NEC3 Engineering & Construction Contract

Between **ESKOM HOLDINGS SOC Ltd**
(Reg No. 2002/015527/30)

and **[Insert at award stage]**
(Reg No. _____)

for **The supply and replacement of the Inverters, and auxiliary system at Koeberg Operating Unit (KOU)**

Contents:		**No of pages**
Part C1	**Agreements & Contract Data**	**[●]**
Part C2	**Pricing Data**	**[●]**
Part C3	**Scope of Work**	**[●]**
Part C4	**Site Information**	**[●]**

CONTRACT No. **[Insert at award stage]**

Part C1: Agreements & Contract Data

Contents:		No of pages
C1.1	**Form of Offer and Acceptance** **[to be inserted from Returnable Documents at award stage]**	**[●]**
C1.2a	**Contract Data provided by the *Employer***	**[●]**
C1.2b	**Contract Data provided by the *Contractor*** **[to be inserted from Returnable Documents at award stage]**	**[●]**
C1.3	**Proforma Guarantees**	**[●]**

C1.1 Form of Offer & Acceptance

Offer

The *Employer*, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

The supply and replacement of the Inverters, and auxiliary system at Koeberg Operating Unit (KOU).

The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all of the obligations and liabilities of the *Contractor* under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the *conditions of contract* identified in the Contract Data.

Options A	The offered total of the Prices exclusive of VAT is	**R**
	The first forecast of the total Defined Cost plus the Fee exclusive of VAT is	**R**
	Sub total	
	Value Added Tax @ 15% is	**R**
	The offered total of the amount due inclusive of VAT is[1]	**R**
	(in words)	

This Offer may be accepted by the *Employer* by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s) .....

Name(s) .....

Capacity .....

For the tenderer: .....

(Insert name and address of organisation)

Name & signature of witness ..... Date .....

Tenderer's CIDB registration number (if applicable) .....

[1] This total is required by the *Employer* for budgeting purposes only. Actual amounts due will be assessed in terms of the *conditions of contract*.

Acceptance

By signing this part of this Form of Offer and Acceptance, the *Employer* identified below accepts the tenderer's Offer. In consideration thereof, the *Employer* shall pay the *Contractor* the amount due in accordance with the *conditions of contract* identified in the Contract Data. Acceptance of the tenderer's Offer shall form an agreement between the *Employer* and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work: Works Information
Part C4	Site Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the *Employer* during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the *Employer*'s agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy signed between them of this document, including the Schedule of Deviations (if any).

Unless the tenderer (now *Contractor*) within five working days of the date of such receipt notifies the *Employer* in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

Signature(s)		
Name(s)		
Capacity		
for the *Employer*		
	(Insert name and address of organisation)	
Name & signature of witness		Date

Note: If a tenderer wishes to submit alternative tenders, use another copy of this Form of Offer and Acceptance.

Schedule of Deviations to be completed by the *Employer* prior to contract award

Note:

1. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.

2. The extent of deviations from the tender documents issued by the *Employer* prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.

3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1	**[●]**	**[●]**
2	**[●]**	**[●]**
3	**[●]**	**[●]**
4	**[●]**	**[●]**
5	**[●]**	**[●]**
6	**[●]**	**[●]**
7	**[●]**	**[●]**

By the duly authorised representatives signing this Schedule of Deviations below, the *Employer* and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the *Employer* during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

	For the tenderer:	**For the *Employer***
Signature	.....	.....
Name	.....	.....
Capacity	.....	.....
On behalf of	..... *(Insert name and address of organisation)*	..... *(Insert name and address of organisation)*
Name & signature of witness	.....	.....
Date	.....	.....

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer.*

Completion of the data in full, according to the Options chosen, is essential to create a complete contract.

Clause	Statement	Data	
1	**General**		
	The *conditions of contract* are the core clauses and the clauses for main Option	**A:**	**Priced contract with activity schedule**
	dispute resolution Option	**W1:**	**Dispute resolution procedure**
	and secondary Options	**X1:**	**Price adjustment for inflation**
		X2:	**Changes in the law**
		X3:	**Multiple currencies**
		X5:	**Sectional Completion**
		X7:	**Delay damages**
		X13:	**Performance Bond**
		X16:	**Retention**
		X18:	**Limitation of liability**
		Z:	**Additional conditions of contract**
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)		
10.1	The *Employer* is (Name):	**Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state-owned company incorporated in terms of the company laws of the Republic of South Africa.**	
	Address	**Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg**	
	Represented by:	**Mr Danie Möller**	
	Tel No.	**+27 21 522 1747**	
10.1	The Project Manager is: (Name)	**Mr Witness Tafeni**	
	Address	**Eskom Holdings SOC Limited Koeberg Nuclear Power Station R27, off West Coast Road Melkbosstrand Republic of South Africa 7441**	
	Tel	**+27 (0) 21 522 3811**	
10.1	The Supervisor is: (Name)	**Mr Sipho Sangweni**	
	Address	**Eskom Holdings SOC Limited**	

		Koeberg Nuclear Power Station **R27, off West Coast Road** **Melkbosstrand** **Republic of South Africa** **7441**
	Tel No.	**+27 (0) 21 550 5018**
11.2(13)	The works are	**The supply and replacement of the inverters, and auxiliary system at Koeberg Operating Unit (KOU).**
11.2(14)	The following matters will be included in the Risk Register	• **Matters notified under early warning and** • **Decisions resulting from risk reduction meetings.**
11.2(15)	The boundaries of the Site are	**The areas associated with the scope of work to be performed, within the boundaries of Koeberg Operating Unit.**
11.2(16)	The Site Information is in	**Part C4: Site Information**
11.2(19)	The Works Information is in	**Part C3: Scope of Work and all documents and drawings to which it makes reference.**
12.2	The law of the contract is the law of	**the Republic of South Africa**
13.1	The language of this contract is	**English**
13.2	A communication is regarded as received by the addressee	**when the complete communication has been retrieved from the information system designated / used for that purpose or physically received by the addressee.**
13.3	The period for reply is	• **2 (two) weeks during non-outage periods** • **24 hours during outage** • **Periods for review as stated in the Works Information.**
2	**The *Contractor's* main responsibilities**	**Data required by this section of the core clauses is provided by the *Contractor* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.**
3	**Time**	
11.2(3)	The completion date for the whole of the works is	**31 May 2029**
11.2(9)	The *key date*s and the *condition*s to be met are:	

	***Condition* to be met**	***key date***
1	**Submission of an acceptable inverter design and documentation (i.e., maintenance basis, manuals, critical spares list etc) to the Project Manager for acceptance and authorisation by the *Employer*.**	**As per first accepted programme**
2	**Manufacturing and supply of inverters by the *Contractor.***	**As per first accepted programme**

3	**Delivery of Long Lead Equipment.**	**As per first accepted programme**
4	**Submission and acceptance of the factory test procedure.**	**As per first accepted programme**
5	***Contractor* to perform Factory Acceptance Testing (FAT) with the *Employer* and Supervisor's representative.**	**As per first accepted programme**
6	**Transportation and delivery of new inverters and auxiliary system.**	**As per first accepted programme**
7	**Submission of an acceptable SHE file for acceptance by the *Employer*.**	**Contract Date plus 8 weeks**
8	***Contractor* to perform Site Acceptance testing (SAT) for the Inverters with the *Employer*'s representative and supervisor.**	**As per accepted programme**
9	***Contractor* to perform receipt inspection of the Inverters with the Employers representative and the Supervisor.**	**As per accepted programme**
10	**Submission of detailed installation Design to the *Employer* for review and acceptance.**	**As per accepted programme**
11	**Delivery of Plant and Material onsite and performing receipt inspection of material together with the Supervisor and *Employer*'s representatives.**	**As per accepted programme**
12	**Submission of acceptable Safety Case for inverter system installation to the Project Manager for acceptance.**	**As per accepted programme**
13	**Submission of acceptable Site Work Package for the new inverter systems installation to the Project Manager.**	**As per accepted programme**
14	**Decommissioning and removal of the existing inverters**	**As per accepted programme**

		15	**Training of *Employer*'s personnel by the *Contractor***	**As per accepted programme**
		16	**Storage and or disposing of the removed Inverters**	**As per first accepted programme**
		17	**Submission of acceptable End of Implementation report for acceptance by the Project Manager and authorisation by the *Employer***	**As per accepted programme**
		18	**Submission of QADP for specific implementation**	**As per accepted programme**
30.1	The *access dates* are:	**Part of the Site**		**Date**
		1	**The Site**	**Contract date following completion of *Employer's* FFD process**
		2	**Access to available documentation**	**As per *starting date* in terms of the production plan rev 74a**
		3	**Access to Unit 1**	
		4	**Access to Unit 2**	
31.1	The *Contractor* is to submit a first programme for acceptance within	**One (1) weeks of the Contract Date. The programme must be compliant to NEC3 ECC Clause 31.2**		
31.2	The *starting date* is	**1 June 2024**		
32.2	The *Contractor* submits revised programmes at intervals no longer than	**Non-Outage: 2 weeks** **Outage period: one (1) day**		
35.1	The *Employer* is not willing to take over the *works* before the Completion Date.	[No data needed if this statement is included]		
4	**Testing and Defects**			
42.2	The *defects date* is	**One full life cycle after each Sectional Completion Date**		
43.2	The *defect correction period* is	**One (1) week of date of notification. If the Defect is of such a nature that it cannot reasonably be repaired in one week, the *Contractor* promptly notifies the *Project Manager* and submits a plan for correcting the Defect. The *Contractor* and *Project Manager* agree on a revised *defect correction period.* If no agreement is reached within 1 (one) week of the notification of the Defect, Core Clause 45.1 may be invoked.**		
	except that the *defect correction period* for	**the period during the installation outage after Completion of the particular Section of the *works*, where the *Contractor* is still on Site is two (2) days.**		

	and the *defect correction period* for	**the period during the next scheduled refuelling outage is determined by the nature of the Defect and shall be such period as is reasonable in all the circumstances. The defective part will be inspected by the *Contractor* and a decision made as to whether it can be repaired, or a replacement part ordered. The *Contractor* is responsible for providing working access to the Defect, including disassembly, opening up and closing of plant and Equipment and *works*, except if it was not in the scope of this contract.**

5 Payment

50.1	The assessment interval is	**between the 24th and 25th day of each successive month.**
50.2	The *expenses* stated by the *Employer* for Compensation Events are	**Item** / **Amount**

Accommodation	**Domestic hotel accommodation may not exceed R1 400 (one thousand four hundred rand) inclusive of VAT, per night per person (including dinner, breakfast and parking).**
Flights	**at cost with the following stipulations:** **Local flights –travel on economy class** **International flights –travel on economy class** **No business or first-class travel is allowed**
Car Hire	**At cost with the following stipulations:** **Group B or an equivalent class.** **Group B vehicles contain the following specifications:** **5 Doors, Manual** **Air Conditioning** **Radio/CD** **Power Steering** **Airbags, Central Locking** **ABS**
Airport parking charges, toll fees and taxis	**At cost**
The above is in terms of: **Government Gazette No.37042 dated 15 November 2013, Treasury Regulations (published under Government Notice R225 of 15 March 2005, as amended),** **Eskom's Directive for the Implementation of the National Treasury Cost Containment Instruction and Government Gazette (Ref: 240-78635659.**	

51.1	The *currency of this contract* is the	**South African Rand.**
51.2	The period within which payments are made is	**60 (sixty) days after receipt of a valid TAX invoice.**

51.4	The interest rate is	**the publicly quoted prime rate of interest (calculated on a 365 day year) charged from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and** **(ii) The *Contractor* to indicate the rate calculation they wish to use for foreign currency.**
6	**Compensation events**	
60.1(13)	The place where weather is to be recorded is:	**Koeberg Operating Unit Meteorological Station.**
	The weather measurements to be recorded for each calendar month are,	**the cumulative rainfall (mm)** **the number of days with rainfall more than 10 mm** **the number of days with minimum air temperature less than 0 degrees Celsius**
	The weather measurements are supplied by	• **Koeberg Operating Unit Meteorological Station.** • **Wind data to be measured by the crane anemometer and record thereof confirmed by the Supervisor.**
	The weather data are the records of past weather measurements for each calendar month which were recorded at:	**Koeberg Operating Unit Meteorological Station.**
	and which are available from:	**the South African Weather Bureau and included in Annexure A to this Contract Data provided by the *Employer***
60.1(13)	Assumed values for the ten-year return *weather data* for each *weather measurement* for each calendar month are:	**As stated in Annexure A to this Contract Data provided by the *Employer*.**
7	**Title**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
8	**Risks and insurance**	
80.1	These are additional *Employer*'s risks	• **Death of or personal injury to the *Employer*'s personnel.** • **Loss of or damage to the *Employer*'s existing property in excess of limits stated in Clause X18.2**
9	**Termination**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
10	**Data for main Option clause**	
A	**Priced contract with activity schedule**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**

