GEORGE
TEL: +27 (0) 44 873 4923 **FAX:** +27 (0) 44 874 5953
EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: 102 Merriman Street, George 6530
PO BOX: 9087, George , 6530

CAPE TOWN
TEL: +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869
EMAIL: betsy@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Tableview, Cape Town, 7441
PO BOX: 443, Milnerton, 7435

ENVIRONMENTAL AUDIT REPORT

FOR THE

CONSTRUCTION OF THE ORIGINAL STEAM GENERATOR INTERIM STORAGE FACILITY (OSGISF) AT KOEBERG NUCLEAR POWER STATION

PREPARED FOR:	ESKOM HOLDINGS SOC LIMITED Koeberg Nuclear Power Station R27 Off West Coast Road Melkbosstrand	**DATE:**	September 2020
REPORT NO:	ECO/KOE/H&I/09/2020		
DEA EIA REF NO:	14/12/16/3/3/2/947		
COPY TO:	ESKOM: Willem Van Der Sandt, Deon Jeannes (Nuclear Environmental Manager), Jana Klopper (Power station EO / environmental manager), Jurina Le Roux (Nature reserve EO / manager) Haw & Inglis Project Team		

PROJECT DETAILS

TITLE:	**The construction of the Original Steam Generator Interim Storage Facility (OSGISF) at Koeberg Nuclear Power Station on Cape Farm 1552, Duynefontein, Cape Town.**
LOCATION:	**Koeberg Nuclear Power Station** **R27 Off West Coast Road** **Melkbosstrand**
ENVIRONMENTAL CONSULTANCY:	**Sharples Environmental Services cc.**
PRIMARY ECO & AUTHOR:	**Mr Lloyd Barnes (ECO)**
EXPERTISE:	Lloyd has a Bachelor of Technology Degree and Diploma in Environmental Management from the Cape Peninsula University of Technology in 2016. He has 3 years' experience in the environmental field, including the extensive auditing of several open-cast mines, basic environmental assessments, on-site compliance monitoring, environmental management plans, maintenance management plans and business sustainability. In his time as a consultant, he has compiled a number of environment audits and management plans for a range of developments.
CHECKED AND APPROVED BY:	**Ms Betsy Ditcham (Supervising ECO)**
EXPERTISE:	Betsy has a Bachelor of Science Honours Degree in Wildlife Management from the University of Pretoria and a Bachelor of Science Degree (Zoology and Ecology) obtained from the University of Cape Town in 2005. She has 9 years' experience in the environmental field, including environmental assessments, legal compliance, on-site compliance monitoring, cleaner production and business greening and sustainability (carbon and environmental footprinting). In her time as a consultant, she has compiled a number of environment assessments and management plans for both private and governmental clients. Betsy is co-owner of SES and is registered with EAPASA (Reg no. 1480)
CLIENT:	**ESKOM HOLDINGS SOC LIMITED**
REPORT CLASSIFICATION:	**Environmental Monitoring Report.**
SES REFERENCE NUMBER:	**ECO/KOE/H&I/09/20**

Contents

List of Figures

Section 1 Introduction

Sharples Environmental Services cc (SES) has been appointed by Haw & Inglis on behalf of *ESKOM HOLDINGS SOC LIMITED* (the client), as the Environmental Control Officer (ECO) to monitor the construction of the Original Steam Generator Interim Storage Facility (OSGISF) at Koeberg Nuclear Power Station (KNPS) on Cape Farm 1552, Duynefontyn, Cape Town. SES has been appointed to undertake monitoring inspections for the duration of the contract period, to ensure that measures outlined in the Environmental Management Programme (EMPr) and Environmental Authorisation are implemented and that environmental degradation is kept to a minimum. This report has been compiled to indicate compliance with the Environmental Authorisation (EA) issued by the Department of Environmental Affairs (DEA) and the EMPr compiled *by SRK* Consulting (South Africa) (Pty) Ltd (dated November 2016).

Environmental Authorisation was granted by DEA on May 17th, 2017. An application to amend the Environmental Authorisation was submitted by NCC Environmental Services and granted in October 2018.

Section 2 Description of Activity

Eskom proposes to construct an Interim Storage Facility for the temporary storage of the original steam generators at Koeberg Nuclear Power Station (KNPS) (now referred to as the "project"), thereby ensuring the continued operation of KNPS.

SRK Consulting (South Africa) (Pty) Ltd (SRK) undertook the Scoping and Environmental Impact Reporting (S&EIR) process required in terms of the National Environmental Management Act 107 of 1998, as amended (NEMA). The Environmental Impact Assessment (EIA) Report (SRK Report No.: 478317/06) contains a detailed description of the project and its impacts.

