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THE PROPOSED EXPANSION OF THE DIESEL STORAGE FACILITIES AT THE KOEBERG NUCLEAR POWER STATION, FARM DUYNEFONTYN NO. 1552, MELKBOSSTRAND

DRAFT BASIC ASSESSMENT REPORT

In terms of the National Environmental Management Act (Act 107 of 1998, NEMA) as amended and the Environmental Impact Assessment Regulations, 2014

February 2017

Prepared for:
Eskom Holdings SOC Ltd.

Prepared by:
Doug Jeffery Environmental Consultants

DJEC Ref: 2015/19

EXECUTIVE SUMMARY

The proponent, Eskom Holdings SOC Limited, proposes to expand the diesel storage facilities at the Koeberg Nuclear Power Station (KNPS) by installing two mobile above ground diesel tanks. The KNPS is located on the Farm Duynefontyn No. 1552, Melkbosstrand.

The primary purpose of installing the containerised diesel fuel tanks is to provide a diversified, separate, source of diesel fuel during an extended loss of Alternative Current power (AC) following an external event, to supply:

1) the emergency mobile diesel powered water pumps which will be used to provide reactor core cooling and nuclear spent fuel pool make-up; and
2) the Emergency Control Centre (ECC) diesel generator which will allow the ECC to perform its command and control function.

Furthermore, the diesel tanks can be used to supply fuel to the unit Emergency Diesel Generators. It could also be used as an alternative diesel fuel supply for the Station Black Out generators, Main Admin Building generator, mobile generators and other equipment, dependent on the operating scenario, which is dependent on the equipment available and what is required by the plant.

The long term storage strategy is to have one diesel tank permanently positioned at the Ekhaya site (Alternative 1 – Preferred Alternative), or at the Transport Garage (Alternative 2), and the second diesel tank located at the Bulk Stores which is at the Portable Emergency Equipment (PEE) site. For nuclear safety purposes, it is desirable to have the two tanks in separate, diverse locations to reduce the probability of a common mode failure. Therefore one diesel tank should be within easy access from the power station which is within Access Control Point 2 (ACP2) and the other in a separate and secure location.

To begin with, the two proposed diesel tanks will temporary be placed at either the Ekhaya site (Alternative 1 – preferred alternative) or at the Transport Garage (Alternative 2) while construction of the Bulk stores continues at the PEE site. Once the construction of the Bulk Stores is completed, one tank will be removed from either the Ekhaya site or the Transport Garage and moved to the Bulk Stores, leaving the one permanent diesel tank at either the Ekhaya site or the Transport Garage.

Therefore, the Ekhaya site together with the Bulk Stores at the PEE site must be regarded as Alternative 1, the preferred alternative, and the Transport Garage together with the Bulk Stores at the PEE site must be regarded as Site Alternative 2.

Note that the development at the PEE site has a separate Environmental Authorisation (EA) – DEA Ref: 12/12/20/997 – the diesel tanks were not included or assessed as part of this EA.

Lastly, it is essential for Eskom to have the diesel storage tanks commissioned before the construction at the PEE site is completed. The reason being that fuel supply is of a higher importance than the development at the PEE site which may only be completed in 2018. Eskom require diversity in storage locations to increase availability of the diesel fuel tanks during an event.

DESCRIPTION AND INSTALLATION OF THE PROPOSED DIESEL TANKS

The proposed diesel tanks will have a safe fill level of 65 312 litres each. The tanks are dimensionally similar to a 40 foot shipping container and designed for the safe storage of diesel. The tanks are self bunded, meaning that the internal tank is surrounded by an external tank which is able to hold 110% of the internal tanks volume. The tanks contain all the necessary ancillaries, therefore no additional piping or pumps will be installed to transfer diesel. The tanks' pumps and connections are housed in an area that is separately bunded.

The tanks will be placed on a concrete slab of approximately 135 square metres (15 m x 9 m). Construction activities will be limited to excavations for construction of a reinforced concrete slab on natural compacted earth paving layers. This type of construction does not require excessive working space around the final footprint of the slab.

The detailed facility illustrations are included under **Appendix C** of this report.

EXISTING DIESEL STORAGE INFRASTRUCTURE AT THE KNPS

There is existing diesel storage tanks located within the KNPS site. The combined capacity of the existing diesel storage tanks are more than 615 cubic metres. For safety and security purposes it cannot be revealed where these tanks are situated within the KNPS site.

The proposed development is for the installation of two diesel tanks with a combined capacity of approximately 137.5 cubic metres (±137 500 litres) at the KNPS. This activity will add to the existing capacity of diesel storage facilities at the KNPS, thus expanding the facilities for the storage of with 137.5 cubic metres.

SPECIALIST INPUT

Environmental Resource Management (ERM) undertook a screening assessment of the risks that may be imposed on the public by the proposed diesel tanks at the KNPS.

The objective of the screening assessment was to produce consequence contours which can be used to produce land use planning zones in line with the United Kingdom Health and Safety Executive's (HSE) Land Use Planning criteria.

Based on the results presented, the risk contours envelop surrounding land that is currently undeveloped and within the KNPS site boundary. Therefore based on the UK HSE's PADHI guidelines this proposed site would be considered under the category *"Do not Advise Against"* for any proposed future industrial developments.

The specialist found that the consequences could extend beyond the site boundaries where the diesel is stored. However this still remains within the greater KNPS site and therefore the general public is not exposed to this risk.

LISTED ACTIVITIES

GN R. 983 Item 51: The expansion of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where the capacity of such storage facilities will be expanded by more than 80 cubic metres.

The proposed development is for the installation of two diesel tanks with a combined capacity of approximately 137.5 cubic metres (±137 500 litres) at the KNPS. This activity will add to the existing capacity of diesel storage facilities at the KNPS, thus expanding the facilities for the storage of with 137.5 cubic metres.

DESCRIPTION OF ALTERNATIVES

Two site alternatives were assessed as part of this basic assessment process, these are:

Alternative 1 (preferred alternative)

The proposed expansion entails the storage of two diesel tanks (approximately 68.75 m^3 per tank) at the Ekhaya site. In the future, one tank will be moved to the Bulk Stores at the PEE site, as soon as construction of the Bulk stores is completed, and one tank will remain at the Ekahya site.

Alternative 2

The proposed expansion entails the storage of two diesel tanks (approximately 68.75 m^3 per tank) at the Transport Garage site. In the future, one tank will be moved to the Bulk Stores at the PEE site, as soon as construction of the Bulk stores is completed, and one tank will remain at the Transport Garage site. This alternative was not investigated for the following reasons:

- The Ekhaya site is located closer to the main facilities where the backup diesel will be required in case an external event occurred.
- This Transport Garage is located outside the security fence (in ACP2) of the KNPS which may restrict quick access during emergencies.
- The current zoning of the Transport Garage site does not allow for the location of a large diesel tank.

No other alternatives were assessed.

No-go alternative

The Status Quo of the site will remain if no development is undertaken.

The "no-go" option is not regarded as a viable option since the primary purpose of installing the diesel fuel tanks is to provide a diversified, separate source of diesel fuel during an extended loss of AC power following an external event. This is an essential back up system required at the KNPS as part of an emergency response system.

DESCRIPTION OF THE SITE

The proposed development site is located the Farm Duynefontyn No. 1552, Melkbosstrand (SG code: C01600000000155200000).

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. Access to KNPS is via the R27 which runs along the property's eastern boundary or alternatively via Otto du Plessis Drive.

Both Alternative 1 and 2 are located within the developed area of the KNPS. The proposed development site (Alternative 1) has a Risk Industry zoning. The proposed development is allowed in terms of this zoning. Alternative 2 is located in a General Business 1 zoning. The proposed development is not desirable in terms of this zoning. The Bulk Stores at the PEE site, where one tank will be moved to, has a General Industry 1 zoning. The location of a diesel tank is permitted in terms of this zoning.

Climate and Hydrology

The study area, as with most of the southern Western Cape, falls within the Mediterranean climate, where most of the mean annual precipitation is received in winter (April – August). It receives its lowest rainfall in February and the highest in June. The average daily maximum temperature ranges from 14.3°C in July to 26.7°C in February.

Geology and Soil

The site is located on a plateau within the KNPS site around 490 meters from the shore. The unconsolidated to semi-consolidated sediments underlying the proposed development site belong to the Sandveld Group, which is subdivided into the Elandsfontyn, Varswater, Velddrif, Langebaan, Springfontyn and Witzand formations.

Vegetation

Alternatives 1 and 2 are located within the Fynbos biome and the Western Strandveld bioregion. According to Mucina and Rutherford (2009) the vegetation type is Cape Flats Dune Strandveld (FS 6), which is considered to

be Endangered (EN). The Cape Flats Dune Strandveld vegetation unit is poorly conserved, with 7% left in proclaimed reserves. Some 7% of the False Bay and 7% of the West Coast form are in proclaimed reserves, the latter also having 16% in the private Koeberg Nature Reserve, although without secure conservation status. This veld type contains 26 threatened Red List plant species (City of Cape Town Biodiversity Fact Sheet 5: Cape Flats Dune Strandveld, 2011).