11 Data for Option W1

W1.1	The Adjudicator is (Name)	**The referring Party selects 2 (two) persons from the panel of NEC Adjudicators set up by the ICE-SA Division (or its successor body) of the South African Institution (see www.ice-sa.org.za) and whose availability he has confirmed to act as the Adjudicator. The other Party selects 1 (one) of the 2 (two) nominees to be the Adjudicator within 4 (four) days, failing which the person chosen by the first party will be the Adjudicator. The parties appoint the selected Adjudicator under the NEC3 Adjudicator's Contract. If the Parties do not agree on an Adjudicator, the Adjudicator will be appointed by the Adjudicator nominating body.**
W1.2(3)	The Adjudicator nominating body is:	**the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.**
W1.4(2)	The tribunal is:	**Arbitration.**
W1.4(5)	The *arbitration procedure* is	**the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.**
	The place where arbitration is to be held is	**Cape Town, South Africa**
	The person or organisation who will choose an arbitrator - if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is	**the Chairman for the time being or his nominee of the Arbitration Foundation of Southern Africa (AFSA) or its successor body.**

12 Data for secondary Option clauses

X1	Price adjustment for inflation	**Contract Price Adjustment (CPA) is applicable to this transaction. The contract will be fixed for the first 12 months of the contract period; thereafter CPA with a stipulated fixed and variable portion will be linked to the appropriate indices.** **Staff rates are not variable with changes in salary paid to individuals except in the application of X1.**
X1.1(a)	The base date for indices is	**One month prior to closing of the tender**
X1.1(c)	The proportions used to calculate the Price Adjustment Factor are:	

proportion	linked to index for	Index prepared by
0.40	**People (Labour)**	**SEIFSA Table C-3 SEIFSA Index | Actual Labour Cost All Hourly-Paid Employees**
0.05	**Equipment**	**"Producer Price Index for selected materials" for construction machinery (excluding trucks) as published in the Statistical News Release**

				P0142.1, Table 12 of Statistics South Africa
		0.25	**Plant and materials**	**"Producer Price Index for materials used in certain industries" for Building and Construction: Building industries as published in the Statistical News Release P0142.1, Table 11 of Statistics South Africa**
		0.10	**Fuel (Diesel)**	**"Producer Price Index for selected materials" for diesel at wholesale level: Witwatersrand as published in the Statistical News Release P0142.1, Table 12 of Statistics South Africa**
		0.20	**Non-adjustable**	
	Total	**1.00**		

X1.4	**Price adjustment**	**Price adjustment for inflation is not applicable to a change in the Price for Work Done to Date since the assessment, for a change in the Price for Work Done for Date since last assessment after Completion Date for which delay damages in terms of Option X7 are applicable.**
X2	**Changes in the law**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**

X3 Multiple currencies

X3.1	The *Employer* will pay for these items or activities in the currencies stated	**Items & activities**	**Other currency**	**Maximum payment in other currency**
		[●]	**[●]**	**[●]**
		[●]	**[●]**	**[●]**
		[●]	**[●]**	**[●]**
		[●]	**[●]**	**[●]**

X3.1	The *Employer* will pay for these items or activities in the currencies stated	
X3.2	The *exchange rates* are those published in	**[●] on [●] (date)** **The items & activities will be paid in the other currency** **- to a foreign Bank account nominated by the *Contractor*** **- to a valid SARB approved CFC account in South Africa** **- in accordance with an alternative payment method agreed with the *Employer* before the Contract Date.** **(select one of the three methods as agreed with successful tenderer and delete the others and this note)**

X5 Sectional Completion

X5.1	The *completion date* for each *section* of the *works* is:	***Section***	**Description**	**Completion date**

		1	**Unit Complete**	**1**	**As per production plan rev 74a**
		2	**Unit Complete**	**2**	**As per production plan rev 74a**

X5 & X7	**Sectional Completion and delay damages used together**			
X7.1 X5.1	Delay damages for late Completion of the *section*s of the *works* are:			
	Delay damages for late Completion of the *section*s of the *works* are:	***section***	**Description**	**Amount per day**
		1	**Unit 1 Complete**	**R50 000.00**
		2	**Unit 2 Complete**	**R50 000.00**

X7	**Delay damages**	
X7.1	Delay damages for Completion of the remainder of the *works* are : R20 000 per day	
	The total delay damages payable by the *Contractor* does not exceed:	**20% of the total of the Prices at Contract Date**
X13	**Performance bond**	
X13.1	The amount of the performance	10% of the prices at the Contract Date
X16	**Retention**	
X16.1	The *retention free amount* is	**None**
	The *retention percentage* is	**10% of the Prices at the Contract Date. 5% to be released at the completion date of the of *works*, and 5% to be released at the end of Unit 2 defect period.**
X18	**Limitation of liability**	
X18.1	The *Contractor*'s liability to the *Employer* for indirect or consequential loss is limited to:	**R0.0 (zero Rand)**
X18.2	For any one event, the *Contractor*'s liability to the *Employer* for loss of or damage to the *Employer*'s property is limited to:	**the amount of the deductibles relevant to the event.**
X18.3	The *Contractor*'s liability for Defects due to his design which are not listed on the Defects Certificate is limited to	**The greater of** • **the total of the Prices at the Contract Date** **and** • **the amounts excluded and unrecoverable from the *Employer*'s assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.**
X18.4	The *Contractor*'s total liability to the *Employer* for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	**the total of the Prices other than for the additional excluded matters.** **The *Contractor's* total liability for the additional excluded matters is not limited.**

		The additional excluded matters are amounts for which the *Contractor* is liable under this contract for • **Defects due to his design which arise before the Defects Certificate is issued.** • **Defects due to manufacture and fabrication outside the Site,** • **Loss of or damage to property (other than the *works*, Plant and Materials),** • **Death of or injury to a person; and** • **Infringement of an intellectual property right.**
X18.5	The end of liability date is	**(i) 7 (seven) years after the defects date for latent Defects and** **(ii) the date on which the liability in question prescribes in accordance with the Prescription Act No. 68 of 1969 (as amended or in terms of any replacement legislation) for any other matter.** **A latent Defect is a Defect which would not have been discovered on reasonable inspection by the *Employer* or the *Supervisor* before the *defects date*, without requiring any inspection not ordinarily carried out by the *Employer* or the *Supervisor* during that period.** **If the *Employer* or the *Supervisor* do undertake any inspection over and above the reasonable inspection, this does not place a greater responsibility on the *Employer* or the *Supervisor* to have discovered the Defect.**
Z	**The Additional conditions of contract are**	**Z1 to Z15 always apply.**

Z1 Cession delegation and assignment

Z1.1 *The Contractor does not cede, delegate, or assign any of its rights or obligations to any person without the written consent of the Employer.*

Z1.2 Notwithstanding the above, the *Employer* may on written notice to the *Contractor* cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry and the Electricity Distribution Industry.

Z2 Joint ventures

Z2.1 If the *Contractor* constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the *Employer* for the performance of this contract.

Z2.2 Unless already notified to the *Employer*, the persons or organisations notify the *Project Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf.

Z2.3 The *Contractor* does not alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing.

Z3 Change of Broad Based Black Economic Empowerment (B-BBEE) status

Z3.1 Where a change in the *Contractor's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Contractor*'s B-BBEE status, the *Contractor* notifies the *Employer* within seven days of the change.

Z3.2 The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Project Manager* within thirty days of the notification or as otherwise instructed by the *Project Manager*.

Z3.3 Where, as a result, the *Contractor's* B-BBEE status has decreased since the Contract Date the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor*'s obligation to Provide the Works.

Z3.4 Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination. If the *Employer* terminates in terms of this clause, the procedures on termination are P1, P2 and P3 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

Z4 Confidentiality

Z4.1 The *Contractor* does not disclose or make any information arising from or in connection with this contract available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time). Should the *Contractor* disclose information to Others in terms of clause 25.1, the *Contractor* ensures that the provisions of this clause are complied with by the recipient.

Z4.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Project Manager*.

Z4.3 In the event that the *Contractor* is, at any time, required by law to disclose any such information which is required to be kept confidential, the *Contractor*, to the extent permitted by law prior to disclosure, notifies the *Employer* so that an appropriate protection order and/or any other action can be taken if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the *Contractor* may disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed.

Z4.4 The taking of images (whether photographs, video footage or otherwise) of the *works* or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the *Project Manager*. All rights in and to all such images vests exclusively in the *Employer*.

Z4.5 The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause.

Z5 Waiver and estoppel: Add to core clause 12.3:

Z5.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the *Project Manager*, the *Supervisor*, or the *Adjudicator* does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

Z6 Health, safety and the environment: Add to core clause 27.4

Z6.1 The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *works*. Without limitation the *Contractor*:
accepts that the *Employer* may appoint him as the "Principal *Contractor*" (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) ("the Construction Regulations") for the Site;

warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of *works*; and
undertakes, in and about the execution of the *works*, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

Z6.2 The *Contractor*, in and about the execution of the *works*, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

Z7 Provision of a Tax Invoice and interest. Add to core clause 51

Z7.1 Within one week of receiving a payment certificate from the *Project Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer*'s procedures stated in the Works Information, showing the amount due for payment equal to that stated in the payment certificate.

Z7.2 If the *Contractor* does not provide a tax invoice in the form and by the time required by this contract, the time by when the *Employer* is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the *Employer* in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.

Z7.3 The *Contractor* (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the *Employer*'s VAT number 4740101508 on each invoice he submits for payment.

Z8 Notifying compensation events

Z8.1 Delete from the last sentence in core clause 61.3, "unless the *Project Manager* should have notified the event to the *Contractor* but did not".

Z8.2 Add to core clause 62.3, "The *Project Manager's* reply which is an acceptance of a quotation for a compensation event may require the due authority of the *Employer*."

Z8.3 Add to core clause 62.5, "The *Project Manager* notifies the *Contractor* if the *Employer's* authority is required and includes in his notification any extension to the period within which he is required to reply to the *Contractor's* quotation."

Z9 *Employer*'s limitation of liability

Z9.1 The *Employer's* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00 (zero Rand)

Z9.2 The *Contractor*'s entitlement under the indemnity in 83.1 is provided for in 60.1(14) and the *Employer*'s liability under the indemnity is limited.

Z10 Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet point, after the words "against it":

Z10.1 or had a judicial management order granted against it.

Z11 Addition to secondary Option X7 Delay damages (if applicable in this contract)

Z11.1 If the amount due for the *Contractor*'s payment of delay damages reaches the limits stated in this Contract Data for Option X7 or Options X5 and X7 used together, the *Employer* may terminate the *Contractor*'s obligation to Provide the Works using the same procedures and payment on termination as those applied for reasons R1 to R15 or R18 stated in the Termination Table.

Z12 Ethics

For the purposes of this Z-clause, the following definitions apply:

Affected Party means, as the context requires, any party, irrespective of whether it is the *Contractor* or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all of these parties' relatives or friends,

Coercive Action means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,

Collusive Action means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,

Committing Party means, as the context requires, the *Contractor*, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractor or the Subcontractor's employees,

Corrupt Action means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,

Fraudulent Action means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,

Obstructive Action means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and

Prohibited Action means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

Z12.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z12.2 The *Employer* may terminate the *Contractor*'s obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Contractor* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Employer* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Employer* can terminate the *Contractor*'s obligation to Provide the Services for this reason.

Z12.3 If the *Employer* terminates the *Contractor*'s obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.

Z12.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Employer* does not have a contractual bond with the Committing Party, the *Contractor* ensures that the Committing Party co-operates fully with an investigation.

