. Due to the fact that impacts on archaeological sites are irreversible, these would be HIGH, with a LOCAL spatial scale. The consequence of the impact would be LOCALIZED, and its significance would be LOW. The interpretation of this assessment would indicate a LOW significance, indicating that the risk of archaeological impact is so low as to have no influence on the project decision.

In the case of the “no-go” alternative, no disturbance of the site would occur and therefore the

impact on archeological would not occur, and so the “no go” alternative has not been assessed here. From the cumulative impact perspective and given the disturbed nature and low sensitivity of the site, it is expected that the project will have a negligible cumulative impact on Namibia’s archeology resource base and so this too is not assessed here.

Recommendations:

For purposes of the project SEMP, the client and contractors should be made aware of the provisions of Section 55 (4) of the National Heritage Act setting out the requirement that any sites or remains found in the course of construction and related work should be reported to the authorities as soon as possible. The SEMP should also include the standard archaeological chance finds procedure as set out below.

Chance finds procedure:

Areas of proposed mining and infrastructure development are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found in the course of development work. Personnel and contractor heritage awareness training is intended to sensitize people so that they may recognize heritage “chance finds” in the course of their work. The procedure set out here covers the reporting and management of such finds.

The “chance finds” procedure covers the actions to be taken from the discovery of a heritage site or item, to its investigation and assessment by a trained archaeologist or other appropriately qualified person. The “chance finds” procedure is intended to ensure compliance with the relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “ *a person who discovers any archaeological objectmust as soon as practicable report the discovery to the Council*”. The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

1. Responsibilities:

Operator	To exercise due caution if archaeological remains are found
Foreman	To secure site and advise management timeously
Superintendent	To determine safe working boundary and request inspection
Archaeologist	To inspect, identify, advise management, and recover remains

2. Procedure:

Action by person (operator) identifying archaeological or heritage material

- a) If operating machinery or equipment: **stop work**
- b) Identify the site with flag tape
- c) Determine GPS position if possible
- d) Report findings to foreman

Action by foreman

- a) Report findings, site location and actions taken to superintendent
- b) Cease any works in immediate vicinity

Action by superintendent

- a) Visit site and determine whether work can proceed without damage to findings
- b) Determine and mark exclusion boundary
- c) Site location and details to be added to Archaeological Heritage Geographical Information System AH GIS for field confirmation by archaeologist

Action by archaeologist

- a) Inspect site and confirm addition to AH GIS
- b) Advise National Heritage Council (NHC) and request written permission to remove findings from work area
- c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

- a) Actions as above
- b) Field inspection by archaeologist to confirm that remains are human
- c) Advise and liaise with NHC and Police
- d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.

I hope you will find this report acceptable and look forward to your further instructions.



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