In terms of the National Environmental Management Act, 1998 (Act No.107 of 1998) and the Environmental Impact Assessment Regulations, 2014. The authorisation of the following activities were granted by DEA;

- GN R.983 Activity number 27
- GN R.984 Activity number 3

Section 3 Location

KNPS is located on a sandy coastline of the West Coast, approximately 27 km north of the Cape Town Central Business District and 1.5 km north of the residential area of Duynefontein (Figure 1). KNPS is situated on Cape Farm Duynefontyn No. 1552 (previously consisting of Farm Duynefontyn No. 34 and Farm No. 1375 which were consolidated by the City of Cape Town in 2015). Access to KNPS is via the R27 which runs along the property's eastern boundary or alternatively via Otto du Plessis Drive. Cape Farm Duynefontyn No. 1552 is owned by Eskom and measures approximately 1 294 ha and is zoned for Risk Industry and Agricultural.

The OSGISF will be located within the Security Protected Area (SPA) of KNPS, a flat area mostly disturbed by previous construction activities and by current operational activities at KNPS.

Figure 1: Locality of Koeberg Nuclear Power Station (site).

Section 3.1

Site Camp

The site camp is located directly adjacent to the working area. The site camp consists of a number of office containers, ablution facilities and eating areas.

Figure 2: Site locality within Koeberg Nuclear Power Station.

Section 4

Construction work

This section highlights and discusses the key construction activities observed during the site inspection.

At the time of the site visit, the working area had been demarcated and clearing of the two sites had commenced.

Section 5

Environmental Matters

SES is appointed to undertake a monitoring role in terms of this project and will conduct monthly Environmental visits as per the contract. Ad hoc visits may be conducted, should these be required.

Section 5.1

Waste Management

Waste separation is evident at the site camp, with the provision of separate bins. It is understood that waste would be removed to the KNPS designated waste area, with the exception of hazardous waste, which would be disposed of at a licenced landfill site.

Section 5.2

Vegetation clearance

Search & Rescue was conducted prior to the commencement of clearing activities. A copy of the Search & Rescue report is available on site.

September 2020	**COMPLIANCE WITH THE EMPR AND EA**		
	Compliance Full/Part/ Non **September 2020**	**Comments/ Observations**	**Action to be taken**
SITE CAMP			
Submit a method statement for Site Camp establishment for approval by the ECO at least two weeks prior to the start of construction activities	Non	Method Statement was not circulated to ECO prior to establishment.	
Establish a suitably fenced Site Camp at the start of the contract, which will allow for site offices, vehicle, equipment, material and waste storage areas to be consolidated as much as possible. Locate the Site Camp at a position approved by the ECO. Provide water and / or washing facilities at the Site Camp for personnel.	Full		
Demarcate construction site boundaries upon establishment. Control security and access to the site. Fence off site boundaries to the satisfaction of the ECO and ensure that plant, labour and materials remain within site boundaries.	Full		
Designate the area beyond the boundary of the site as No go areas for all personnel on site. No vehicles, machinery, materials or people shall be permitted in the No go area at any time without the express permission of the RE in consultation with the ECO.	Full		
SAFETY & SECURITY			
Ensure that emergency procedures (in relation to fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc.) are established prior to commencing construction.	Full		
Make all emergency procedures available, including responsible personnel, contact details of emergency services, etc. to all the relevant personnel.	Full		

Clearly demarcate emergency procedures at the relevant locations around the site.			
Secure the Site Camp, particularly to restrict unauthorised access to fuels and any other hazardous substances.	Full		
Store all construction material and equipment in locked containers within the Site Camp.	Full		
Provide suitable emergency and safety signage on site, and demarcate any areas which may pose a safety risk (including hazardous substances, etc.	Full		
Advise the ECO of any emergencies on site, together with a record of action taken.	Full		
EMPLOYMENT			
Prioritise the employment of local people	Full		
Procure locally produced goods (plant and materials) and services, where possible.	Full		
Promote on-the-job training wherever possible.	Full		
ENVIRONMENTAL AWARENESS TRAINING			
Provide environmental awareness training to all personnel on site at the start of their employment. Training should include discussion of: □ Potential impact of construction waste and activities on the environment; □ Suitable disposal of construction waste and litter; □ Key measures in the EMPr relevant to worker's activities; and □ How incidences and suggestions for improvement can be reported. Ensure that all attendees remain for the duration of the training and on completion sign an attendance register that clearly indicates participants' names.	Full	Register of environmental training kept on site	
HAZARDOUS MATERIALS			
Design and construct hazardous material storage facilities, especially fuel storage, with suitable impermeable materials and a minimum bund containment capacity equal to 110% of the largest container	Full		
Ensure that contaminants (including cement) are not placed directly on the ground (e.g. mix cement on plastic sheeting).	Full		
Avoid unnecessary use and transport of hazardous substances.	Full		