The vegetation of the proposed development site (Alternative 1 – Preferred Alternative) has been disturbed as a result of historical construction related activities associated with the development of the KNPS. The proposed development site is covered with lawn consisting of Kweek grass (*Cynodon dactylon*) and alien plants (refer to Figure 10). No threatened Red List plant species were found on site.

Site Alternative 2 is completely developed and covered with a hard surface, no form of vegetation remains.

Surface water

The KNPS is located inside the Berg Water Managements Area. No watercourses flow through the KNPS or the surrounding Koeberg Nature Reserve.

There are ponds and a wetland located in proximity to the proposed development site (Alternative 1). The ponds are not connected to the groundwater and the proposed development will not have any effects on these water features.

The wetland located to the east of the site is a permanent wetland. The proposed development will in no way have any effects on the wetland.

Socio-Economic Character

The proposed development site is located in Ward no. 32 of the City of Cape Town.

According to the census data of 2011, the population of Ward no. 32 stands at more or less 37430 people of which 33% of the relevant populations are younger than 18, while ~46% fall within economically active age group of 18-64. Ward no. 32 has a relatively large youth component with approximately 3% of the population being 65 years and older.

The percentage of people living in poverty has declined since the mid-2000s. In 2010, the proportion of people in the City living in poverty was just under 20%. Compared to Western Cape districts, the City had smallest proportion of people living in poverty at 19.7 per cent. This was below the provincial average of 22.1% which is significantly lower than the Central Karoo District's 32.5% which represented the highest proportion in the Province.

The City of Cape Town has a literacy rate of 90.5%. Learner enrolment in the City has increased from 633 999 in 2013 to 648 056 in 2014. For the same period, the average learner-teacher ratio in the City has fallen from 31.7% in 2013 to 27.5% in 2014. The 2014 ratio is more in line with the Provincial average of 28.1%.

The socio-economic value of the activity will only be determined at tender stage and once the construction contract is awarded.

PUBLIC PARTICIPATION

The public participation process for this basic assessment process will involve the following steps:

- All potential interested and affected parties (I&APs), state departments and local authorities will be given the opportunity to comment on the Draft BAR.

- Advertisements will be placed in various newspapers. These are: Cape Times, Table Talk, WeskusNuus, Tygerburger Table View, Isolabantu and Impact 24/7.
- Site notices will be fixed at various places accessible to the public at the R27 road entrance to the KNPS; Duynefontein suburb entrance to KNPS; ACP1 and ACP2 to the KNPS site.
- Written notice will be given to all potential I&APS, Stakeholders and Authorities with jurisdiction in the area.
- Copies of the Draft BAR will be made available at the Koeberg Public Library; Wesfleur Public Library, Cape Town Public Library, KNPS visitors centre and Doug Jeffery Environmental Consultants' (DJEC) office.
- The Draft BAR will also be available online on the DJEC company website (www.dougjeff.co.za).

The Draft BAR and EMP will be made available for a 30-day commenting period to all potential I&APs, State Departments and Local Authorities. All comments received during the 30-day comment period will be responded to in the form of a comments and response table (C&R Table) that will be included in the Final BAR that will be submitted for decision-making to the Department of Environmental Affairs (DEA).

Proof of the public participation process undertaken will be included under **Appendix E** of this report.

IMPACT ASSESSMENT

Impacts that may result from the proposed activity as well as proposed management of identified impacts and proposed mitigation measures are described in this report under Section D.

Potential impacts foreseen during the construction phase

- *Soil and groundwater contamination*
  There is potential for soil and ground water contamination during the construction phase, as a result of accidental spills or leaks, resulting in product seeping into the ground. The risk of the proposed activities is considered to be negligible after the proposed mitigation measures are implemented.

- *Loss of vegetation*
  No natural vegetation is present on site. The site is covered with lawn consisting of Kweek grass (*Cynodon dactylon*) and alien plants. The risk of the proposed activities is considered to be of a very low significance after the proposed mitigation measures are implemented.

- *Impact on surface water*
  Although no surface water features occur on or near the site, some wetlands occur in the surrounding areas and could be affected as a result of uncontrolled surface run-off from the construction site. The risk of the proposed activities is considered to be negligible after the proposed mitigation measures are implemented.

- *Dust nuisance and exhaust fumes*
  There is potential for the air quality to be impacted through the construction activities that may generate dust through exposing soil and disturbing the ground. Fugitive dust is considered to be a nuisance factor for land users and occupiers. Construction vehicles will also emit exhaust fumes while in use. The risk of the proposed activities is considered to be low after the proposed mitigation measures are implemented.

- *Job creation*
  The development is expected to generate temporary jobs during the construction phase. The proposed activities are therefore expected to be of a positive nature since the local community will partially benefit from the from the employment opportunities during the construction phase.

- *Noise impact*
  Construction vehicles and other construction machinery will increase the noise levels during working hours. Increased noise levels may be a nuisance factor to occupiers of the land. The risk of the proposed activities is expected to be low significance after the proposed mitigation measures are implemented.

Potential impacts foreseen during the operational phase

- *Potential soil and groundwater contamination*
  There is potential for soil and ground water contamination during the operational phase, as a result of accidental spills or leaks, resulting in product seeping into the ground. The risk of the proposed activities is expected to be negligible after the proposed mitigation measures are implemented.

- *Fire Risk*
  Potential fires can arise as a result due to a loss of containment of diesel which is ignited and results in a fire. The risk of fire is expected to be low significance after the proposed mitigation measures are implemented.

A detailed Impact Assessment is included under Appendix F, and the Environmental Management Programme (EMPr) is included under **Appendix G** of this report.

ENVIRONMENTAL IMPACT STATEMENT

Alternative 1 (preferred alternative)

Overall the impacts associated with Alternative 1 (Ekhaya site and Bulk Stores at PEE site) are considered to be of a low significance, and some negligible, after the recommended management and mitigation measures are implemented. No impacts are expected to have a detrimental effect on the environment since the proposed development site is located within the already developed area of the KNPS. The indigenous vegetation has been disturbed as a result of historical construction related activities associated with the development of the KNPS; therefore no significant loss is expected in terms of vegetation.

Alternative 1, the preferred alternative, is considered to be the best possible option for the proposed development since the location of the proposed development site favours the land use, positioning and accessibility during emergency events within the KNPS.

Alternative 2

Overall the impacts associated with Alternative 2 (Transport Garage site and Bulk Stores at PEE site) are considered to be of al low significance and some negligible after the recommended management and mitigation measures are implemented. No impacts are expected to have a detrimental effect on the environment since the proposed development site is located within the already developed area.

Alternative 2, is however not the preferred option for the proposed development since the location of the proposed development site does not favour the position and accessibility during emergency events within the KNPS.

No-go alternative

The No-go alternative will not result in any loss of vegetation or have any risk of pollution to the environment but this will also result in the safety of the power station not improved.

The “No-Go” option is not regarded as a viable option since the primary purpose of installing the diesel fuel tanks is to provide, a diversified, separate, source of diesel fuel, during an extended loss of AC power following an external event. This is an essential back up system required at the KNPS as part of an emergency response system.

The safety of KNPS will not improve and potential nuclear licensing implications will follow if the proposed development does not continue. Socio-economic benefits of employment during construction will also not be realised.

RECOMMENDATIONS

- The Ekhaya site together with the Bulk Stores at the PEE site must be regarded as Alternative 1 (preferred alternative).
- The Transport Garage site together with the Bulk Stores at the PEE site must be regarded as Alternative 2.
- All mitigation measures described in this BAR and the EMPr must be implemented to demonstrate compliance and adherence to best practice.
- The EMPr must be implemented throughout all the phases of the proposed development.
- The EMPr must be implemented when the one diesel tank is moved to the Bulk Stores at the PEE site form either the Ekhaya site or the Transport Garage site.
- An Environmental Control Officer (ECO) must be appointed to oversee the implementation of the EMPr.
- All areas outside the proposed development area disturbed during the construction phase should be rehabilitated.

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section? **YES** | NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

The proponent, Eskom Holdings SOC, proposes to expand the diesel storage facilities at the Koeberg Nuclear Power Station (KNPS) by installing two mobile above ground diesel tanks. The KNPS is located on the Farm Duynefontyn No. 1552, Melkbosstrand.

The primary purpose of installing the containerised diesel fuel tanks is to provide a diversified, separate, source of diesel fuel during an extended loss of Alternative Current power (AC) following an external event, to supply:

1) the emergency mobile diesel powered water pumps which will be used to provide reactor core cooling and nuclear spent fuel pool make-up; and
2) the Emergency Control Centre (ECC) diesel generator which will allow the ECC to perform its command and control function.