Z13 Insurance

Z13.1 Replace core clause 84 with the following:

Insurance cover 84

84.1 When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in force.

84.2 The *Contractor* provides the insurances stated in the Insurance Table A.

84.3 The insurances provide cover for events which are at the *Contractor*'s risk from the starting date until the earlier of Completion and the date of the termination certificate.

INSURANCE TABLE A

Insurance against	Minimum amount of cover or minimum limit of indemnity
Loss of or damage to the *works*, Plant and Materials	The replacement cost where not covered by the *Employer*'s insurance. The *Employer*'s policy deductible, as at Contract Date, where covered by the *Employer*'s insurance
Loss of or damage to Equipment	The replacement cost
Liability for loss of or damage to property (except the *works*, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) caused by activity in connection with this contract	Loss of or damage to property *Employer*'s property The replacement cost where not covered by the *Employer*'s insurance. The *Employer*'s policy deductible, as at Contract Date, where covered by the *Employer*'s insurance. Other property The replacement cost. Bodily injury to or death of a person The amount required by applicable law
Liability for death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

Z13.2 Replace core clause 87 with the following:
The *Employer* provides the insurances stated in the Insurance Table B.

Insurance against or name of policy	**Minimum amount of cover or minimum limit of indemnity**
Assets All Risk	Per the insurance policy document
Contract Works insurance	Per the insurance policy document
Environmental Liability	Per the insurance policy document
General and Public Liability	Per the insurance policy document
Transportation (Marine)	Per the insurance policy document
Motor Fleet and Mobile Plant	Per the insurance policy document
Terrorism	Per the insurance policy document
Cyber Liability	Per the insurance policy document
Nuclear Material Damage and Business Interruption	Per the insurance policy document
Nuclear Material Damage Terrorism	Per the insurance policy document

INSURANCE TABLE B

Z14 Nuclear Liability

Z14.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, and is the holder of a nuclear licence in respect of the KNPS.

Z14.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

Z14.3 Subject to clause Z14.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

Z14.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.

Z14.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z 15 Asbestos

For the purposes of this Z-clause, the following definitions apply:

AAIA means approved asbestos inspection authority.

ACM means asbestos containing materials.

AL means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4 hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.

Ambient Air means breathable air in area of work with specific reference to breathing zone, which is defined to be a virtual area within a radius of approximately 30cm from the nose inlet.

Compliance Monitoring means compliance sampling used to assess whether or not the personal exposure of workers to regulated asbestos fibres is in compliance with the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.

OEL means occupational exposure limit.

Parallel Measurements means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.

Safe Levels means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.

Standard means the *Employer*'s Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.

SANAS means the South African National Accreditation System.

TWA means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4 hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

Z15.1 The *Employer* ensures that the Ambient Air in the area where the *Contractor* will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the regulations published in GNR 155 of 10 February 2002, under the Occupational Health and Safety Act, 1993 (Act 85 of 1993) ("Asbestos Regulations"). The OEL for asbestos is 0.2 regulated asbestos fibres per millilitre of air as a 4-hour TWA, averaged over any continuous period of four hours, and the short term exposure limit of 0.6 regulated asbestos fibres per millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.

Z15.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are effected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor*'s expense. For the purposes of compliance the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z15.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.

Z15.3 The *Employer* manages asbestos and ACM according to the Standard.

Z15.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented, and relevant air monitoring conducted in order to declare the area safe.

Z15.5 The *Contractor*'s personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.

Z15.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.

Z15.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer*'s expense, and conducted in line with South African legislation.

Annexure A: One-in-ten-year-return *weather data* obtained from SA Weather Bureau for [weather station]

If any one of these *weather measurements* recorded within a calendar month, before the Completion Date for the whole of the *works* and at the place stated in this Contract Data is shown to be more adverse than the amount stated below then the *Contractor* may notify a compensation event.

	Average Minimum Temperatures in Cape Town, South Africa (°C)	Average Maximum Temperature in Cape Town, South Africa (°C)	Cape Town Average Temperature (°C)	Average Sea Temp (°C)	Average Precipitation/ Rainfall (mm)	Wet Days (>0.1 mm)	Average Sunlight Hours/ Day	Relative Humidity (%)	Average Wind Speed in Cape Town (Beaufort)	Average Number of Days with Frost	
Weather in Cape Town in January	16	26	21	19	16	4	10.9	71	4	0	*Average Temperature in Cape Town in January*
Weather in Cape Town in February	16	26	21	18	15	4	10.4	73	4	0	*Average Temperature in Cape Town in February*
Weather in Cape Town in March	14	25	20	17	22	5	9.1	77.0	3	0	*Average Temperature in Cape Town in March*
Weather in Cape Town in April	12	22	17	17	51	8	6.9	80	3	0	*Average Temperature in Cape Town in April*
Weather in Cape Town in May	10	20	15	16	97	12	5.9	83	3	0	*Average Temperature in Cape Town in May*
Weather in Cape Town in June	8	18	13	16	108	13	6.0	83	3	0	*Average Temperature in Cape Town in June*
Weather in Cape Town in July	7	17	12	15	94	13	5.7	83	3	0	*Average Temperature in Cape Town in July*
Weather in Cape Town in August	8	18	13	15	85	12	6.4	82	3	0	*Average Temperature in Cape Town in August*
Weather in Cape Town in September	9	19	14	15	57	10	7.2	79	3	0	*Average Temperature in Cape Town in September*
Weather in Cape Town in October	11	21	16	16	40	9	8.9	76	4	0	*Average Temperature in Cape Town in October*
Weather in Cape Town in November	13	23	18	17	25	6	9.9	74	4	0	*Average Temperature in Cape Town in November*
Weather in Cape Town in December	14	25	19.5	18	19	5	11.1	71	4	0	*Average Temperature in Cape Town in December*

Only the difference between the more adverse recorded weather and the equivalent measurement given above is taken into account in assessing a compensation event.

C1.2 Contract Data

Part two - Data provided by the *Contractor*

Notes to a tendering *contractor*:

1. Please read both the NEC3 Engineering and Construction Contract (April 2013) and the relevant parts of its Guidance Notes (ECC3-GN)[2] in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 156 to 158 of the ECC3 (April 2013) Guidance Notes.
2. The number of the clause which requires the data is shown in the left-hand column for each statement however other clauses may also use the same data.
3. Where a form field like this [ ] appears, data is required to be inserted relevant to the option selected. Click on the form field ***once*** and type in the data. Otherwise, complete by hand and in ink.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

Clause	Statement	Data
10.1	The *Contractor* is (Name): Address Tel No. Fax No.	
11.2(8)	The *direct fee percentage* is **Note: *direct fee percentage* is applied to the Defined Cost of other work** The *subcontracted fee percentage* is **Note: *subcontracted fee percentage* is applied to the Defined Cost of subcontracted work**	**%** **%**
11.2(18)	The *working areas* are the Site and **Note: It is important that the *Contractor* fully describes the Working Areas to include not just the Site (the boundaries of which are defined by the *Employer* in Contract Data Part 1) but all areas where work connected with the contract is to be performed.** **With the exception of manufacture, fabrication and design work, which may be performed outside the working areas and paid as such, only the cost of resources working within the Working Areas qualify as Defined Cost for payment purposes. Hence the importance of fully describing the Working Areas.**	
24.1	The *Contractor's* key persons are: **Please insert the name, job, responsibilities, qualifications and experience of its key people. Provide for additional key persons if necessary** **Note: Ensure that the key people listed have direct involvement with the contract (not CEO, MD, ED's of company or parent company unless the individual has an active role in the contract)** 1 Name:	

[2] Available from Engineering Contract Strategies Tel 011 803 3008, Fax 011 803 3009 or see www.ecs.co.za

	Job: Responsibilities: Qualifications: Experience: 2 Name: Job Responsibilities: Qualifications: Experience:	**CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .**
11.2(14)	The following matters will be included in the Risk Register **Note: The listing of risks on the Risk Register does not have the effect of fixing either of the parties with any particular risk.**	
11.2(19)	The Works Information for the *Contractor*'s design is in:	
31.1	The programme identified in the Contract Data is	
A	**Priced contract with activity schedule**	
11.2(20)	The *activity schedule* is in **Note: The Activity Schedule is used for payment purposes** **Please insert a reference to the list of activities prepared by the Tenderer which he expects to carry out in Providing the Works indicating a lump sum for each activity**	
11.2(30)	The tendered total of the Prices is	**(in figures)** **(in words), excluding VAT**
	Data for Schedules of Cost Components	*Note "SCC" means Schedule of Cost Components starting on page 60, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).*
A	**Priced contract with activity schedule**	**Data for the Shorter Schedule of Cost Components**

41 in SSCC	The percentage for people overheads is: • **Relevant People costs (such costs being those paid by the *Contractor*, including legally required and pension payments, for those people directly employed or paid by the *Contractor* according to the time worked and whose place of work is within the Working Areas) are determined by reference to the "Shorter Schedule of Cost Components". The Tenderer then applies to those costs as a percentage for people overheads.** • **This has the same purpose as the percentage for Working Area overheads but is for use only when the Shorter Schedule of Cost Components is used.** • **The Shorter Schedule is used with Options A for the purposes of assessing compensation events.** • **Please insert percentage**			
21 in SSCC	The published list of Equipment is the last edition of the list published by **Note: If there is no Equipment listed in the Contract Data or a published list then the Equipment should be assessed at tendered rates or open market rates.**			
	The percentage for adjustment for Equipment in the published list is	Minus **%**		
22 in SSCC	The rates of other Equipment are:	**Equipment**	**Size or capacity**	**Rate**
	Note: For use with the Shorter Schedule of Cost Components			
61 in SSCC	The hourly rates for Defined Cost of the design outside the Working Areas are **Note: Hourly rates are estimated "cost to company of the employees' and not selling rates, applicable costs only are incurred outside the Working Area** **For use with the Shorter Schedule of cost Components**	**Category of Employee**	**Hourly Rate**	
62 in SSCC	The percentage for design overheads is **Note: a percentage to cover the overhead costs in relation to design outside the Working Areas** **Note: For use with e Shorter Schedule of Cost Components**	**%**		
63 in SSCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:			

C1.3 Forms of Securities

Pro formas for Bonds & Guarantees

For use with the NEC3 Engineering & Construction Contract

[Note to contract compiler:
Once it has been decided which securities are required for this contract delete from this file the ones not required, revise the notes below accordingly and delete this note.]

The *conditions of contract* stated in the Contract Data Part 1 include the following Secondary Options:

Option X13: Performance Bond

Each of these secondary Options requires a bond or guarantee "in the form set out in the Works Information". Pro forma documents for these bonds and guarantees are provided here for convenience but are to be treated as part of the Works Information.

Option X16: Retention

The *Contractor* may provide a Retention Money Guarantee in the form stated here. When the *Employer* receives and accepts a Retention Money Guarantee exactly in the form stated he will instruct the *Project Manager* not to assess any amount be retained in terms of secondary Option X16.

The organisation providing the bond / guarantee does so by copying the pro forma document onto his letterhead without any change to the text or format and completing the required details. The completed document is then given to the *Employer* within the time stated in the contract.

Pro forma Performance Bond – Demand Guarantee (for use with Option X13)

(to be reproduced exactly as shown below on the letterhead of the Contractor's Parent Company)

Eskom Holdings SOC Ltd
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs

Reference No. **[●]** *[Drafting Note: Bank reference number to be inserted]*

Performance Bond – Demand Guarantee: *[Drafting Note: Name of Contractor to be inserted]*

Project [ ] Contract Reference: …… *[Drafting Note: Contractor contract reference number to be inserted]*

1. In this Guarantee the following words and expressions shall have the following meanings:-
   1.1 "Bank" - means [●], [●] Branch, (Registration No. [●]); [Drafting Note: Name of Bank to be inserted]
   1.2 "Bank's Address" - means [●]; [Drafting Note: Bank's physical address to be inserted]
   1.3 "Contract" – means the written agreement relating to the Project, entered into between Eskom and the *Contractor*, on or about the [●] day of [●] 200[●] (Contract Reference No. [.]as amended, varied, restated, novated or substituted from time to time; [Drafting Note: Signature Date and Contract reference number to be inserted]
   1.4 "*Contractor*" – means [●] a company registered in accordance with the laws of [●] under Registration Number [●]. [Drafting Note: Name and details of *Contractor* to be inserted]
   1.5 "Eskom" - means Eskom Holdings SOC Ltd, a company registered in accordance with the laws of the Republic of South Africa under Registration Number 2002/015527/30].
   1.6 "Expiry Date" - means the date on which the Defects Certificate is issued in terms of the Contract.
   1.7 "Guaranteed Sum" - means the sum of R [●] ([●] Rand);
   1.8 "Project" - means [insert if applicable.].