Compile a procedure for the storage, handling and transport of different hazardous materials and ensure that it is strictly adhered to.	Full		
Keep Material Safety Data Sheets for all hazardous materials on site and ensure that they are available for reference by staff responsible for handling and storage of materials	Full		
FLORA MANAGEMENT			
Limit the footprint area of the construction activity to what is absolutely essential	Full		
Designate areas outside the construction footprint as No Go areas.	Full		
Ensure that no vegetation is removed or disturbed outside the delineated construction site boundary	Full		
Confine construction vehicles to designated roadways and strictly prohibit the indiscriminate movement of construction vehicles through vegetation falling outside of the construction / disturbance footprint.	Full		
Prohibit temporary storage of building material or soil within areas of natural vegetation falling outside of the construction footprint	Full		
Remove all alien and weed species encountered within areas disturbed by construction activities: □ Where possible, remove alien species by hand; □ Keep footprint areas as small as possible when removing alien plant species; and □ Dispose of removed alien plant material at a licensed waste disposal facility.	Full		
Botanist to be appointed to confirm presence of Species of Conservation Concern (SCC) and protected species within the area	Full	Copy of Search & Rescue report kept on site	
Rescue and relocation of SCC prior to the commencement of activities.	Full		
Permit must be obtained for the removal / destruction of SCC, indigenous, protected or endangered plant or animal species.	n/a		
FAUNA MANAGEMENT			
Do not allow contractors or staff to harm, catch or kill birds or animals by any means, including poisoning, trapping, shooting or setting of snares.	Full		
Attempt, as far as possible to flush fauna within the construction footprint towards more suitable habitat within the surrounding areas. Clear vegetation	Full		

towards the security fence line, thereby enabling any fauna to naturally relocate through the fence into the surrounding natural areas.			
Backfill trenches / excavations as soon as possible to ensure that the time the trench is exposed is kept to a minimum.	Full		
Open trenches / excavations must be inspected on a daily basis for animals which may have fallen or become trapped.	Full		
Safely remove and relocate any fauna that may be physically harmed by construction activities.	Full		
TOPSOIL STORAGE			
Limit construction and lay down areas to areas within the development footprint.	Full		
Designate and demarcate areas to be used for topsoil stockpiling.	Full		
Remove topsoil (up to a maximum of 30 cm depth)	Full		
Stockpile topsoil prior to the commencement of construction activities (stockpile no higher than 2m) and conserve topsoil for rehabilitation.	Full		
Locate topsoil stockpiles in an area protected from the wind, and agreed to with the ECO.	Full		
Replace harvested topsoil in areas that are to be rehabilitated as soon as sections of the works are completed (i.e. not only following the completion of all works)	Full		
CONCRETE / CEMENT WORK			
Use Ready-Mix concrete rather than batching where possible.	n/a	No concrete works being conducted at the site of the site inspection	
Ensure that no cement truck delivery chutes are cleaned on site. Cleaning operations are to take place off site at a location where wastewater can be disposed of in the correct manner. If this is not possible a suitable washing facility is to be developed on site in consultation with the ECO.	n/a		
Batch cement in a bunded area within the boundaries of the development footprint only (where unavoidable).	n/a		
Ensure that cement is mixed on mortar boards / plastic sheeting and not directly on the ground (where unavoidable)	n/a		
Physically remove any remains of concrete, either solid, or liquid, immediately	n/a		

and dispose of as waste.			
Place cement bags in bins and dispose of bags as waste to a licensed waste disposal facility.	n/a		
Sweep / rake / stack excess aggregate / stone chip / gravel / pavers into piles and dispose at a licensed waste disposal facility	n/a		
WASTE MANAGEMENT			
Submit a Method Statement for waste management (including hazardous waste).	**NON**	Method statement for waste management not submitted to ECO	Method statement to be submitted to ECO
Aim to minimise waste through reducing and re-using (packaging) material.	Full		
Collect recyclables separately and deliver these to suitable facilities or arrange for collection.	Full		
Collect all waste in bins and/or skips at the construction site	Full		
Prevent littering by construction staff at work sites by providing bins or waste bags in sufficient locations.	Full		
Provide separate bins for hazardous / polluting materials and mark these clearly. Store hazardous / polluting materials on impermeable ground until it is disposed of / collected.	Full		
Dispose of waste appropriately to prevent pollution of soil and groundwater.	Full		
Do not allow any burning or burying of waste on site.	Full		
CONTAMINATED WATER/RUN-OFF MANAGEMENT			
Prevent discharge of any pollutants, such as cements, concrete, lime, chemicals, and other contaminated waste water and fuels into the environment.	Full		
Direct run-off from fuel/workshop/equipment washing areas and concrete swills into conservancy tanks to be disposed of at a site approved by the ECO.	Full		
Place drip trays / sand trays under engines of vehicles or mechanical equipment when parked or stored overnight or longer.	Full		
Clean up any hydrocarbon spills immediately, through containment and removal of free product and dispose of contaminated material at a licensed	n/a	No spills noted during the site inspection	