Furthermore, the diesel tanks can be used to supply fuel to the unit Emergency Diesel Generators. It could also be used as an alternative diesel fuel supply for the Station Black Out generators, Main Admin Building generator, mobile generators and other equipment, dependent on the operating scenario, which is dependent on the equipment available and what is required by the plant.

The long term storage strategy is to have one diesel tank permanently positioned at the Ekhaya site (Alternative 1 – Preferred Alternative), or at the Transport Garage (Alternative 2), and the second diesel tank located at the Bulk Stores which is at the Portable Emergency Equipment (PEE) site (see Figure 1). For nuclear safety purposes, it is desirable to have the two tanks in separate, diverse locations to reduce the probability of a common mode failure. Therefore one diesel tank should be within easy access from the power station which is within Access Control Point 2 (ACP2) and the other in a separate and secure location (see Figure 2).

To begin with, the two proposed diesel tanks will temporary be placed at either the Ekhaya site (Alternative 1 – preferred alternative) or at the Transport Garage (Alternative 2) while construction of the Bulk stores continues at the PEE site. Once the construction of the Bulk Stores is completed, one tank will be removed from either the Ekhaya site or the Transport Garage and moved to the Bulk Stores, leaving the one permanent diesel tank at either the Ekhaya site or the Transport Garage.

Therefore, the Ekhaya site together with the Bulk Stores at the PEE site must be regarded as Alternative 1, the preferred alternative, and the Transport Garage together with the Bulk Stores at the PEE site must be regarded as Site Alternative 2.

Note that the development at the PEE site has a separate Environmental Authorisation (EA) – DEA Ref: 12/12/20/997 – the diesel tanks were not included or assessed as part of this EA.

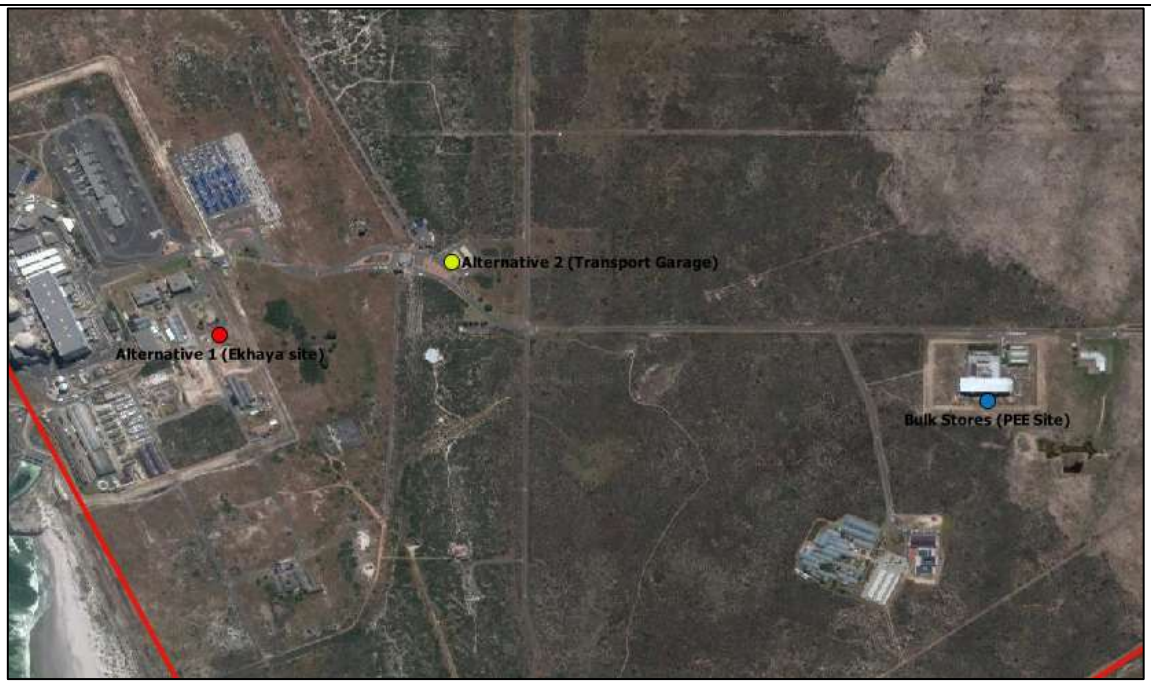

Figure 1: Google Earth image showing the location of Alternative 1 (Ekhaya site, red marker), Alternative 2 (Transport Garage, yellow marker) and the Bulk Stores (PEE site, blue marker) on the Farm Duynefontyn No. 1552, Melkbosstrand.

Figure 2: Illustration of the location of the proposed alternatives in relation to ACP1 (green marker) and ACP2 (orange marker). The ACP2 area is the area inside the blue dashed line.

Lastly, it is essential for Eskom to have the diesel storage tanks commissioned before the construction at the PEE site is completed. The reason being that fuel supply is of a higher importance than the development at the PEE site which may only be completed in 2018. Eskom require diversity in storage locations to increase availability of the diesel fuel tanks during an event.

Description and installation of the proposed diesel tanks

The proposed diesel tanks will have a safe fill level of 65 312 litres each. The tanks are dimensionally similar to a 40 foot shipping container and designed for the safe storage of diesel. The tanks are self bunded, meaning that the internal tank is surrounded by an external tank which is able to hold 110% of the internal tanks volume. The tanks contain all the necessary ancillaries, therefore no additional piping or pumps will be installed to transfer diesel. The tanks' pumps and connections are housed in an area that is separately bunded. Figure 3 illustrates the design of the proposed diesel tanks, and Figure 4 and Figure 5 demonstrate what the proposed diesel tanks look like.

The tanks will be placed on a concrete slab of approximately 135 square metres (15 m x 9 m). Construction activities will be limited to excavations for construction of a reinforced concrete slab on natural compacted earth paving layers. This type of construction does not require excessive working space around the final footprint of the slab.

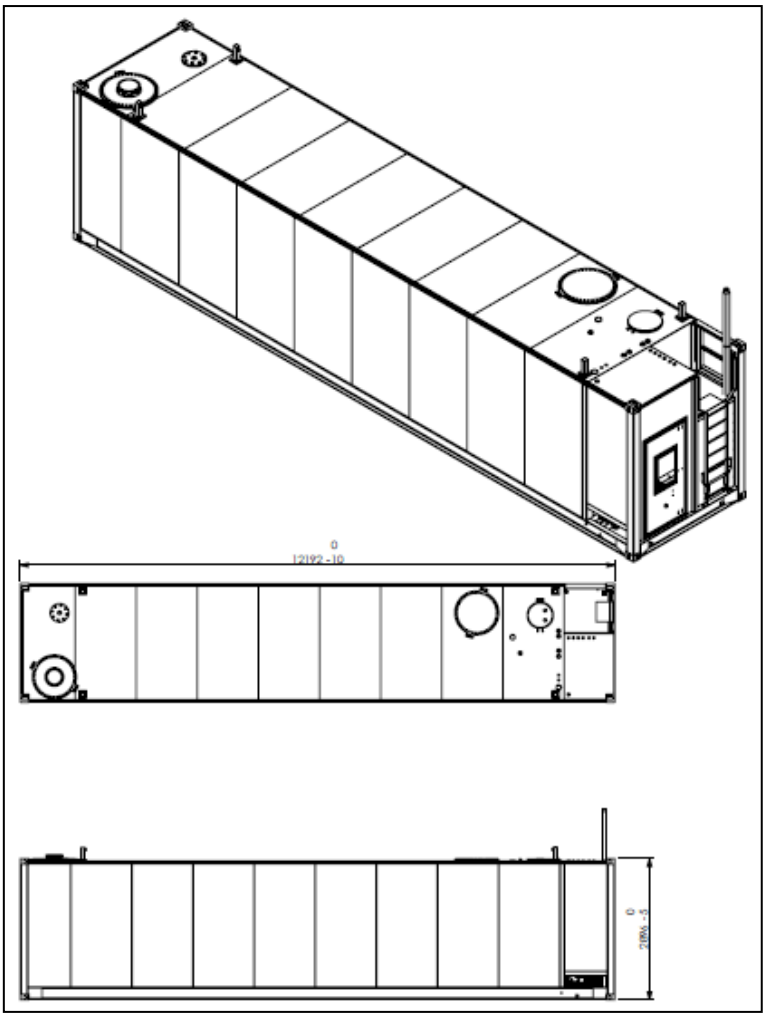

Figure 3: Diagram of the proposed diesel tanks.

Figure 4: Side view of the proposed diesel tanks.

Figure 5: Top view of the proposed diesel tanks.