2. At the instance of the *Contractor*, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of Eskom, as security for the proper performance by the *Contractor* of all of its obligations in terms of and arising from the Contract and hereby undertake to pay to Eskom, on written demand from Eskom received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.

3. A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:
   3.1 be signed on behalf of Eskom by a Group Executive, Divisional Executive, Senior General Manager, General Manager or its delegate;
   3.2 state the amount claimed ("the Demand Amount');
   3.3 state that the Demand Amount is payable to Eskom in the circumstances contemplated in the Contract.

4. Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:

   4.1 is and shall be absolute provided demand is made in terms of this bond in all circumstances; and

   4.2 is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.

5. The Bank's obligations in terms of this Guarantee:

   5.1 shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and

   5.2 shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed, by the fact that a dispute may exist between Eskom and the *Contractor*.

6. Eskom shall be entitled to arrange its affairs with the *Contractor* in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the *Contractor* or any variation under or to the Contract.

7. Should Eskom cede its rights against the *Contractor* to a third party where such cession is permitted under the Contract, then Eskom shall be entitled to cede to such third party the rights of Eskom under this Guarantee on written notification to the Bank of such cession.

8. This Guarantee:

   8.1 shall expire on the Expiry Date until which time it is irrevocable;

   8.2 is, save as provided for in 7 above, personal to Eskom and is neither negotiable nor transferable;

   8.3 shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;

   8.4 shall be regarded as a liquid document for the purpose of obtaining a court order; and

   8.5 shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the Courts of the Republic of South Africa.

   8.6 Any claim which arises or demand for payment received after expiry date will be invalid and unenforceable.

9. The Bank chooses domicilium citandi et executandi for all purposes in connection with this Guarantee at the Bank's Address.

Signed at _____ Date _____

For and behalf of the Bank

Bank Signatory: _____ Bank Signatory: _____

Witness: _____ Witness: _____
Bank's seal or stamp

Pro forma Retention Money Guarantee (may be used when Option X16 applies)

(to be reproduced exactly as shown below on the letterhead of the Bank providing the Guarantee)

Eskom Holdings SOC Limited
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs

Reference No. **[●]** *[Drafting Note: Bank reference number to be inserted]*

Retention Money Guarantee: *[Drafting Note: Name of Contractor to be inserted]*

Project [ ] : Contract Reference: *[Drafting Note: Contractor contract reference number to be inserted]*

1. In this Guarantee the following words and expressions shall have the following meanings:-

1.1 "Bank" - means [●], [●] Branch, (Registration No. [●]); [Drafting Note: Name of Bank to be inserted]

1.2 "Bank's Address" - means [●]; [Drafting Note: Bank's physical address to be inserted]

1.3 "Contract" – means the written agreement relating to the Project, entered into between Eskom and the Contractor, on or about the [●] day of [●] 200[●] (Contract Reference No. ……. as amended, varied, restated, novated or substituted from time to time; [Drafting Note: Signature Date and Contract reference number to be inserted]

1.4 "Contractor" – means [●] a company registered in accordance with the laws of [●] under Registration Number [●]. [Drafting Note: Name and details of Contractor to be inserted]

1.5 "Eskom" - means Eskom Holdings SOC Limited, a company registered in accordance with the laws of the Republic of South Africa under Registration Number 2002/015527/06

1.6 "Expiry Date" - means the date on which the Defects Certificate is issued in terms of the Contract.

1.7 "Guaranteed Sum" - means the sum of R [●] ([●] Rand); [Drafting Note: Insert amount of Retention Money Guarantee.].

1.8 "Project" - means the……..

2. At the instance of the Contractor, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of Eskom, as security for the proper performance by the Contractor of all of its obligations in terms of and arising from the Contract and hereby undertake to pay to Eskom, on written demand from Eskom received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.

3. A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:

3.1 be signed on behalf of Eskom by a director of Eskom or his authorised delegate.

3.2 state the amount claimed ("the Demand Amount');

3.3 state that the Contractor has failed to carry out his obligation(s) to rectify certain defect(s) for which he is responsible under the Contract (and the nature of such defect(s)) alternatively that the Demand

Amount is payable to Eskom in the circumstances contemplated in the Contract.

4. Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:

4.1 is and shall be absolute provided demand is made in terms of this bond in all circumstances; and

4.2 is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.

5. The Bank's obligations in terms of this Guarantee:

5.1 shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and

5.2 shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed, by the fact that a dispute may exist between Eskom and the Contractor.

6. Eskom shall be entitled to arrange its affairs with the Contractor in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the Contractor or any variation under or to the Contract.

7. Should Eskom cede its rights against the Contractor to a third party where such cession is permitted under the Contract, then Eskom shall be entitled to cede to such third party the rights of Eskom under this Guarantee on written notification to the Bank of such cession.

8. This Guarantee:

8.1 shall expire on the Expiry Date until which time it is irrevocable;

8.2 is, save as provided for in **7** above, personal to Eskom and is neither negotiable nor transferable;

8.3 shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;

8.4 shall be regarded as a liquid document for the purpose of obtaining a court order; and

8.5 shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the Courts of the Republic of South Africa.

8.6 Any claim which arises or demand for payment received after expiry date will be invalid and unenforceable.

9. The Bank chooses domicilium citandi et executandi for all purposes in connection with this Guarantee at the Bank's Address.

Signed at _____ Date _____ Bank's seal or stamp

For and behalf of the Bank

Bank Signatory: _____ Bank Signatory: _____

Witness: _____ Witness: _____
Bank's seal or stamp

PART 2: PRICING DATA
ECC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	
C2.2	The *activity schedule*	

C2.1 Pricing assumptions: Option A

1. How work is priced and assessed for payment

Clause 11 in NEC3 Engineering and Construction Contract, (ECC3) Option A states:

Identified and defined terms	11 11.2	(20) The Activity Schedule is the *activity schedule* unless later changed in accordance with this contract. (27) The Price for Work Done to Date is the total of the Prices for each group of completed activities and each completed activity which is not in a group. A completed activity is one which is without Defects which would either delay or be covered by immediately following work. (30) The Prices are the lump sum prices for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

This confirms that Option A is a lump sum form of contract where the work is broken down into activities, each of which is priced by the tendering contractor as a lump sum. Only completed activities are assessed for payment at each assessment date; no part payment is made if the activity is not completed by the assessment date.

2. Function of the Activity Schedule

Clause 54.1 in Option A states: “Information in the Activity Schedule is not Works Information or Site Information”. This confirms that specifications and descriptions of the work or any constraints on how it is to be done are not included in the Activity Schedule but in the Works Information. This is further confirmed by Clause 20.1 which states, “The *Contractor* Provides the Works in accordance with the Works Information”. Hence the *Contractor* does **not** Provide the Works in accordance with the Activity Schedule. The Activity Schedule is only a pricing document.

3. Link to the programme

Clause 31.4 states that “The *Contractor* provides information which shows how each activity on the Activity Schedule relates to the operations on each programme which he submits for acceptance”. Ideally the tendering contractor will develop a high-level programme first then resource each activity and thus arrive at the lump sum price for that activity both of which can be entered into the *activity schedule*.

4. Preparing the *activity schedule*

Generally, it is the tendering *contractor* who prepares the *activity schedule* by breaking down the work described within the Works Information into suitable activities which can be well defined, shown on a programme and priced as a lump sum.

The *Employer*, in his Instructions to Tenderers or in a Tender Schedule, may have listed some items that he requires the *Contractor* to include in his *activity schedule* and be priced accordingly.

It is assumed that in preparing his *activity schedule* the *Contractor:*

- Has taken account of the guidance given in the ECC3 Guidance Notes pages 19 and 20;
- Understands the function of the Activity Schedule and how work is priced and paid for;
- Is aware of the need to link the Activity Schedule to activities shown on his programme;
- Has listed and priced activities in the *activity schedule* which are inclusive of everything necessary and incidental to Providing the Works in accordance with the Works Information, as it was at the time of tender, as well as correct any Defects not caused by an *Employer's* risk;
- Has priced work he decides not to show as a separate activity within the Prices of other listed activities in order to fulfil the obligation to complete the *works* for the tendered total of the Prices.
- Understands there is no adjustment to the lump sum Activity Schedule price if the amount, or quantity, of work within that activity later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the Prices is as a result of a compensation event.

An activity schedule could have the following format:

Item No.	**Programme Reference**	**Activity description**	**Price**

C2.2 the *activity schedule*

Use this page as a cover page to the *Contractor*'s *activity schedule*.

Item No.	Programme Reference	Activity Description	Price (Excl. Vat)
1		*Project Manager*'s acceptance of inverter manufacturing design and documentation.	
2		Manufacturing and supply of inverters by the *Contractor*	
3		Submission and acceptance of the factory acceptance test procedure	
4		*Contractor* to perform Factory Acceptance Testing (FAT) with the *Employer's* and *Supervisor's* representatives	
5		Transportation and delivery of new inverters and auxiliary system.	
6		Site establishment	
7		Submission of an acceptable SHE file for acceptance by the *Employer*	
8		Submission of detailed design to the *Employer Project Manager* for review and acceptance	
9		Submission of an acceptable safety case for inverter system installation to the *Project Manager* for acceptance	
10		*Project Manager's* acceptance of safety case for inverter system installation.	
11		Submission of acceptable Site Work Package for the new inverter systems installation to the *Project Manager*, for his acceptance.	
12		Acceptance of Site Work Package for new inverter systems installation by the *Project Manager*	
13		Delivery of materials onsite and performing receipt inspection of the material together with the *Supervisor* and *Employer's* representative.	
14		Submission and acceptance of site acceptance test procedure	
15		*Contractor* to perform Site Acceptance Testing (SAT) for the Inverters with the *Employer's* representatives and *Supervisor*	
16		Decommissioning and removal of the existing obsolete inverter systems	
17		Storage and or disposing of the obsolete Inverters as per *Employer's* KOU processes	
18		Installation and commissioning of new inverter systems	
19		Training of *Employer*'s Personnel	
20		Submission and acceptance of Project Management Plan	
21		Submission and acceptable Project Quality Plan (PQP)	
		TOTAL (Excl. VAT)	

Activity Schedule**,** continue

NOTES:

- All prices and rates exclude VAT.
- The rates and prices are to remain fixed for the first 12 months of the contract period. Thereafter, the rates and prices will be subject to an annual adjustment with 20% remaining fixed for the contract period and 80% subject to adjustment. The applicable index shall be as per Option X1 of the Contract Data, base date One month prior to closing of the tender.
- When services are requested on a lump sum basis, the *Employer* may request a detailed breakdown of the cost for the relevant activities (all relevant comp events). The *Employer* then requires a detailed breakdown of the cost for the relevant activity based on the Price List.

PART 3: SCOPE OF WORK

Document reference	Title	No of pages
	This cover page	1
C3.1	*Employer*'s Works Information	
C3.2	*Contractor*'s Works Information	
	Total number of pages	

C3.1: *EMPLOYER*'S *WORKS* INFORMATION

1. Description of the *works*

1.1. Executive overview

The *works* the *Contractor* must perform are as follows at Koeberg Operating Unit (KOU)

- The compilation and submission of acceptable detailed design, procure, manufacture, testing, packaging, and loading. Transport and offload, training, installation and commissioning of the replacement inverters and auxiliary system as per TRS 09082A Revision 1
- to provide and perform quality control plan, factory acceptance testing, delivery, site storage, installation of the replacement inverters and auxiliary system, Site acceptance testing, training of personnel Updating all affected documents, supply of all necessary drawings and manuals, for the inverter system replacement and auxiliaries.