waste disposal facility.			
STORMWATER MANAGEMENT			
Collect stormwater from bunded areas in a suitable container and remove from the site for appropriate disposal.	Full		
Use berms and stormwater drainage systems to prevent surface run-off from entering site excavations.	Full		
Implement measures to maximise the infiltration of stormwater on site.	Full		
Install temporary cut-off drainage channels to prevent stormwater runoff from entering the construction footprint	Full		
Implement the Stormwater Management Plan.	Full		
EROSION MANAGEMENT			
Ensure that all roads and tracks used for construction have the appropriate water diversion / erosion control structures.	Full		
Restrict construction to drier summer months, if possible, to avoid erosion of exposed soils and sedimentation of surrounding habitats.	Full		
AIR QUALITY MANAGEMENT			
Avoid clearing of vegetation until absolutely necessary (i.e. just before earthworks)	Full		
Stabilise exposed surfaces as soon as is practically possible	Full		
Avoid excavation and handling and transport of materials which may generate dust under high wind conditions or when a visible dust plume is present.	Full		
Minimise dust generated off stockpiles: Locate piles in sheltered areas where possible; Place the stockpile lengthwise into the wind; Minimise the slope of the stockpile (maximum slope of 2:1); Limit stockpile sizes; Install barriers on three sides of the stockpile (maximum 50% material porosity) if required; Limit activity to the downwind side of the pile; Use the last in – first out system of stockpile management; and Cover stockpiles when not in active use for some time and / or use an environmentally friendly chemical spray to bind soil.	Full		

Reduce airborne dust at construction sites through: □ Dampening dust-generating areas with freshwater; and □ Covering dumps or stockpiles of loose material with plastic sheeting or netting, especially during windy conditions.	Full		
Limit vehicle speeds to 20 km/h on unconsolidated and non-vegetated areas.	Full		
Cover trucks transporting loose material to or from site with tarpaulins, plastic or canvas.	Full		
Ensure that any material spilled from trucks during transport to or from the site is cleaned up immediately.	Full		
Use bedliners to minimise seepage and spillage of material from bottom-dumping trucks	Full		
Pre-water material to be moved, if possible.	Full		
Check weather reports daily and closely observe weather patterns to enable action to be taken immediately if conditions change.	Full		
Wash wheels of vehicles before vehicles exit the site to ensure that dust is not carried off-site. Use manual or automated sprayers and / or drive-through wheel washing bays.	n/a		
Limit the number of vehicles allowed on-site and restrict the movement of these vehicles over unsurfaced or unvegetated areas once they are on site to reduce dust problems.	Full		
Sweep roads leading from the site if wheel washing facilities do not effectively prevent mud being deposited on access roads.	Full		
Sweep roads at site entrance and exit points regularly, to prevent the spread of mud / dust by construction vehicles	Full		
Maintain all generators, vehicles, vessels and other equipment in good working order to minimise exhaust fumes.	Full		
Respond rapidly to complaints and take appropriate corrective action.	Full		
NOISE MANAGEMENT.			
Limit noisy construction activities to day-time from Monday to Saturday or in accordance with relevant municipal bylaws, if applicable.	Full		
Comply with the applicable municipal and / or industry noise regulations.	Full		
Notify adjacent residents before particularly noisy construction activities will	n/a	No adjacent affected	