The detailed facility illustrations are included under **Appendix C** of this report.

Existing diesel storage infrastructure at the KNPS

There is existing diesel storage tanks located within the KNPS site. The combined capacity of the existing diesel storage tanks are more than 615 cubic metres. For security purposes it cannot be revealed where these tanks are situated within the KNPS site.

Specialist Input

Environmental Resource Management (ERM) undertook a screening assessment of the risks that may be imposed on the public by the proposed diesel tanks at the KNPS.

The objective of the screening assessment was to produce consequence contours which can be used to produce land use planning zones in line with the United Kingdom Health and Safety Executive's (HSE) Land Use Planning criteria.

Based on the results presented, the risk contours envelop surrounding land that is currently undeveloped and within the KNPS site boundary. Therefore based on the UK HSE's PADHI guidelines this proposed site would be considered under the category *"Do not Advise Against"* for any proposed future industrial developments.

The specialist found that the consequences could extend beyond the site boundaries where the diesel is stored. However this still remains within the greater KNPS site and therefore the general public is not exposed to this risk.

b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN 983, 984, 985	Description of project activity
GN R. 983 Item 51: The expansion of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where the capacity of such storage facilities will be expanded by more than 80 cubic metres.	The proposed development is for the installation of two diesel tanks with a combined capacity of approximately 137.5 cubic metres (±137 500 litres) at the KNPS. This activity will add to the existing capacity of diesel storage facilities at the KNPS, thus expanding the facilities for the storage of with 137.5 cubic metres.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should

be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Ekhaya site: The proposed expansion entails the storage of two diesel tanks (approximately 68.75 m^3 per tank) at the Ekhaya site. In the future, one tank will be moved to the Bulk Stores at the PEE site, as soon as construction of the Bulk stores is completed, and one tank will remain at the Ekahya site.	**Ekhaya Site**	
	33°40'37.17"S	18°26'8.13"E
	Bulk Stores at the PEE Site	
	33°40'42.08"S	18°27'5.59"E
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Transport Garage Site: The proposed expansion entails the storage of two diesel tanks (approximately 68.75 m^3 per tank) at the Transport Garage site. In the future, one tank will be moved to the Bulk Stores at the PEE site, as soon as construction of the Bulk stores is completed, and one tank will remain at the Transport Garage site. This alternative was not investigated for the following reasons: • The Ekhaya site is located closer to the main facilities where the backup diesel will be required in case an external event occurred. • This Transport Garage is located outside the security fence (in ACP2) of the KNPS which may restrict quick access during emergencies. • The current zoning of the Transport Garage site does not allow for the location of a large diesel tank.	**Transport Garage Site**	
	33°40'31.74"S	18°26'25.44"E
	Bulk Stores at the PEE Site	
	33°40'42.08"S	33°40'42.08"S
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		

In the case of linear activities: **N/A**

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives

No layout alternatives have been investigated since the proposed diesel tanks are portable and the lay-out thereof will not have an impact on the environment.

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		

c) Technology alternatives

No technology alternatives have investigated.

Alternative 1 (preferred alternative)
N/A
Alternative 2
N/A
Alternative 3
N/A

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

No other alternatives have been investigated.

Alternative 1 (preferred alternative)
N/A
Alternative 2
N/A
Alternative 3
N/A

e) No-go alternative

The Status Quo of the site will remain if no development is undertaken. The “no-go” option is not regarded as a viable option since the primary purpose of installing the diesel fuel tanks is to provide a diversified, separate source of diesel fuel during an extended loss of AC power following an

external event. This is an essential back up system required at the KNPS as part of an emergency response system.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	135 m²
Alternative A2 (if any)	135 m²
Alternative A3 (if any)	N/A

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	N/A
Alternative A2 (if any)	N/A
Alternative A3 (if any)	N/A

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	N/A
Alternative A2 (if any)	N/A
Alternative A3 (if any)	N/A

4. SITE ACCESS

Does ready access to the site exist?	**YES**	NO
If NO, what is the distance over which a new access road will be built		N/A

Describe the type of access road planned:

The existing site access to the KNPS, via the R27 road or alternatively Otto du Plessis Drive, will be used to gain access to the proposed development site.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

[1] "Alternative A.." refer to activity, process, technology or other alternatives.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

A Locality Map is included under **Appendix A1** of this report.

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

A Layout Plan is included under **Appendix A2** of this report.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

A Sensitivity Map is included under **Appendix A3** of this report.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Site photographs are included under **Appendix B** of this report.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

A detailed facility illustration is included under **Appendix C** of this report.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. **Is the activity permitted in terms of the property's existing land use rights?**	**YES**	NO	Please explain
Both Alternatives 1 and 2 are located within the developed area of the KNPS. **Ekhaya site (Alternative1):** The proposed development site has a Risk Industry zoning. The proposed development is allowed in terms of this zoning. **Transport Garage (Alternative 2):** This site is located in a General Business 1 zoning. The proposed development is not desirable in terms of this zoning. The Bulk Stores at the PEE site, where one tank will be moved to, has a General Industry 1 zoning. The			

location of a diesel tank is permitted in terms of this zoning.

2. Will the activity be in line with the following?

(a) Provincial Spatial Development Framework (PSDF)	**YES**	NO	**Please explain**

The Western Cape Provincial SDF and CoCT IDP do not discuss the KNPS, but it is assumed that as an approved nuclear facility, consideration is given to the KNPS, its operations and development projects and related exclusion zones

(b) Urban edge / Edge of Built environment for the area	**YES**	NO	Please explain

The proposed development site is located outside of the urban edge within the already developed site of the KNPS and within the developed zone of the Koeberg Nature Reserve.

(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**YES**	NO	Please explain

The Western Cape Provincial SDF and CoCT IDP do not discuss the KNPS, but it is assumed that as an approved nuclear facility, consideration is given to the KNPS, its operations and development projects and related exclusion zones.

The City of Cape Town's (CoCT's) IDP (2012-2017) is a strategic plan that is used to guide the development of the City for a specific period. It guides the planning, budgeting, implementation, management and future decision making processes of the CoCT.

The strategic focus areas (or pillars) of the CoCT's IDP include:

1. The opportunity city;
2. The safe city;
3. The caring city;
4. The inclusive city; and
5. The well-run city.

These five pillars help focus the City's purpose of delivery. The IDP is the City's principal strategic planning instrument, from which various other strategic documents will flow. It informs planning and development in the City.

The CoCT IDP does not discuss the KNPS, but it is assumed that as an approved nuclear facility, consideration is given to the KNPS, its operations, development projects and related exclusion zones.

The City of Cape Town (CoCT) SDF (2012) is a long-term plan to guide and manage urban growth, and to balance competing land use demands, by putting in place a "logical development path that will shape the spatial form and structure of Cape Town".

In the medium- to long-term, the CoCT would like to reduce the development impediments and safety risks associated with the KNPS. Specific actions related to this objective include:

- The CoCT, in conjunction with Eskom and the Provincial Government of the Western Cape (PGWC), must update the Integrated Koeberg Nuclear Emergency Plan (KNEP) as required;
- The CoCT, in conjunction with Eskom and the PGWC, must continue to optimise, with a view to sustainability, the requirements in respect of the KNEP; and
- The CoCT must review and update the town planning assessment criteria to ensure that the processing and assessment of development applications within the KNPS emergency planning zones

do not compromise the effective implementation of the KNEP.			
(d) Approved Structure Plan of the Municipality	**YES**	NO	Please explain
In the medium- to long-term, the CoCT would like to reduce the development impediments and safety risks associated with the KNPS. Specific actions related to this objective include a review and update the town planning assessment criteria to ensure that the processing and assessment of development applications within the KNPS emergency planning zones do not compromise the effective implementation of the Koeberg Nuclear Emergency Plan.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	**YES**	NO	Please explain
The Management Plan for the Koeberg Nature Reserve (KNR) (in which the project is situated) consists of a strategic framework aimed at providing the basis for the protection and operation of the Koeberg Nature Reserve (this biodiversity stewardship site and has been prepared collaboratively through a process including Eskom staff, general public, the DEA provincial conservation authorities, and key stakeholders such as CapeNature and the CoCT). The car park development will occur in the Developed Zone described in the Nature Reserve Management Plan. As such it is consistent with the objectives of the Management Plan. The Strategic Management Framework (a component of this Management Plan) describes the overall long-term goal for the operation and protection of the Koeberg Nature Reserve. The objectives and strategic outcomes that follow are intended to provide the basis for the Management Plan. The objectives provide a broad description of the goals for each key environmental aspect. The KNR management authority has approved this development.			
(f) Any other Plans (e.g. Guide Plan)	YES	**NO**	Please explain
None.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES**	NO	Please explain
The CoCT IDP does not discuss the KNPS, but it is assumed that as an approved nuclear facility, consideration is given to the KNPS, its operations and development projects (i.e. Car Park expansion project).			