1.2. Executive overview

The replacement of the obsolete inverters at Koeberg Operating Unit (KOU). These inverters are an operating requirement that provide an uninterrupted, stable and continuous electrical power supply to critically essential plant as follows:

- Reactor protection systems (CSR).
- Unit control, regulation, protection, monitoring equipment (SR).
- Continuous supply to the outside plant (NSA); and
- Continuous supply to the security systems (NSA).

The existing inverters, Merlin Gerin (MG) 30 CS series range, have been in operation since commissioning of Koeberg Operation Units 1 and 2, in 1984 and 1985 respectively. These inverters have been in operation for almost 30 years; however, its electronic components only have an expected lifespan of 20 years.

The inverters are currently operating with the following risks:

- Spares unavailability
  - The OEM (MG) was taken over by a different supplier and the current supplier no longer has spares for the 30 CS series range.
- Obsolescence Component failures
  - An increase in component failure trend was noted. The increased component failure trend remains a concern as the component degradation affects the reliability of the inverters. One LNE switchboard failure resulted in a fallback to SD/RRA conditions.

1.2.1. Functional problems

- The MG 30 CS inverter type presents functional problems in that a voltage loss at the inverter output can occur, and there is a failure of the inverter automatic switchover operation, which is necessary to change the inverter configuration from “Normal Power Supply (Inverter)” to “Emergency Supply (MAINS standby).”
- An “Inverter Automatic Static Switching Unit” controls the automatic switchover operation. This operation starts automatically when an “inverter fault” is present. Functional problems (failures) are found at the Inverter Automatic Static Switching Unit level.
- The solution chosen for the problems resolution was to install an “additional electronic card equipped with a LMH 311 comparator integrated chip” on the current Inverter Electronic Card.

- This additional electronic card adds the detection of an “inverter internal voltage fault” and “a low (degraded) inverter output voltage”. These new features are not present in the installed Inverter Electronic Card.
- The solution allows for the inverter to shed its out load by automatic chop-over (automatic switchover) to the standby transformer-regulator (emergency power supply), due either to an inverter internal fault or a low voltage (degradation) in its output voltage.
- A modified electronic card was successfully tested on 5kVA inverters at TRISCATIN and GRAVELINES Nuclear Power Plants. These recently modified cards have been implemented on all the EdF Nuclear Power Stations using these inverters.
- The Électricité de France (EdF) position explains that this solution resolves the functional failures found in the inverter electronic cards and it improves the reliability of the power supply from the inverter by ensuring that an automatic switchover takes place to the emergency power supply in the event of an inverter voltage fault.

- Not aligned to CP1
  - CP1 Alignment Modification (Safety modifications undertaken by EdF) Screening Justification Report (KAP-F-01 – EDF177) and the associated EdF intervention dossier (CIG 735 revision B) describe the EdF modification. This modification consists of four upgrades:
    - Upgrade 1: Installation of a LED indication lamp on the 20 kVA inverters to indicate which inverter is the master. This modification applies to the three 20kVA inverters of the LNE switchboard.
    - Upgrade 2: Replacing all filament indication lamps with LED’s on both the 5 kVA and 20 kVA inverters. This modification applies to the LNA/B/C/D/E/F/G/H switchboard inverters.
    - Upgrade 3: Setting the upper voltage threshold to 150 V DC (5 kVA inverters). This modification applies to the LNA/B/C/D/F/G/H switchboard inverters.
    - Upgrade 4: Upgrading the Inverter Electronic Card with the installation of an additional printed circuit daughterboard on the Inverter Electronic Card, which detects an “inverter internal voltage fault” or “a low (degraded) inverter output voltage”, and causes the inverter loads to be supplied from the emergency transformer.

The *works* is rendered in accordance with the requirements stated in this Works information, which specifically includes the TRS 09082A Revision 1 - technical requirement specification for Inverter System Replacement at Koeberg Nuclear Power Station.

1.3. *Employer*’s objective and purpose of the *works*

It is the *Employer*s objective to contract with the *Contractor* to perform the *works*. The *works* include:

- all the *Contractor* activities that relate to the design, manufacturing, supply, packaging, transport, delivery, inspection, removal, installation, testing and commissioning oversight of the inverter system replacement
- In terms of the *Contractor* to prove through acceptance tests that the new inverters are acceptable,
- In terms of the responsibility of the *Contractor* to comply with all the requirements are acceptable.
- In terms of the responsibility of the *Contractor* to comply with all the requirements in the TRS 09082A Revision 1 and
- Supplier Development and Localisation (SD&L) opportunity.

2. DEFINITIONS AND ABBREVIATIONS

2.1. Definitions

Term	Definition
Access Control	The portion of an entry-control system that verifies authority and authorises access of personnel seeking entry into a controller area. *(Source: IEEE Standards Dictionary)*
Construction Health and Safety Agent	A competent person who acts as a representative for the *Contractor* in managing health and safety on a construction project for the *Contractor* and who has satisfied the registration criteria of the SACPCMP to perform the required functions.
Controlled disclosure	Controlled disclosure to external parties (either enforced by law, or discretionary).
Design	The process of devising a system, component, or process to meet the *Employer's* requirements, as specified in the Works Information. It is a decision-making process, in which the basic science, mathematics and engineering sciences are applied to meet the objective for the *works*.
Design Report	Certified Code Design Report. This report all of the required analyses to satisfy ASME Code Section lll requirements (limited to pressure boundary and attachments).
Designer	The *Contractor* appointed to perform the design activities in accordance with the Works Information
Include	If" include" is followed by other, specific, words it will not be construed as limiting the meaning of the general words preceding it, save where the word "similar" precedes the word "include"".
Including	If "Including" is followed by other, specific, words will not be construed as limiting the meaning of the general words preceding it, save where the word "similar" precedes the word "including".
Inverter	Equipment that converts dc power to ac power. It includes auxiliary devices such as transfer switches, alternate source transformers and regulators, input rectifiers (other than battery chargers), and isolation devices (e.g., blocking diodes).
Level 1 Programme	Executive summary or a project master programme. This is a major milestone type of programme which highlights major project activities, milestones, and key deliverables for the whole project.
Level 2 Programme	Management summary or summary master programme. Maintained as a summarisation of the Level 3 programme. It depicts the overall project broken down into its major components by area.
Level 3 Programme	The project coordination programme or publication programme. The Level 3 programme is maintained as an integrated rollup or summary of the Level 4 programme activities. The programme consists of a set of integrated Level 4 programmes based on Critical Path Methodology (CPM).

Term	Definition
Level 4 Programme	Execution programme or project working level programme. Level 4 is the detailed working level programme, and an expansion a Level 3 programme. This is the key working level CPM programme displaying the operations to be accomplished. The Level 4 programme may be for major sections of the work or for discrete processes such as a design, procurement and/or a commissioning etc.
Level 5 Programme	Detail programme. This is further breakdown of the activities of a Level 4 programme. This programme is used to map out the detailed tasks needed to coordinate day to day work in specific areas.
May	Denotes permission in *Employer* documentation.
Non-Outage	When the power station unit is operational
Others	Others working on this project as required by the *Employer* are as follows: • NNR; • *Employer's* Authorise Inspection Agency; • *Employer's* consultants; and • Consultants. The list is updated, by the *Project Manager*, each time a third parties contract is placed by the *Employer* or Others change
Outage	When the power station unit is shut down for maintenance and refuelling
Physical conditions	Referred under Core Clause 60.1(12) means natural physical conditions and man-made and other physical obstructions and pollutants, which the *Contractor* encounters at the Site when executing the *works*, e.g. sub-surface, hydro-logical conditions, etc., but excluding weather conditions.
Physical Security	The application of methods for preventing malevolent acts against safeguards and security interest, detecting such acts as they occur, and responding to such acts. (Source: IEEE Standards Dictionary)
Public domain	Published in any public forum without constraints (either enforced by law, or discretionary).
Quality Assurance	The maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production.
Requirement	A condition or capability needed by a user to solve a problem or achieve an objective.
Shall	Denotes a requirement in *Employer* documentation.
Should	Denotes a recommendation in *Employer* documentation.
Technical Lead	The provision of technical guidance, technical coordination, and technical leadership to the project, to ensure the *works* is suited for its designated purpose as stated in the Works Information.
Work Plan	A work plan is a project management plan by another name. It clearly articulates and outlines the steps needed to achieve a department-level or company-level end goal by setting milestones, deliverables, resources, budgetary requirements

2.2. Abbreviations

The following abbreviations are used in this Works Information:

Abbreviation	Description
ACP1	Access Control Point 1
ACP2	Access Control Point 2
AC	Alternating Current
ALARA	As Low As Reasonably Achievable
ASCC	Atmospheric Stress Corrosion Cracking
AR	Distribution Panel
ASME	American Stress Corrosion Cracking
DBE	Design Basis Event
CSR	Critically Safety Related
CSC	Construction Status Certificate
CRACK	Chemical restrictions and control at NOU
DC	Direct Current
DCIF	Documentation Change Identification Form
DDR	Document Change Request
DL	Inverter
DSE	System Description Manual (DSE is a French abbreviation)
EIA	Environment Impact Assessment
FAT	Factory Acceptance Testing
FFD	Fitness for Duty
FMEA	Failure Modes and Effects Analysis
LED	Light Emitting Diode
LCD	Liquid Crystal Display
LNi	Inverter System
MB	Maintenance Basis
MM	Maintenance Manual
MTR	Maintenance and Training Rig
NC	Non-Classified
NCR	Non-Conform Report
NNR	National Nuclear Regulator
NSA	Not Safety or Availability Related
NSF	No Safety Function
OE	Operating Experience
OEM	Original Equipment Manufacture
QA	Quality Assurance
OTS	Operating Technical Specification
QADP	Quality Assurance Data Package

Abbreviation	Description
RPC	Radiation Protection Certificate
SAT	Site Acceptance Testing
SR	Safety Related
SSC	System Structure Component
SSE	Safe Shutdown Earthquake
SWP	Site Work Package
TB	Switchboard
UPS	Uninterruptible Power Supplies
TRS	Technical Requirement Specification

3. Scope of the *works*

The general scope of the *works* for the inverter replacement modification at Koeberg Power Station comprises the following summary of TRS 09082A Rev1, from here on referred in this section to as the TRS:

- the design, procurement, supply, installation and commissioning of all inverters and associated switchboards, including new upgrades, as per TRS sections 2 to 9.
- the Contractor shall be responsible for compiling a detailed procurement specification to the supplier for the new inverter systems and switchboards as stipulated in section 7.8.1.2 of the TRS.
- the compilation and submission of acceptable inverter and system manufacturing design and reports as stipulated in Section 7 of the TRS to the *Project Manager* for acceptance,
- the compilation of the SAT and FAT procedures, perform the SAT and FAT, and submit accepted reports of all the inverter systems *as per section* 7.6 of the TRS*.*
- the manufacturing, supply of Plant and Material (21 inverter system and associated switchboards, including new upgrades).
- perform the SAT and submit accepted reports of all the inverter systems *as per section 7.6 of the* TRS*.*
- the transportation, delivery, and storage of all inverters to KNPS *as per section 7.3 of the* TRS*,*
- to compile and submit acceptable Work Plans to the *Supervisor* for acceptance*,*
- to provide and cater for all the rigging and scaffolding as required for the *works*,
- decommissioning, removal, and disposal of existing inverters,
- the installation and commissioning of the new inverters and auxiliary system,
- the replacement of the inverters with their associated switchboards, including new upgrades as listed in Table 1 below,
- to perform Unit 1 and 2 inverter installation during an outage. Train related inverter systems (A and shall be upgraded, fully commissioned and placed into service before the other train is taken out of service. The allocated window for each train modification (Train A and Train B) is seven days.
- perform the FAT and submit accepted reports of all the inverter systems *as per section 7.6 of the* TRS*.*
- provide installation, testing and commissioning oversight of the new inverters system and associated switchboards, including new upgrades,

- the compilation of acceptable end of intervention reports and submission to the *Project Manager* for acceptance,
- the compilation of training material and provision of training for the operation and maintenance of the new installed system,
- to identify the *Employer*'s procedures affected by the replacement of the inverters and auxiliary system, and provide procedure mark-ups for the operation of the equipment and maintenance of the new system,
- the compilation of acceptable "End of Implementation Reports" and submission to the *Employer* for acceptance,

Table 1: Inverter System replacement scope.