take place		residents	
Maintain all generators, vehicles, vessels and other equipment in good working order to minimise excess noise.	Full		
Enclose diesel generators used for power supply on site to reduce unnecessary noise.	Full		
Respond rapidly to complaints and take appropriate corrective action	Full		
FIRE MANAGEMENT			
Ensure that no fires are permitted on or adjacent to the site.	Full		
Ensure that no smoking is permitted on the site	Full		
Ensure that sufficient fire-fighting equipment is available on site.	Full		
Equip all fuel stores and waste storage areas with fire extinguishers	Full		
Ensure that all personnel on site are aware of the location of firefighting equipment on the site and how the equipment is operated.	Full		
Suitably maintain firefighting equipment	Full		
TRANSPORTATION AND REFUELLING			
Undertake regular maintenance of vehicles and machinery to identify and repair minor leaks and prevent equipment failures.	Full		
Undertake any on-site refuelling and maintenance of vehicles/machinery in designated areas. Line these areas with an impermeable surface and install oil traps.	Full		
Use appropriately sized drip trays for all refuelling and/or repairs done on machinery – ensure these are strategically placed to capture any spillage of fuel, oil, etc	Full		
Clean up any spills immediately, through containment and removal of free product and dispose of contaminated material at a licensed waste disposal facility.	n/a	No spills noted during the site inspection	
Keep spill containment and clean-up equipment at all work sites and for all polluting materials used at the site.	Full		
PROTECTION OF ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES			
Empower staff to stop works on (chance) discovery of artefacts at the site.	Full		
Report the presence of graves or human remains, fragments of fossil bone,	n/a	No graves or human	

ostrich egg and stone fragments to Heritage Western Cape (HWC) or a suitably qualified archaeologist.		remains, fragments of fossil bone, ostrich egg and stone fragments found during excavation	
Agree on suitable mitigation with HWC or the archaeologist.	n/a		
Obtain a permit for the removal of artefacts from the site if any are discovered during construction.	n/a		
TRAFFIC MANAGEMENT			
Manage construction sites and activities so as to minimise impacts on road traffic as far as possible, e.g.: □ Attempt to arrange delivery of materials when it will least disrupt traffic; □ Stagger deliveries if possible rather than concentrating them during "rush" hours; and □ Keep construction materials and machinery at the construction site throughout the construction period, where possible.	Full		
Ensure that large construction vehicles are suitably marked to be visible to other road users and pedestrians.	Full		
Ensure that all safety measures are observed and that drivers comply with the rules of the road.	Full		
Ensure that vehicle axle loads do not exceed the technical design capacity of roads utilised by the project.	Full		
Investigate and respond to complaints about traffic.	Full		
VISUAL ASPECTS			
Control litter and keep construction site as clean and neat as possible.	Full		
Avoid excavation, handling and transport of materials which may generate dust under high wind conditions.	Full		
Keep construction sites tidy and all activities, material and machinery contained within an area that is as small as possible.	Full		
Minimise the use of night-lighting.	Full		
RESPONSE TO ENVIRONMENTAL POLLUTION			
In the event of environmental pollution, e.g. through spillages, immediately stop the activity causing the problem.	Full		

Only resume activity once the problem has been stopped or (in the case of spillages) the pollutant can be captured.	Full		
Repair faulty equipment as soon as possible.	Full		
Install additional bunding / containment structures around the equipment that was the source of the leak / spillage to prevent further incidents.	Full		
Treat hydrocarbon spills, e.g. during refuelling, with adequate absorbent material, which then needs to be disposed of at a suitable landfill.	n/a	No hydrocarbon spills noted during the site inspection	
Ensure vehicles and equipment are in good working order and drivers and operators are trained with respect to actions to be taken in the case of a spill or leak.	Full		
SITE REHABILITATION AND CLOSURE			
Remove all construction equipment, vehicles, equipment, waste and surplus materials, including site offices, temporary fencing and other facilities, from the site.	n/a	Site still in construction	
Clean up and remove any spills and contaminated soil in the appropriate manner.	n/a		
Ensure that no discarded materials are buried on site or on any other land not designated for this purpose	n/a		
Ensure that affected areas are rehabilitated following construction.	n/a		
Rehabilitate areas adjacent to the site (if disturbance is unavoidable) to at least the same condition as was present prior to construction.	n/a		
Use harvested topsoil for rehabilitation following construction.	n/a		
Appoint a suitably qualified professional to undertake or supervise rehabilitation.	n/a		
Rehabilitate all project areas as soon as possible after completion of activities in each area, including removing and/or remediating any contaminated soils.	n/a		
Replace harvested topsoil in areas that are to be rehabilitated as soon as sections of the works are completed (i.e. not only following the completion of all works).	n/a		

Section 7	Conclusion

SES has compiled this Environmental Monitoring Report to detail compliance with the EA and EMPr for the site inspection conducted on the 30th September 2020. The contractor must ensure that the environmental issues listed above are attended to and construction is undertaken in compliance with the EA and EMPr. The ECO will ensure to follow-up on the above-mentioned issues during the next scheduled site inspection.