4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	**YES**	NO	Please explain
The primary purpose of installing the containerised diesel fuel tanks is to provide a diversified, separate source of diesel fuel during an extended loss of AC power following an external event, to supply: 1) The emergency mobile diesel powered water pumps which will be used to provide reactor core cooling and nuclear spent fuel pool make-up; and 2) The Emergency Control Centre (ECC) diesel generator which will allow the ECC to perform its command and control function. Furthermore, the diesel tanks can be used to supply fuel to the unit Emergency Diesel Generators. It could also be used as an alternative diesel fuel supply for the Station Black Out generators, Main Admin Building generator, mobile generators and other equipment, dependent on the operating scenario, which is dependent on the equipment available and what is required by the plant. The proposed development supports the operation of the KNPS which is an important part of the national power grid.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	NO	Please explain
No bulk services are required.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	**YES**	NO	Please explain
The CoCT IDP does not discuss the KNPS, but it is assumed that as an approved nuclear facility, consideration is given to the KNPS, its operations and development projects			
7. Is this project part of a national programme to address an issue of national concern or importance?	**YES**	NO	Please explain
Electricity supply is a national priority therefore ensuring the safety and operation of the KNPS after an unforeseen external event is of national importance.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	**YES**	NO	Please explain
The proposed development site is located within the developed area of the KNPS within an Industrial Development Zone. This zone includes areas with extensive development or transformed land. It can be argued that the location factors favour this land use.			

9. Is the development the best practicable environmental option for this land/site?	**YES**	NO	Please explain
The area is zoned for Risk Industry and General Industry use and within a Developed Zone in accordance with the nature reserve management plan; the purpose of the proposed development is to provide a backup diesel source at the KNPS in the case of an external event. The proposed development will not have a significant environmental impact on the proposed development area since it was previously disturbed. In a broader context the site is located inside the already developed KNPS boundary.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES**	NO	Please explain
The purpose of the proposed development is to provide a backup diesel source at the KNPS in the case of an external event. The proposed development will not have a significant adverse impact on the environment.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	**NO**	Please explain
The proposed development will occur within the KNPS site; it will not set a precedent for similar activities in the area or in context of the local municipality.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	**NO**	Please explain
The proposed development will improve the safety of the KNPS and only disturbed land with be adversely affected.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	**NO**	Please explain
The proposed diesel tanks will be located within the Developed Zone in the Koeberg Nature Reserve management plan.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	**NO**	Please explain
The proposed development will not contribute to any SIPS.			
15. What will the benefits be to society in general and to the local communities?			Please explain
The development with improve the safety of the power station.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
None.			
17. How does the project fit into the National Development Plan for 2030?			Please explain
Not Applicable to this project. The proposed development is for the installation of two mobile diesel tanks to provide a diversified separate source of diesel fuel during an extended loss of AC power following an unforeseen external event at the KNPS.			

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

The General Objectives of IEM have been taken into account in the following ways:

- The principles of integrated environmental management have been considered throughout the decision making process for all decisions that might have a significance on the environment.
- All significant impacts on the environment have been identified and will be assessed throughout the Basic Assessment Process. Various alternatives and mitigation measures have been addressed in order to minimising the negative impacts (where the impacts could not have been avoided), maximise the benefits, and promote compliance with the principles of environmental management.
- A number of specialists (Freshwater, Botanical, Social and Heritage (incl. Visual)) have been consulted to ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them.
- The public participation process ensures adequate opportunity provided for the public to participate in a decision that may affect the environment.
- A draft Environmental Management Programme will be submitted together with the final Basic Assessment Report that will discuss the appropriate environmental management procedures to mitigate and manage the proposed development's impact.

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

The principles of Environmental Management have and will be taken into account throughout the entire Basic Assessment Process. The following are some significant examples:

- The proposed development will be advertised to the public and all affected and interested parties will have an opportunity to comment and become involved in the process, in this way ensuring that all people's needs; rights and concerns will be addressed through this process. The PPP deals with the following principles, amongst others:
    - The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.
    - Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge.
    - Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

- The impact the proposed development will have on the environment has been assessed. All potential Impacts were identified and mitigation measures to minimise any negative impacts these impacts might have were recommended. The impact assessment deal with the following principles, amongst others:
    - That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
    - that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
    - The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated and decisions must be appropriate in the light of such consideration and assessment.

- An environmental management plan has been drawn up which addresses the avoidance, management and minimisation of all potential impacts. The EMP deals with the following principles, amongst others:
  - that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
  - that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;
  - that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

- Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.

- Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Land Use Planning Ordinance, 1985 (Act 15 of 1985) and zoning scheme regulations	Re-Zoning: Koeberg Power Station; and Bulk Stores Complex	City of Cape Town	26 April 2011 and 26 July 2011
National Environmental Management Act, 1998 (Act 107, 1998).	Environmental Authorisation	DEA	Pending
National Environmental Management Act, 1998 (Act 107, 1998).	The project at the PEE falls within the area set aside for development in terms of another EA amended 26 Feb 2016, Ref: 12/12/20/997. This project is consistent with the land use change approved by the EA and will comply with the EA conditions of the 2016 EA.	DEA	2014
National Environmental Management: Protected Areas, 2003 (Act. 57 of 2003)	The existing is situated within the Koeberg Nature Reserve.	National Department of Environmental Affairs	2003
National Heritage Resources Act, 1999 (Act 25 of 1999).	Comment	Heritage Western Cape Final Comment	Pending

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Nuclear Regular, 1999 (Act 47 of 1999)	The diesel tanks is required to improve the safety of the KNPS	National Nuclear Regulator	1999
National Environmental Management: Biodiversity, 2004 (Act 10 of 2004)	The project is situated within the Koeberg Nature Reserve which is governed by the Biodiversity Act for the control protected species and vegetation.	National Department of Environmental Affairs	2004

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES**	NO
If YES, what estimated quantity will be produced per month?	$5m^3$	

How will the construction solid waste be disposed of (describe)?

Construction waste will be removed from work areas and disposed of at a licensed waste disposal facility. Where possible, options for the reuse or recycling of waste materials will be favoured over disposal.

Where will the construction solid waste be disposed of (describe)?

Construction waste will be removed from work areas and disposed of at a licensed waste disposal facility.

Will the activity produce solid waste during its operational phase?	YES	**NO**
If YES, what estimated quantity will be produced per month?	$5m^3$	

How will the solid waste be disposed of (describe)?

N/A

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

N/A

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?	YES	**NO**

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?	YES	**NO**

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	**NO**
If YES, what estimated quantity will be produced per month?		m^3
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	**NO**

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	YES	**NO**

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		**Cell:**	
E-mail:		**Fax:**	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N/A

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	YES	**NO**
If YES, is it controlled by any legislation of any sphere of government?	YES	NO

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

Sources of emissions during the construction phase will include dust generated by the movement of construction vehicles on cleared areas and earthworks (where required) as well as exhaust emissions from construction vehicles and diesel generators. No other sources of emissions are anticipated.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	YES	**NO**

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?	**YES**	NO
If YES, is it controlled by any legislation of any sphere of government?	**YES**	NO

Describe the noise in terms of type and level:

The only noise to be generated will be during the construction activities. Eskom will ensure the noise generated will comply with the Western Cape Noise Control Regulations (Provincial Notice 200/2013) of 20 June 2013.

No noise will be generated during the operational phase.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	**The activity will not use water**

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:		litres
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	YES	**NO**

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

The proposed development is self-sufficient and does not require electricity. The energy requirements for the facility are almost negligible.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

The proposed development is self-sufficient and does not require electricity. Energy is only required when off-loading and on-loading diesel.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc.) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A): **A**

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? **YES** / NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Western Cape
District Municipality	City of Cape Town
Local Municipality	City of Cape Town
Ward Number(s)	32
Farm name and number	Farm Duynefontyn No. 1552
Portion number	0
SG Code	C01600000000155200000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Risk Industry and General Industry

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required? YES / **NO**

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau		2.5 Open valley		2.8 Dune	**X**
2.3 Side slope of hill/mountain		2.6 Plain		2.9 Seafront	
2.10 At sea					

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		**Alternative S2 (if any):**		**Alternative S3 (if any):**	
Shallow water table (less than 1.5m deep)	YES	**NO**	YES	**NO**	YES	NO
Dolomite, sinkhole or doline areas	YES	**NO**	YES	**NO**	YES	NO
Seasonally wet soils (often close to water bodies)	YES	**NO**	YES	**NO**	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	**NO**	YES	**NO**	YES	NO
Dispersive soils (soils that dissolve in water)	YES	**NO**	YES	**NO**	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	**NO**	YES	**NO**	YES	NO
Any other unstable soil or geological feature	YES	**NO**	YES	**NO**	YES	NO
An area sensitive to erosion	**YES**	NO	**YES**	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the

project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition[E]	**Natural veld with scattered aliens[E]**	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	**NO**	UNSURE
Non-Perennial River	YES	**NO**	UNSURE
Permanent Wetland	**YES**	NO	UNSURE
Seasonal Wetland	YES	**NO**	UNSURE
Artificial Wetland	**YES**	NO	UNSURE
Estuarine / Lagoonal wetland	YES	**NO**	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

There are wetlands located in the vicinity of the Ekhaya site as well as the PEE site where the Bulk Stores will be built (see Figure 6 and Figure 7).