220 V AC	Existing Rating	Qty	Inverter boards	DC Volts	New upgrades
LNi Vital	5 kVA	8	1/2 LNA/B/C/D 001 DL	125	Bypass with stabiliser
LNE Continuous	20 kVA	6	1/2 LNE 001/2/3 DL/TB	230	30 kVA (new rating) 60 kVA bypass with stabiliser
Other inverters Continuous	5 kVA	3	9 LNF/G/H 001 DL/TB	125	5 kVA bypass with stabiliser
	50 kVA	2	6 SSC/D 001 DL 6 SSC/D 001/2 AR	230	50 kVA bypass with stabiliser
Maintenance and Training Rig inverter (MTR)	-	1	-	125	5 kVA UPS (charger and inverter), 5 kVA bypass with stabiliser
0LZC	8kVA	1	0LZC001DL	220	
Note: The inverters listed below have recently been replaced with new units. To facilitate standardisation of spares, training, etc., these new units shall be included into the scope of the replacement should the *Contractor* choose a different OEM from these 4 inverters.					
LMK Continuous	40 kVA	2	1/2 LMK 001 TB	220	The investment by KOU in these 4 inverters is R8.7 M. during the last 4 years.
KRT Continuous	10 kVA	2	1/2 KRT 001 DL	125	

3.1. Design Quality Requirements

In accordance with KLA-001, the importance classification for the various inverter systems involved in the new design are:

- LNA/B/C/D : CSR
- LNE : SR
- LNF : SR
- LNG/H : NSA
- SSC/D : NSA

The *Contractor's* design is a CSR design, performed by competent authorised designers in accordance with the Koeberg Design Control Standard', 331-86.

Authorised design reviewers shall conduct the design review in accordance with 331-86, the 'Koeberg Design Control Standard', and KGU-007, Guidelines for the Independent Review of Plant Design Changes'.

The design text shall comply with GGS-1168, 'Standard for Grammar, Spelling and Notation.

The design shall be submitted to the NNR for approval.

3.2. Installation.

The *Contractor* and Equipment Manufacturer shall have a Quality Management System (QMS) that is certified to ISO 9001:2015, or equivalent and conforms to the requirements of CFR 50 Appendix B, ASME NQA-1 or IAEA GSR Part 2.

The *Contractor* informs the *Project Manager* of the plant and material arrival on Site, in order for the *Contractor* to perform an 'Open Package and Receipt Inspection'. The *Supervisor* witnesses the open package and receipt inspection and review all associated documentation to ensure compliance.

Cable installation shall be carried out by the *Contractor* in accordance with the following Koeberg specifications:

- KBA 0015 M00 007 : Earthing Circuits
- KBA 1215 K00 007 : Technical Specification for Cable Installation
- KBA 1215 K00 031 : Cable Way Equipment according to Trains and Colours

3.3. Documentation update

3.3.1. Deliverable Documents

3.3.1.1. Detailed **Design**

The *Contractor* is responsible for compiling a detailed design in accordance with KSU-002 and 331-86. The detailed design for the new inverter systems and switchboards shall take into consideration the requirements of the Technical Requirement Specification (TRS) 09082A revision 1 and plant conditions. The detailed design shall be submitted to the *Project Manager* for review and acceptance.

3.4. *Employer*'s objectives and purpose of the work

It is the *Employer's* objective to contract with the *Contractor* to perform the *works*.

4. Management and start up.

4.1. Process

Any or all modifications performed at KOU are controlled in accordance with the *Employer's* procedure KAA-501 Revision 12. For the purposes of this contract, the following sections are applicable to providing the Works:

- Section F - Execution Detail Development
- Section G - Authorisation to Implement
- Section H - Schedule of Work
- Section I - Implementation
- Section J - Finalisation

4.2. Management meetings

Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:

4.2.1. Project kick-off meeting

Interval	**Location**	**Attendance by:**
Once	KOU Tele/Video Conference	*Project Manager, Employer*, *Contractor*, *Supervisor*, and Others as required

	Activity Description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
	Establishing the project team	**X**		• The *Project Manager* notifies the names of *Employer* key persons to support the *Contractor* with the Provision of the Works, in terms of the *Employer* functions.	Within 1 week after the Contract Date.	At kick-off meeting with *Employer*'s Org structure.
	Notification, venue, agenda and support documentation	**X**		• The *Project Manager* develops and notifies the agenda, venue and required support documentation for the meeting.	Within 2 weeks after the Contract Date.	An *Employer* systems engineer, operations representative and maintenance representative is present at the meeting.
	Execution and Minutes	**X**		• The *Project Manager* assumes chairmanship of the meeting, records and distributes the minutes of meeting.	Within 2 days of the meeting	
	Conclusion	**X**	**X**	• This activity is complete upon acceptance of the minutes of the kick-off meeting by both Parties.	In accordance with the Accepted Programme	Deliverable: Minutes of the kick-off meeting.

4.2.2. Risk reduction meetings

Interval	**Location**	**Attendance by:**
Adhoc	KOU	*Project Manager, Employer*, *Contractor*, *Supervisor*, and Others as required
At the risk reduction meetings items as prescribed in ECC Core Clauses 16.2 and 16.3 are discussed. The Risk Register is updated, by the *Project Manager,* and distributed within five days of the meeting.		

4.2.3. Operational meetings

Interval	**Location**	**Attendance by:**
During contract period	KOU or Tele/Video Conference	*Project Manager, Contractor*, *Supervisor*
An operational meeting is held, by tele- or video conference, if necessary, between the *Project Manager* and the *Contractor's* project manager to monitor and control the design, manufacturing and planning processes. Typical topics for discussion at this meeting will include *Contractor*'s reporting on the following: • Review of Project Progress (Programme) with specific focus on Key Dates and interim milestones; • Key Risks (threats) and Issues and, where applicable, identify and agree on associated preventive/contingent and recovery actions; • Review of Actions List; • Review of Communications.		

4.2.4. Implementation meeting for specific progress and feedback

Interval	**Location**	**Attendance by:**
Daily during implementation	**KOU**	***Contractor* and Supervisor**
The implementation meeting is held between the *Contractor* and *Supervisor*'s implementation support team, to report on implementation progress and review any risks, issues and *Employer* actions that need to be resolved in order to ensure smooth implementation of the *works*.		

4.2.5. QC Meetings during implementation

Interval	**Location**	**Attendance by:**
Daily during implementation	KOU	*Contractor* QC representative and *Employer* QC representatives
The *Contractor's* QC representatives provide reports from each meeting to the *Employer's* project QC Group. This report will cover: • Scheduled QC inspections for the period identified in the meeting. • Any new QC related issues identified since the last report, its status and action plan for resolution. • Status and progress on previously reported quality issues.		

4.2.6. Meetings of a specialist nature

Interval	**Location**	**Attendance by:**
Adhoc	Any	*Employer's* personnel*,* the *Project Manager, the Contractor*, the *Supervisor*, and Others as required
Meetings of a specialist nature may be convened by persons and at times and locations to suit the Parties, the nature and the progress of the *works*.		

4.2.7. "Table-Top" meetings

Interval	Location	Attendance by:
Adhoc	Any	*Employer's personnel, the Project Manager, the Contractor, the Supervisor, and Others as required*
To manage the occupancy of the Working Areas during implementation, the *Contractor* attends the "Table-Top" meetings with the *Employer's* Outage representative in order to discuss area workload and to integrate and schedule the *Contractor's* activities as such as to allow sufficient space for implementation.		

4.2.8. Post implementation meeting for project feedback and review

Interval	Location	Attendance by:
Post unit implementation	KOU	*Project Manager, Contractor* Senior Manager (not the *Contractor*'s project manager), *Contractor*'s *Project Manager*, *Supervisor, Employer's* personnel, Others as required
The post implementation meeting is held between the *Project Manager*, *Contractor* senior management, *Supervisor,* Outage control centre management and other line groups, to report on implementation issues and reviews. Share lessons learnt in order to ensure smooth implementation on the next implementation phase.		

All meetings are recorded using minutes or a register prepared and circulated by the person who convened the meeting. Records of these meetings shall be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting. All virtual meeting recordings must be made available.

Such recordings, minutes or register shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the person identified in the *conditions of contract* to carry out such actions or instructions. Confirmation of contract communications during operational meetings will, however, be considered as formal acknowledgement of receipt of a contract communication.

5. Documentation Control

5.1. Documentation and record management

- All documentation produced by the *Contractor* complies with the latest *Employer's* guide for technical writing - GGG-1299 - with date formats in accordance with ISO-8601 extended date format and measurements in metric units.
- All documentation, including drawings and operating and maintenance instruction manuals, are uniquely identified and cross-referenced with all related documents. Document deliverables are provided in electronic, searchable format (PDF) and includes all signatures obtained internally.
    - Once the document deliverable has been accepted by the *Employer*, the *Contractor* provides, in addition to the electronic submission, one hardcopy version of the document.
    - Where required, the *Contractor* may be requested to supply a document in its originally compiled format i.e. "Word", "Excel", "Visio" to facilitate the *Employer's* review or documentation updates. The *Contractor* provides, upon request, the documents in its originally compiled format.

- All new drawings submitted by the *Contractor* conforms to the *Employer's* drawing standard, KBA 0000 G00 1000
- The *Contractor* requests sequential drawing and document numbers from the *Employer* (where applicable).
- All new drawings are handed to the *Employer* in the electronic media (e.g.gn format) which is compatible to MicroStation V8i software program.
- All new drawings are sized to metric paper size standards (A4, A3 etc.).
- The *Contractor* identifies and provides the update requests for affected drawings, documents and procedures.
- The *Contractor* corrects all identified documentation / configuration anomalies required to implement the works and notify the *Project Manager* of any other.
- Programmes, prepared by the *Contractor*, for the works and accepted by the *Project Manager* are considered as records.
- Records are kept, by the *Contractor*, identifying generally the activities on the Site, labour on the Site, Equipment on the Site, Subcontractor work on the Site, delivery of material to the Site, list of any instructions given, weather conditions encountered, and any delays encountered on the Site.

5.2. Documentation to be provided by the *Employer*.

- The *Employer*, on request from the *Contractor*, provides copies of all applicable *Employer* standards, procedures, guides and forms.
- The *Employer* provides access to all available Site documentation required for providing the Works.
- Original component related design base information does not all reside with the *Employer*. In cases where such information is required and not available, the *Contractor* reverse engineers the basis as part of the *works*.
- The *Contractor* provides a list of persons that require authorisation, by the *Project Manager,* for requesting copies of Site documentation.
- The *Project Manager* only authorises the relevant personnel once the *Contractor* has signed the Confidentiality and Non-Disclosure Agreement.
- Copy requests are made in writing, to the *Project Manager,* and details the exact documentation identification numbers.
- Documentation is provided in accordance with the latest Accepted Programme.

5.3. Communication

All communication is addressed to the *Project Manager* or the *Supervisor*, as applicable to the ECC. All communication makes reference to:

- the contract number that is issued by the *Employer* (normally a 46000xxxxx number),
- the title of the contract,
- any previous references relating to the specific communiqué (i.e. a response to a *Project Manager*'s communication),
- the specific ECC clause under which the communication is issued,
- whether a reply is required; and
- a unique letter reference number.

The unique reference number to be used for written correspondence between the *Project Manager* and *Contractor* and vice versa is as follows:

- From the *Project Manager* to the *Contractor*: 46000…….. Z/E/C 0xxx
- From the *Contractor* to the Project Manager: 46000…….. Z/C/E 0xxx

with Z referring to the following categories:

- Z = C for letters associated with ECC clause 5, 6 or 9
- Z = R for letters not associated with ECC clause 5, 6 or 9

and xxx referring to the next sequential letter number.

All document deliverables transmitted to the *Project Manager* for review / acceptance / record / information are transmitted under formal communication with an associated document transmittal cover document. Related CDs or hardcopy documents are delivered with a hardcopy copy of the formal communication and/or document transmittal to the *Employer's* nominated information controller – situated on Site.

The title of each letter clearly summarises the purpose of the letter. In accordance with ECC Core Clause 13.7, each notification deals with only one specific issue at a time.