The wetland located East of the Ekhaya site, as well as the wetland located South-East of the PEE site, are permanent wetlands. The proposed development will in no way have any effects on the wetlands seeing that the mitigation measures recommended in the Environmental Management Programme (EMPr) are implemented effectively.

The ponds, located to the North-West of the Ekhaya site, are not connected to the groundwater and the proposed development will not have any effects on these water features.

No watercourses are located near the Transport Garage site.

Figure 6: View of the ponds and the wetland located near the proposed development site (Alternative 1).

Figure 7: View of the wetland located near the PEE site.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area	**Dam or reservoir**	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture
Retail commercial & warehousing	Old age home	**River, stream or wetland**
Light industrial	Sewage treatment plant[A]	Nature conservation area
Medium industrial [AN]	Train station or shunting yard [N]	Mountain, koppie or ridge
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	**Protected Area**
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "[N] "are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "[An]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	**NO**
Core area of a protected area?	YES	**NO**
Buffer area of a protected area?	YES	**NO**
Planned expansion area of an existing protected area?	YES	**NO**
Existing offset area associated with a previous Environmental Authorisation?	YES	**NO**
Buffer area of the SKA?	YES	**NO**

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES	**NO**
	Uncertain	
No signs of culturally or historically significant elements were observed near the site.		

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

N/A

Will any building or structure older than 60 years be affected in any way?	YES	**NO**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	**NO**

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

The proposed development site is located in Ward no. 32 of the City of Cape Town.

According to the census data of 2011, the population of Ward no. 32 stands at more or less 37430 people of which 33% of the relevant populations are younger than 18, while ~46% fall within economically active age group of 18-64. Ward no. 32 has a relatively large youth component with approximately 3% of the population being 65 years and older.

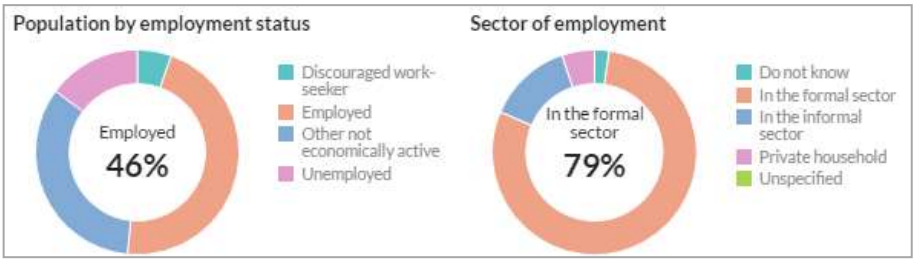

Figure 8: Graphs of the employment rate (15 years and older) and sector of employment for Ward no. 32 in City of Cape Town (Source: Wazimap & Census 2011).

In 2011, the City represents almost two thirds (66.3%) of the Province's labour force. While the City's share of the Province's employed roughly corresponds with proportional share of the labour force, with 73.5% of the Western Cape's unemployed, the City is over-represented in its proportion of the Province's unemployed.

Economic profile of local municipality:

The percentage of people living in poverty has declined since the mid-2000s. In 2010, the proportion of people in the City living in poverty was just under 20%. Compared to Western Cape districts, the City had smallest proportion of people living in poverty at 19.7 per cent. This was below the provincial average of 22.1% which is significantly lower than the Central Karoo District's 32.5% which represented the highest proportion in the Province.

According to Statistics South Africa Census 2011, average household income in the country has doubled over the last decade; however, high levels of income inequality still persist. The largest proportion of households in the Cape Metro earned between R19 601 and R307 600 per annum (Census, 2011). The large proportion of households in each of the metros earning no income raises concern.

In line with the downward revision of the global economic outlook and the substantial downward revision of the outlook for growth nationally and in the Province, the Cape Metro GDPR growth forecast for the period 2014 - 2019 has been reduced to 3.0 per cent per annum, from 3.6% per annum at the time of the 2013 MERO study (for the period 2012 - 2017). The growth performance of the Cape Metro (1.8 per cent) was below that recorded for the Western Cape Province (2.1%) in 2013.

Level of education:

The City of Cape Town has a literacy rate of 90.5%

Learner enrolment in the City has increased from 633 999 in 2013 to 648 056 in 2014. For the same period, the average learner-teacher ratio in the City has fallen from 31.7% in 2013 to 27.5% in 2014. The 2014 ratio is more in line with the Provincial average of 28.1%.

The 2013 data showed some improvement in the matric pass rate from the previous year, increasing from 80.6% in 2012 to 83.2% in 2013. About 32.7% of the population in Ward no.32 has matric or a higher qualification, and roughly 46% has some form of secondary education.

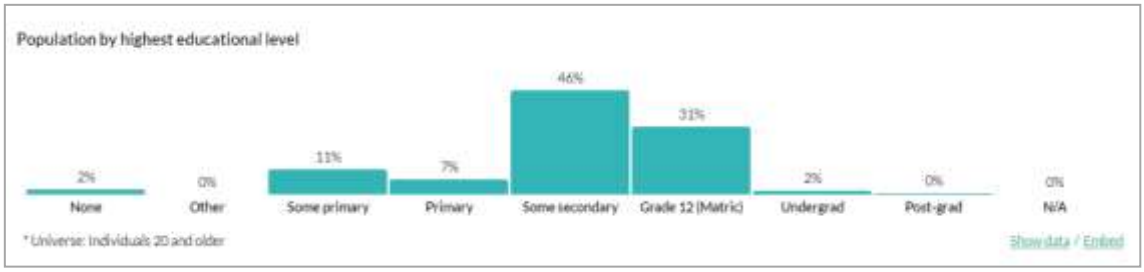

Figure 9: Graph showing the highest education level in Ward no. 32, City of Cape Town (Source: Wazimap).

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Unknown
What is the expected yearly income that will be generated by or as a result of the activity?	None
Will the activity contribute to service infrastructure?	YES / **NO**

	YES	NO
Is the activity a public amenity?		
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Will only be determined at tender stage and once the construction contract is awarded	
What is the expected value of the employment opportunities during the development and construction phase?	Will only be determined at tender stage and once the construction contract is awarded	
What percentage of this will accrue to previously disadvantaged individuals?	Will only be determined at tender stage and once the construction contract is awarded	
How many permanent new employment opportunities will be created during the operational phase of the activity?	None	
What is the expected current value of the employment opportunities during the first 10 years?	None	
What percentage of this will accrue to previously disadvantaged individuals?	Will only be determined at tender stage and once the construction contract is awarded	

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix A to this report.

Environmental Sensitivity maps in included under **Appendix A.**

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	**No Natural Area Remaining (NNR)**	According to Mucina and Rutherford (2009) the surrounding vegetation type is Cape Flats Dune Strandveld (FS 6), which is considered to be Endangered. Furthermore, the SANBI Biodiversity Geographic Information Systems, indicated that neither Alternative 1 or 2 are located within any threatened or protected ecosystems in terms of NEMBA (Act 10 of 2004) (SANBI, BGIS).

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0%	N/A
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	N/A
Degraded (includes areas heavily invaded by alien plants)	**Alternative 1 – Preferred Alternative**	
	20%	**Ekhaya and PPE sites:** The vegetation of both these sites has been disturbed as a result of historical construction related activities associated with the development of the KNPS. No natural vegetation is present on both sites. The sites are covered with lawn consisting of Kweek grass (*Cynodon dactylon*) and alien plants.
Transformed (includes cultivation, dams, urban, plantation, roads, etc.)	**Alternative 1 – Preferred Alternative**	
	80%	**Ekhaya and PPE sites:** The sites are covered with lawn consisting of Kweek grass (*Cynodon dactylon*) and alien plants.
	Alternative 2	
	100%	**Transport Garage site:** No natural habitat remains at Alternative 2 – the area is covered with a hard surface.

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened	YES	**NO**	UNSURE	YES	**NO**	YES	**NO**

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Alternatives 1 and 2 are located within the Fynbos biome and the Western Strandveld bioregion. According to Mucina and Rutherford (2009) the vegetation type is Cape Flats Dune Strandveld (FS 6), which is considered to be Endangered. The Cape Flats Dune Strandveld vegetation unit is poorly conserved, with 7% left in proclaimed reserves. Some 7% of the False Bay and 7% of the West Coast form are in proclaimed reserves, the latter also having 16% in the private Koeberg Nature Reserve, although without secure conservation status. This veld type contains 26 threatened Red List plant species (City of Cape Town Biodiversity Fact Sheet 5: Cape Flats Dune Strandveld, 2011).

The vegetation of both the Ekhaya and PEE sites (Alternative 1 – Preferred Alternative) has been disturbed as a result of historical construction related activities associated with the development of the KNPS. The proposed development sites are covered with lawn consisting of Kweek grass (*Cynodon dactylon*) and alien plants (refer to Figure 10). No threatened Red List plant species were found on site.

Figure 10: View of the vegetation at the Ekhaya site (Alternative 1).

Figure 11: View of the vegetation at the PEE site.

The Transport Garage site (Alternative 2) is completely developed and covered with a hard surface, no form of vegetation remains (see **Figure 12**).

Figure 12: Aerial view of the Transport Garage site (Alternative 2).

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Cape Times	Table Talk	WeskusNuus	Tygerburger Table View	Isolabantu	Impact 24/7
Date published	To be added in the Final BAR.	To be added in the Final BAR.	To be added in the Final BAR.	To be added in the Final BAR.	To be added in the Final BAR.	To be added in the Final BAR.
Site notice position	**Position**		**Latitude**		**Longitude**	
1	R27 road Entrance to KNPS		To be added in the Final BAR.		To be added in the Final BAR.	
2	Duynefontein suburb Entrance to KNPS		To be added in the Final BAR.		To be added in the Final BAR.	
3	Access Control Point 1 to KNPS site		To be added in the Final BAR.		To be added in the Final BAR.	
4	Access Control Point 2 to KNPS site		To be added in the Final BAR.		To be added in the Final BAR.	
Date placed	To be added in the Final BAR.					

A copy of the Draft BAR will be available for review at the following venues:

- Koeberg Public Library, Duynefontein;
- Wesfleur Public Library, Atlantis;
- Cape Town Public Library;
- KNPS Visitors Centre; and
- Doug Jeffery Environmental Consultants' office in Klapmuts.

An electronic copy will also be made available on the website of Doug Jeffery Environmental Consultants (www.dougjeff.co.za).

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733. Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

Title, Name and Surname	**Affiliation/ key stakeholder status**	**Contact details (tel number or e-mail address)**
Mr. Guy Thomas	Heritage Western Cape	guy.thomas@westerncape.gov.za
Mr. Rhett Smart	CapeNature	rsmart@capenature.co.za
Ms. Louisa Mpete	National Nuclear Regulator	lmpete@nnr.co.za

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
To be completed after the 30 day commenting period ended.	

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Environmental Affairs & Development Planning (DEADP): Development Management	Eldon van Boom	021 483 2877	021 483 4372	Eldon.vanBoom@westerncape.gov.za	Private Bag X9086 Cape Town 8000
City of Cape Town	Pat Titmuss	021 444 0597	021 444 0605	Pat.Titmuss@capetown.co.za	PO Box 35 Milnerton 7435
DEADP: Pollution and Chemicals Management	Zayed Brown	021 483 8367	021 483 3186	zayed.brown@westerncape.gov.za	Private Bag X9086 Cape Town 8000
DEADP: Waste Management	Eugene Pienaar	021 483 5546	021 483 4425	Eugene.Pienaar@westerncape.gov.za	Private Bag X9086 Cape Town 8000

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Activity	Impact summary	Significance after mitigation	Proposed mitigation
Construction Phase			
Alternative 1: Ekhaya Site (Preferred Alternative)			
Direct impacts:			
Site clearing, earthworks and construction activities	**Potential soil and ground water contamination:** There is potential for soil and ground water contamination during the construction phase, as a result of accidental spills or leaks, resulting in product seeping into the ground.	Negligible	• The diesel tanks must have a secondary containment area to prevent subsurface leaks from seeping straight into the ground. • The design must ensure that all runoff from development area is directed into the storm water management system, which must include an oil/water separator. • All pipework must be double walled and comply with SANS 62- 1 and 2, SANS 1132 (pipework). • All construction vehicles must be properly maintained to prevent leaks. • Cement mixing must be confined to a designated area and must be done on an impervious surface, or pre-mixed cement must be used. • Any fuel stored on site must be kept in bunded storage tanks. • Drip trays are to be utilised during daily greasing and refuelling of machinery and to catch incidental spills and pollutants. • Drip trays are to be inspected on a weekly basis for leaks and effectiveness, and

Activity	Impact summary	Significance after mitigation	Proposed mitigation
			emptied when necessary. This is to be closely monitored during rain events to prevent overflow.
Site establishment, earthworks and construction vehicles movement	**Loss of vegetation** Construction related activities will require the physical disturbance and removal of Kweek grass (*Cynodon dactylon*).	Very Low (Negative)	• Demarcate and fence off the construction site boundaries upon site establishment and limit all activities to inside these boundaries. • Limit the footprint area of the construction activity to the immediate site. • Designate areas outside the construction footprint as No Go areas. • Contractors must drive on existing access roads as far as possible to prevent formation of unnecessary tracks for access roads. • Prohibit temporary storage of building material or soil within areas of natural vegetation falling outside of the construction footprint. • Remove all alien and weed species encountered within areas disturbed by construction activities. Removal of species should take place throughout the construction and operational phases of the development. • Rehabilitate the development footprint and areas disturbed during construction with species indigenous to the vegetation type during the decommissioning phase of the development.
Earthworks and construction activities	**Potential impact on surface water:** Although no surface water features occur on or near the site, some wetlands occur in the surrounding areas and could be affected as a result of uncontrolled surface run-off from the construction site.	Negligible	• Refuelling and servicing of vehicles must be undertaken at designated service areas and on an impermeable surface. • Make use of a drip tray when refuelling vehicles or equipment on site. • Place drip trays under engines of vehicles or equipment when parked or stored overnight or longer. • Spill kits to clean up accidental spills from vehicles or equipment must be well marked and available on site. • Workers must undergo induction to ensure that they are prepared for rapid clean-up procedures.

Activity	Impact summary	Significance after mitigation	Proposed mitigation
			• Immediately clean oil and fuel spills and dispose of contaminated material (soil, etc.) at licensed waste disposal sites. • Do not release any pollutants, including sediment, sewage, cement, fuel, oil, chemicals, hazardous substances, waste water, etc., into the environment. • Compile a procedure for the storage, handling and transport of different hazardous materials and ensure that it is strictly adhered to. • 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.
Excavations, construction activities and construction vehicles movement	**Dust nuisance and exhaust fumes:** There is potential for the air quality to be impacted through the construction activities that may generate dust through exposing soil and disturbing the ground. Fugitive dust is considered to be a nuisance factor for land users and occupiers. Construction vehicles will also emit exhaust fumes while in use.	Low (Negative)	• Dust suppression methods, such as wetting or laying straw, should be applied where there are large tracts of exposed surfaces. If wetting is used, consideration in the use of non-potable water must be considered. • Stock piles and spoil heaps must be covered with tarpaulins or straw to prevent fugitive dust. • All construction vehicles must be appropriately maintained to minimise exhaust emissions • All mitigation measures described in the EMPr relating to dust and vehicle emissions must be adhered to.
Construction activities	**Job creation:** The development is expected to generate temporary jobs during the construction phase.	Low (Positive)	• The developer should encourage the contractor to increase the local procurement practices and employment of people from local communities as far as feasible to maximize the benefits to the local economies.
Earthworks, construction vehicle movement and construction activities	**Potential noise impacts:** Construction vehicles and other construction machinery will increase the noise levels during working hours. Increased noise levels may be a nuisance factor to occupiers of the land.	Low (Negative)	• Construction activities as well as the use of construction vehicles on the road must only occur between 07:00am and 05:00pm. • All construction vehicles must be fitted with silencers to avoid excessive noise. • All equipment to be adequately

Activity	Impact summary	Significance after mitigation	Proposed mitigation
			maintained and kept in good working order to reduce noise. • All employees must be given the necessary ear protection gear. • Noise levels must comply with the SANS 100103 – 0994 (recommended noise levels). • All mitigation measures relating to noise control as described in the EMPr must be adhered to.
Indirect impacts:			
No indirect impacts foreseen.			
Cumulative impacts:			
No cumulative impacts foreseen.			
Alternative 2: Transport Garage Site			
Direct impacts:			
Site clearing, earthworks and construction activities	**Potential soil and ground water contamination:** There is potential for soil and ground water contamination during the construction phase, as a result of accidental spills or leaks, resulting in product seeping into the ground.	Negligible	Refer to the mitigation measures for Alternative 1 above.
Excavations and construction vehicles movement	**Dust nuisance and exhaust fumes:** There is potential for the air quality to be impacted through the construction activities that may generate dust through exposing soil and disturbing the ground. Fugitive dust is considered to be a nuisance factor for land users and occupiers. Construction vehicles will also emit exhaust fumes while in use.	Low (Negative)	Refer to the mitigation measures for Alternative 1 above.
Construction activities	**Job creation:** The development is expected to generate temporary jobs during the construction phase.	Low (Positive)	Refer to the mitigation measures for Alternative 1 above.
Earthworks, construction vehicle movement and construction activities	**Potential noise impacts:** Construction vehicles and other construction machinery will increase the noise levels during working hours. Increased noise levels may be a nuisance factor to occupiers of the land.	Low (negative)	Refer to the mitigation measures for Alternative 1 above.