Where written and/or signed communication is required in terms of this Contract, the terms "writing" and "signed" or their analogous forms, will be construed as excluding sections 12 and 13 of the Electronic Communication and Transaction Act 25 of 2002, save that such a communication may be scanned after manual signature and then sent electronically.

In the case where letters are submitted electronically by means of email, the title of the letter is reflected in the subject line and only one letter is submitted per email.

5.4. Health and Safety Risk Management

5.4.1. Nuclear Safety

Achieving continuous improvement in nuclear safety requires a culture that encourages setting and maintaining high standards; identifying and resolving problems and deficiencies; openness to criticism and recommendations for improvement; and mutual respect and effective communication and independent oversight.

This culture can only be established if the *Contractor* is fully committed to its nuclear safety responsibilities. It is the *Employer's* requirement that the *Contractor* establishes and maintains such a culture.

The *Employers* requirements are stated in 238-219 (Level-1 Supplier Safety Culture Enhancement Programme (SCEP) Requirements)

5.4.2. Human performance

The Employer's requirements as detailed in 238-219 (Level-1 Supplier Safety Culture Enhancement Programme (SCEP) Requirements) requires *Consultant*s, performing work at KNPS (KOU), to demonstrate that they abide by the principles and practices of a healthy nuclear safety and human performance culture. The *Contractor* therefore needs to demonstrate that a working human performance programme is in place for the duration of the contract and/or project performed at the KOU.

The human performance programme links into the *Contractor*'s existing integrated management system and shares the following:

- It is part of continual business improvement,
- Leadership and commitment from top management determines its success,

- Sufficient supervision is exercised over activities,
- Relevant information is communicated to lower levels,
- The programme is stimulated by training and education,
- Fully documented,
- Implemented and auditable, and
- It provides assurance to customers and business partners.

The *Contractor* is therefore required to adopt a human performance programme that consists of the elements in the following sections in his effort to comply with the requirements of 238-219.

5.4.3. Human performance training

A formal (documented and auditable) training programme must be in place ensuring all workers on the contract are aware of and familiar with the principles of human performance, inter alia:

- Error-precursors
- Latent weaknesses

All workers are to be familiar in the practice of relevant error-reduction tools, consisting of the seven (7) tools used at KOU, as minimum:

- Self-Check (STAR)
- Peer Check
- Pre Job Brief
- Procedure Use
- Place Keeping (circle and slash)
- Questioning Attitude
- Effective Communication (3-way communication and repeat-backs)

Note: The KOU HP3 authorisation should only serve as a refresher to the Vendor's workers.

5.4.4. Reporting culture

The *Contractor* is required to have a process or means by which the workers (all organisational levels) can report issues and incidences that negatively (or have the potential to) affect performance, without fear of retaliation or punitive action.

The *Contractor*'s process must be such that the information is captured, analysed and the resulting corrective actions taken as a result of the reports are identified and tracked, for implementation and improvement. All such reported issues are shared with the KOU, for purposes of capturing in the KOU Corrective Action Programme (CAP).

5.4.5. Observation programme

It is desired (not expected) that the *Contractor* is capable of performing initial investigations into human performance events to determine the contributing factors (error precursors and organisational weaknesses). The *Contractor* must however support and co-operate with any such investigation by KOU.

The *Contractor* is required to have a process whereby workers' at-work behaviours in the field are observed and coached against a set of formalised best practice criteria. This is to reinforce the

desired standards and behaviours expected on the job Affected Property and to provide assurance that the *Contractor*'s workers and *Service Manager*s are adhering to standards. The *Contractor*'s workers must be coached where deviations from standards and expected behaviours are detected.

This information is captured, by the *Contractor*, in a means that allows review of previous observations performed for the identification of potential trends in worker behaviours that could potentially lead to an event. Actions are to be developed and implemented to address such trends. The *Contractor*'s process must have an auditable trail.

5.4.6. Human performance indicators

The *Contractor* is required to maintain indicators that reflect the human performance programme, consisting of:

- Number of reported issues / incidence / events reported by the *Contractor*'s staff,
- Percentage of closed corrective actions,
- Number of days between human-performance related events,
- Number of recorded observations and
- Percentage of critical observations (the percentage of total observations that recorded deviations and coaching)

To give effect to these requirements it is expected that the *Contractor* appoints a Human Performance Officer to each contract or project. This individual is to be appointed in a manager position that is separate and distinct from the *Contractor*'s project manager, Affected Property service manager or quality control representative roles.

The Human Performance Officer is required to implement and manage the above-noted processes, and provide regular reports on such to the *Contractor*'s site leadership and to the *Service Manager*.

As part of ensuring compliance, the KOU will include the *Contractor*'s human performance programme into its capability assessments and audits, for work at KOU, following a graded approach with regards to the products and *services* provided by the *Contractor*.

5.4.7. Human performance officer

The *Contractor* therefore implements a Human Performance (HP) program and for the duration of the project and appoints an on-site Human Performance Officer (HPO) for performance improvement on the project. This is priced separately as compulsory activities under the Price List.

Objectives for this individual:

- Anticipate and prevent active error at the job Affected Property

Discover and eliminate latent organisational weaknesses

- Ensuring the use of error preventing tools (HP Tools)

Human performance improvement by HPO:

- Site action plans and initiatives aimed toward specific human performance improvement opportunities for the *Contractor*;

Human performance improvement plans consistent with the *Contractor*'s defined performance measures

Observation programme performed by HPO:

- Reviewing and monitoring recurring errors and at-risk actions
- Identification of error-prone tasks and systems
- Trend analysis
- Performs *Contractor*'s on Affected Property organisational measurement of Human Performance (e.g., average number of days between events etc.)
- Identification of performance gaps
- Root Cause analysis targeted on human performance issues
- Identifying fundamental causes
- Common-cause analysis
- Identification of behaviours and their causal factors (e.g. error precursors)
- Identification of defences that failed to prevent undesirable consequences
- Identification of process and cultural causes of errors, violations, and failed defences
- Involve principal individuals in evaluations
- Suggests corrective or preventative actions of minor as well as major events.

Coaching and training performed by HPO:

- *Contractor* procedures and instructions
- *Employer* requirements and procedures
- Statutory and regulatory requirements.

HP Tools

HPO ensures the following tools are used within the *Contractor*'s organisation:

- Self-checking
- Peer-checking
- Concurrent verification
- Independent verification
- Stop if unsure
- Procedure use and adherence
- Pre-job briefings
- Post-job briefings
- Communication (3-way and phonetic alphabet)
- Questioning attitude
- Circle and slash

5.4.8. SHE Specification

The *Contractor* complies with the *Employer's* Level 1 Construction Safety, Health and Environment Procedure, number 32-136. SHE specification guidelines to which *Contractor* complies with are supplied by the *Employer*.

A project specific SHE file is to be created by the *Contractor* and submitted together with a completed copy of the Construction Regulations Checklist to the *Supervisor* for acceptance within 2 months of the *starting date* following which the *Contractor* maintains and updates the file.

It is to be noted that before any work can commence on Site, the *Contractor* must have performed a detailed risk assessment of the work to be performed and/or the work area where work is to be performed. The risk assessment is documented and discussed with the parties involved with the work and is to be submitted to the *Supervisor* for acceptance.

Personnel protective clothing as specified in the Act for all work, except work in the radiological controlled zone, is provided and is kept in good order by the *Contractor*. A hard hat (with chin strap), safety boots, ear plugs and safety glasses are mandatory safety Equipment at the Site. Where work is to be performed on the 7,5m level Electrical Building, the *Contractor* provides arc-flash suits. Protective clothing for work in the controlled zone is prescribed and is supplied by the *Employer*.

5.5. Incident Management:

The *Employer's* procedure 32-95 - Environmental, Occupational Health and Safety Incident Management Procedure, states the requirements for the effective management of incidents that may occur or could result in, occupational diseases/illnesses, fatalities, injuries, near misses, and/or environmental damage.

5.5.1. Reporting of SHE incidents:

All incidents occurring on site while Providing the Works shall be reported, to *Supervisor*, as soon as practicable but not later than the end of that shift (in terms of KAA-688) and in the event of an incident as defined in terms of Section 24 of the OHSACT, 85 of 1993 where someone dies, becomes unconscious, suffers the loss of a limb or part of a limb is also reported immediately to the Department of Labour by the *Contractor*.

The following are requirement for the *Contractor*, in terms of KAA – 688 -The Corrective Action Process:

- In the event of any incident or accident, a flash report is completed by the *Contractor* and submitted before end of shift or within 24hrs to the *Employer* and the *Supervisor*.
- The *Employer's* template for the flash report is included in the *Contractor's* health and safety plan.
- The *Supervisor* raises a Condition Report (CR) and captures the details on the Devonway.
- Where applicable, the *Supervisor* will mobilise an incident investigation team who will investigate the incident within 7 days, complete the *Employer's* corporate documentation, indicating the root causes, corrective actions and recommendations for submission to the *Employer's* OH&S Department.
- The *Contractor* must submit proof of corrective action within pre-determined due dates to the *Employer's* OH&S Department, who will then closeout the Condition Report (CR) and capture the details on the Devonway. Dependant on the incident, it may also be required that the *Contractor* presents the corrective action to the *Employer's* operating safety committee (KOSC).

5.5.2. Investigation and recording of incidents:

All incidents are investigated by the *Contractor* with the assistance of the *Supervisor*, to establish the direct, indirect and root cause of such incident as well as any reactive/preventative measures required and implemented to prevent a re-occurrence of such future incidents. Any such incident is recorded by the *Contractor* as required by General Administrative Regulation 9(1) of the OHSACT, 1993. The *Contractor* complies with the timeframes of investigating incidents as required in terms of General Administrative Regulation 9(2).

5.5.3. Environmental incidents

Environmental incidents could include but is not limited to:

- Release of effluent to the environment
- Non-compliance to station water permit conditions
- Non-compliance to station sewage permit
- Non-compliance to waste site permits
- Illegal dumping of waste
- Environmental Impact Assessments (EIA) not undertaken for projects
- Non-compliance to EIA Record of Decision (ROD)
- Cutting down of protected plant species
- Harming of protected animal species
- The *Supervisor* will inquire into all incidents including near–misses during *contractor* audits.

5.6. Health and safety plan

The *Contractor's* health and safety plan is the *Contractor's* proposal of how the work will be carried out considering the hazards expected and procedures.

The *Supervisor* reviews and accepts the health and safety plan according to 32-136. The construction regulation checklist with the required information must be included in the health and safety plan.

The *Contractor* ensures that contents of the health and safety plan for the project shall include at least:

- A copy of the principal *contractor* appointment letter.
- The scope of *works* /description of the work for which the *Contractor* was appointed.
- The *Contractor's* risk assessment including control/mitigation measures to address all the risks identified in terms of KGA-067 (Safety, Health and Environmental Risk Assessment Guide).
- The risk based legislative appointments made, by the *Contractor*, as required by the construction regulations.
- The risk based legislative checklists and registers to be completed, by the *Contractor*, as required by the construction regulations.
- Certified copies and proof of competencies of all *Contractor* appointees i.e. training certificates, permits, medical certificate of fitness and curriculum vitae where required.
- Copies of identity documents for *Contractor's* employees / workers appointed for the *works*.
- Accident/incident registers to be kept, by the *Contractor*, in the event of any incidents, including near misses. A copy of the *Employer's* flash report template is included in the *Contractor's* health and safety plan, should it be required in the event of an incident.
- Any waste management and pollution prevention by the *Contractor* – where required permits for dumping/incineration at authorised facilities. The *Contractor* must consult and comply with the *Employer's* applicable waste procedure KAE 012.
- Proof of the *Contractor's* registration and letter of good standing with COIDA or other registered insurer, Construction Industry Development Board (CIDB) and/ or Electrical *Contractor*s Board.
- A SHE Programme, compiled by the *Contractor*, using the template provided in KAA-768 rev 6
- The *Supervisor's* letter of acceptance of the health and safety plan is added as soon as it is obtained.

The *Contractor* submits the health and safety plan, 30 days prior to commencement of any part of the *works* on Site, to the *Supervisor*, who verifies whether contents for acceptance. The *Contractor's* health and safety plan will be returned to the *Contractor*, should it not contain the required information or where the necessary permits have expired.