Activity	Impact summary	Significance after mitigation	Proposed mitigation
Indirect impacts:			
No indirect impacts foreseen.			
Cumulative impacts:			
No cumulative impacts foreseen.			
Bulk Stores at the PEE Site: In combination with Alternative 1 and Alternative 2			
Direct impacts:			
Site clearing, earthworks and construction activities	**Potential soil and ground water contamination:** There is potential for soil and ground water contamination during the construction phase, as a result of accidental spills or leaks, resulting in product seeping into the ground.	Negligible	Refer to the mitigation measures for Alternative 1 above.
Site establishment, earthworks and construction vehicles movement	**Loss of vegetation** Construction related activities will require the physical disturbance and removal of Kweek grass (*Cynodon dactylon*).	Very Low (Negative)	Refer to the mitigation measures for Alternative 1 above.
Earthworks and construction activities	**Potential impact on surface water:** Although no surface water features occur on or near the site, some wetlands occur in the surrounding areas and could be affected as a result of uncontrolled surface run-off from the construction site.	Negligible	Refer to the mitigation measures for Alternative 1 above.
Excavations, construction activities and construction vehicles movement	**Dust nuisance and exhaust fumes:** There is potential for the air quality to be impacted through the construction activities that may generate dust through exposing soil and disturbing the ground. Fugitive dust is considered to be a nuisance factor for land users and occupiers. Construction vehicles will also emit exhaust fumes while in use.	Low (Negative)	Refer to the mitigation measures for Alternative 1 above.
Construction activities	**Job creation:** The development is expected to generate temporary jobs during the construction phase.	Low (Positive)	Refer to the mitigation measures for Alternative 1 above.
Earthworks, construction vehicle movement and	**Potential noise impacts:** Construction vehicles and other construction machinery will increase the noise levels during working hours.	Low (Negative)	Refer to the mitigation measures for Alternative 1 above.

Activity	Impact summary	Significance after mitigation	Proposed mitigation
construction activities	Increased noise levels may be a nuisance factor to occupiers of the land.		
Indirect impacts:			
No indirect impacts foreseen.			
Cumulative impacts:			
No cumulative impacts foreseen.			
No-go option			
No impacts foreseen since no development will occur.			

Activity	Impact summary	Significance after mitigation	Proposed mitigation
Operational Phase			
Alternative 1 (preferred alternative)			
Direct impacts:			
Refuelling of tanks, vehicles and equipment during the operational phase	**Potential soil and groundwater contamination:** There is potential for soil and ground water contamination during the operational phase, as a result of accidental spills or leaks, resulting in product seeping into the ground.	Negligible	• Any significant spills or leak incidents must be reported in terms of the National Environmental Management Act, 1997 (Act 107 of 1998) and the Water Act, 1998 (Act 36 of 1998). • Tanker delivery drivers must be present during delivery of fuel with the emergency cut off switch. • In the event of the pump dispenser or the hoses being knocked over or ripped off, the fuel supply must be cut off by shear-off valves. • All relevant staff must undergo appropriate training, which must include training to prevent spillages during fuel dispensing. • An Emergency Response Plan must be in place for the site, this must clearly describe emergency procedures and include emergency contact numbers. • Automatic shut-off valve must be on the storage tanker.
Fire Risk	Potential fires can arise as a result off a loss of containment of diesel which is ignited and results in a fire.	Low (Negative)	• No fires are to be permitted on site. • Ensure that emergency procedures (in relation to fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc.) are established before operation. • Ensure that no smoking is permitted on

Activity	Impact summary	Significance after mitigation	Proposed mitigation
			the site. • Ensure that sufficient fire-fighting equipment is available on site. • Ensure that all personnel on site are aware of the location of firefighting equipment on the site and how the equipment is operated. • Suitably maintain firefighting equipment. • Ensure that all mitigation measures identified in the EMPr are implemented throughout the operational phase.
Indirect impacts:			
No indirect impacts foreseen.			
Cumulative impacts:			
No cumulative impacts foreseen.			
Alternative 2			
Direct impacts:			
Refuelling of tanks, vehicles and equipment during the operational phase	**Potential Soil and ground water Contamination:** There is potential for soil and ground water contamination during the operational phase, as a result of accidental spills or leaks, resulting in product seeping into the ground.	Negligible	Refer to the mitigation measures for Alternative 1 above.
Fire Risk	Potential fires can arise as a result due to a loss of containment of diesel which is ignited and results in a fire.	Low (Negative)	Refer to the mitigation measures for Alternative 1 above.
Indirect impacts:			
No indirect impacts foreseen.			
Cumulative impacts:			
No cumulative impacts foreseen.			
Bulk Stores at the PEE site: In combination with Alternative 1 and Alternative 2			
Direct impacts:			
Refuelling of tanks, vehicles and equipment during the operational phase	**Potential soil and groundwater contamination:** There is potential for soil and ground water contamination during the operational phase, as a result of accidental spills or leaks, resulting in product seeping into the ground.	Negligible	Refer to the mitigation measures for Alternative 1 above.
Fire Risk	Potential fires can arise as a result	Low	Refer to the mitigation measures for

Activity	Impact summary	Significance after mitigation	Proposed mitigation
	off a loss of containment of diesel which is ignited and results in a fire.	(Negative)	Alternative 1 above.
Indirect impacts:			
No indirect impacts foreseen.			
Cumulative impacts:			
No cumulative impacts foreseen.			
No-go option			
No development - status quo remains	Safety of KNPS is not improved and potential nuclear licensing implications. Socio-economic benefits of employment during construction not realised.		

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative 1 (preferred alternative)

Overall the impacts associated with Alternative 1 (Ekhaya site and Bulk Stores at PEE site) are considered to be of a low significance, and some negligible, after the recommended management and mitigation measures are implemented. No impacts are expected to have a detrimental effect on the environment since the proposed development site is located within the already developed area of the KNPS. The indigenous vegetation has been disturbed as a result of historical construction related activities associated with the development of the KNPS; therefore no significant loss is expected in terms of vegetation.

Alternative 1, the preferred alternative, is considered to be the best possible option for the proposed development since the location of the proposed development site favours the land use, positioning and accessibility during emergency events within the KNPS.

Alternative 2

Overall the impacts associated with Alternative 2 (Transport Garage site and Bulk Stores at PEE site) are considered to be of al low significance and some negligible after the recommended management and mitigation measures are implemented. No impacts are expected to have a detrimental effect on the environment since the proposed development site is located within the already developed area.

Alternative 2, is however not the preferred option for the proposed development since the location of the proposed development site does not favour the position and accessibility during emergency events within the KNPS.

Alternative 3

N/A

No-go alternative (compulsory)

The No-go alternative will not result in any loss of vegetation or have any risk of pollution to the environment but this will also result in the safety of the power station not improved.

The “No-Go” option is not regarded as a viable option since the primary purpose of installing the diesel fuel tanks is to provide, a diversified, separate, source of diesel fuel, during an extended loss of AC power following an external event. This is an essential back up system required at the KNPS as part of an emergency response system.

The safety of KNPS will not improve and potential nuclear licensing implications will follow if the proposed development does not continue. Socio-economic benefits of employment during construction will also not be realised.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	**YES**	NO

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

N/A

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

EAP recommendations

- The Ekhaya site together with the Bulk Stores at the PEE site must be regarded as Alternative 1 (preferred alternative).
- The Transport Garage site together with the Bulk Stores at the PEE site must be regarded as Alternative 2.
- All mitigation measures described in this BAR and the EMPr must be implemented to demonstrate compliance and adherence to best practice.
- The EMPr must be implemented throughout all the phases of the proposed development.
- The EMPr must be implemented when the one diesel tank is moved to the Bulk Stores at the PEE site form either the Ekhaya site or the Transport Garage site.
- An Environmental Control Officer (ECO) must be appointed to oversee the implementation of the EMPr.
- All areas outside the proposed development area disturbed during the construction phase should be rehabilitated.

Is an EMPr attached? The EMPr must be attached as Appendix G.	**YES**	NO

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Adél Groenewald

NAME OF EAP

SIGNATURE OF EAP

16/02/2017

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information