The accepted *Contractor's* health and safety plan must be on the Site. Periodic audits are conducted to ensure that the *Contractor's* health and safety plan is implemented and maintained as the project progresses. Refer Construction Regulation 4(1) (d).

When the *Contractor* is required to review and update documentation on the *Contractor's* health and safety plan, the plan must be re-submitted to the *Supervisor* for acceptance.

5.6.1. Health and safety file

The *Contractor's* health and safety file is separate from the *Contractor's* health and safety plan. The *Contractor's* health and safety file is progressively populated with checks and inspections, as indicated in the *Contractor's* health and safety plan. Any drawings, designs, materials used, structural integrity testing and any other similar information applicable to the project will be placed on the *Contractor's* health and safety file.

The *Contractor's* health and safety file must be available on request and should be handed over to the *Supervisor,* prior to the Completion Date (Refer Construction Regulations 5(7) and 5(8)).

Depending on the nature of the *works* and detail of the information on the *Contractor's* health and safety file, e.g. asbestos work where there is a requirement for medical surveillance of workers who will be exposed to asbestos, it is recommended that the *Contractor* keeps these records for forty years, in terms of Asbestos Regulations 16(f).

Where the *Contractor's* employees / workers are exposed to hazardous chemical substances and where a medical surveillance was required, it is recommended that that the *Contractor* keeps these records for thirty years, as stipulated under the Hazardous Chemical Substances Regulations 9(f).

The *Contractor* ensures that all other medical surveillance requirements in terms of the OHS ACT, where applicable, are complied with for the *Contractor* and Sub-*contractor* organisations.

The *Contractor's* health and safety file is audited by the *Supervisor* or his delegate, to ensure that work is being carried out and the necessary checks and inspections are conducted in accordance with the *Contractor's* plan.

The minimum contents of a SHE File are indicated in 32-136.

5.6.2. Risk assessments

The *Contractor* appoints a competent risk assessor, in writing, to perform risk assessments (Construction Regulation 7(1)). The *Contractor* is however required to use the *Employer's* methodology and provide a project specific risk assessment with the *Contractor's* health and safety plan, submitted for review and acceptance by the *Supervisor*. The *Contractor's* risk assessment includes a monitoring and review plan as required by Construction Regulation 7(1). No work may commence on Site, until the *Contractor's* risk assessment has been accepted by the *Supervisor*.

The *Contractor* ensures that ergonomic hazards have been identified evaluated and addressed. As required by Construction Regulation 7(6). Hazards the *Contractor* must consider include:

- improper lifting techniques,
- continuous repetitive movements with body parts in extreme postures; and
- poor grips on tools or carrying containers with no handles.

Whenever changes to methods of working / manufacture or materials are introduced, the *Contractor's* risk assessment is reviewed, including controls and mitigation measures and submitted to the *Supervisor* for review and acceptance. Following acceptance, the *Contractor's* risk assessment must be placed in the health and safety plan, for implementation.

The *Employer's* risk assessment chart is completed, by the *Contractor*, during the *Contractor's* pre-job briefs and displayed at the entrances to those areas of the Site. The template is available from the *Supervisor*.

The *Contractor* ensures that all *Contractor*'s employees are informed, instructed and trained by a competent person regarding the hazards, risks and related work procedures. These employees must carry proof of such training, for the duration of the project. (Construction Regulation 7(9)).

With regard to environmental considerations, the *Contractor* ensures that any aspect from a product or activity that might have an impact on the air, water, marine and soil or which may have the potential to cause harm to the environment is addressed in the *Contractor's* risk assessment, in order to avoid any environmental incidents while Providing the Works. Where such impact cannot be avoided, the *Contractor* ensures that the necessary steps are taken to minimise and remediate such impact. (Refer to Section 28 of National Environmental Management Act, 1998).

Lists of expected hazards and risks at the KOU have been referenced in 32-136, as well as the Occupational Health Services Job Specification (reference KFV-SR-004), outlining the required physical attributes and personal protective safety Equipment. Some known hazards include:

- Safety: live electrical Equipment, working at heights, moving vehicles, floor openings, slippery floors, unguarded machinery, sharp tools, exposed blades, suspended loads, overhead pipelines, floor level pipelines, faulty portable electric tools, strong winds, poorly maintained high-pressure vessels, untrained staff doing hot work.
- Health: radiation exposure, dust, noise, snake/spider bites, bee stings, chemical fumes and splashes, asbestos lagging, prolonged awkward postures.
- Environmental: air emissions, marine spill, ionising radiation being released into environment, chemicals leaching into ground/soil, diesel/petrol spill, clearing of vegetation, disturbance of habitat.

5.6.3. Accident - Incident Reporting Protocol

The reporting of accidents/incidents is a legal requirement as outlined in the OHSACT, section14 (e)

The *Employer's* Corporate Procedure 32-95 (Rev 6) addresses the process that has to be followed by all Parties. The following table indicates the actions required and the timeframes in which to act.

Incident	Action	Timing
Near Miss	• Condition Report (Devonway). • Near Miss Card • Flash Report. No investigation required unless a trend develops or priority rating is high or extreme as per Procedure: 32-95, Rev 6.	Report incident before end of shift.

Incident	Action	Timing
Property Damage	• Condition Report (Devonway). • Flash Report. • 240-62989893 - Vehicle Accident Reporting form No investigation required unless a trend develops or rating is high or extreme as per 32-95, Rev 6.	Report incident before end of shift.
First Aid	• Condition Report (Devonway) • Flash Report. • Minor Injury form. • 240-77046688-*Employer*s Investigation Report (Complete sections: 1, 2, 6, 7, and 10). Accident/Incident investigation required as per 32-95, Rev 6.	• Report incident before end of shift. • Investigation completed within 7 days • Investigation report to be completed within 30 days.
Medical Injury	• Condition Report (Devonway). • Flash Report. • 240-77046688-*Employer*'s Investigation Report (complete sections: 1, 2, 6, 7, and 10). • *Employer*s Report (WCL II). • Resumption Report. • Annexure 1 Note: 1st medical, progress and final medical reports to be issued by medical practitioner	• Report incident before end of shift. • Investigation completed within 7 days. • Investigation report to be completed within 30 days.
LTI's	• Condition Report (Devonway). • Flash Report. • 240-77046688-*Employer*s Investigation Report (full document). • *Employer*s Report (WCL II). • Resumption Report. • Annexure 1 Note: 1st medical, progress and final medical reports to be issued by medical practitioner	• Report incident before end of shift. • Investigation completed within 7 days. • Investigation report to be completed within 30 days.
Fatality or Occupational Diseases	• Condition Report (Devonway). • Flash Report. • 240-77046688-*Employer*s Investigation Report (full document). • *Employer*s Report (WCL II). • Resumption Report. • Annexure 1 Note: 1st medical, progress and final medical reports to be issued by medical practitioner.	• Report incident before end of shift. • Investigation completed within 7 days. • Investigation report to be completed within 30 days.

5.6.4. Work Stoppages

- The employer may from time-to-time issue stop work/use instructions to address OHS incidents, danger to health and safety or concerns. This would normally include a mass briefing or information that has to be shared with the *Contractor* workers. The *Contractor* caters for such interruptions as part of the *Contractor*'s risk and includes for it under the Prices.
- These instructions do not include the total clearance of the Site, which will be accompanied with an instruction from the Project Manager under the ECC Core Clause 34.1.

5.6.5. *Employer*'s lifesaving rules

The *Contractor* complies with the *Employer's* five rules as stipulated in the *Employer*'s Management Directive 32-421. The *Employer* takes a ZERO TOLERANCE stance to violation of these rules:

- Rule 1: Open, isolate, test, earth, bond, and/or insulate before touch.
- Rule 2: Hook up at heights.
- Rule 3: Buckle up.
- Rule 4: Be sober.
- Rule 5: Permit to work.

5.7. Environmental Constraints and Management

5.7.1. Environmental impact

Environmental impact filtering is performed by the *Employer* in accordance with the following. This filtering record is included as part of the Scheme Design.

	Activity Description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
	Environmental Impact Assessment Filtering Phase.	**X**		• The *Contractor* completes the Environmental Impact Assessment Filtering in accordance with National Environmental Management Act 107 of 1998 • The EIA filtering is performed as part of the Scheme Design and submitted as an attachment to the Scheme Design.	In accordance with Accepted Programme	
	Acceptance by the *Project Manager*	**X**		• The *Project Manager* obtains acceptance from the *Employer's* Environmental Officer, with support from the *Contractor*.	Within 2 weeks of submittal.	Acceptance by the *Project Manager* is subject to acceptance by the *Employer's* Environmental Officer. This acceptance is obtained as part of the Scheme Design acceptance process.
	Environmental Impact Assessment Studies (where required)		**X**	• The *Contractor* provides the necessary input data to complete any additional EIA studies required for the relevant modification.	In accordance with Accepted Programme	
	Conclusion	**X**	**X**	• This activity is complete upon acceptance by the *Project Manager* of the EIA filtering.	In accordance with Accepted Programme	Deliverable: Environmental Impact Assessment Filtering form/report.

The following environmental constraints are to be noted relating to potential *working areas*:

6. Location and Environmental Conditions

6.1. The normal service conditions per functional location are as follow:

	Inverter Systems
Location	W211 (U1) and W251 (U2)
Maximum Temperature	40°C
Environment	Highly corrosive coastal environment
Humidity	35 – 85%
Radiation	Green Zone <25 µSv/h

6.1.1. Plant and Materials

The *Contractor* ensures that all Plant and Materials, services and work supplied in terms of this contract conform to all applicable environmental legislation and in the *Contractor's* residing country and to the *Employer's* environmental specifications. The *Contractor* ensures that the *Employer's* chemical restrictions and controls at Koeberg (CRACK) programme (KAA-751) are adhered to.

6.2. General Constraints

6.2.1. Laws and regulations to be complied with

Specific laws to be complied with include:

The *Contractor*, at its own expense, complies with:

- the Nuclear Energy Act 92 of 1982,
- the National Key Points Act 102 of 1980,
- the Protection of Information Act 84 of 1982,
- the Occupational Health and Safety Act 85 of 1993 and its regulations,
- the Basic Conditions of Employment Act 75 of 1997. The *Contractor* indemnifies the *Employer* against any claims, proceedings, compensation and cost arising from the *Contractor*'s transgression of the Act,
- the Labour Relations Act 66 of 1995,
- the Medicine and Related Substance Control Act 101 of 1965,
- the National Health Act 61 of 2003,
- the Compensation for Occupational Injuries and Diseases Act 130 of 1993, and
- all laws, regulations, bye-laws and requirements of local and other authorities which may be applicable to the works and as amended or replaced.

Where applicable, the *Contractor* complies with the *Employer's* Radiological Safety Regulations Programme, and in general, the whole framework of plant rules and regulations, which may be in force at the *Employer's* facilities from time to time.

While on the Site, the *Contractor* is at all times under the authority of the *Employer's* Power Station Manager for the purpose of giving effect to the provisions of the above. However, this does not in any way relieve the *Contractor* of his obligation to comply with the relevant legislation. Failure of the

Employer's Power Station Manager to act in any specific manner does not make him or the *Employer* liable to the *Contractor* in any manner for any matter which may arise as a consequence of such failure to act.

6.2.2. Confidentiality and publicity

The exchange between the Parties or the disclosure to third parties of information is subject to the provisions of the Nuclear Energy Act 92 of 1982, the National Key Points Act 102 of 1980, and the Protection of Information Act 84 of 1982. The *Contractor* agrees that neither the *Contractor* nor its employees, agents or sub-*contractor*s make any public statements or release to any third party (including the *Adjudicator*) any information concerning the performance of any work without first obtaining the written approval of the *Project Manager*. Requests to release information are co-ordinated by the *Project Manager* through the designated *Employer's* Commercial Manager or the *Employer's* Power Station Manager. The *Contractor* ensures adherence of its employees, agents and sub-*contractors* to this restriction.

6.2.3. Human performance training

A formal (documented and auditable) training programme must be in place ensuring all workers on the contract are aware of and familiar with the principles of human performance, inter alia:

- Error-precursors
- Latent weaknesses

  All workers are to be familiar in the practice of relevant error-reduction tools, consisting of the seven (7) tools used at KOU, as minimum:

- Self-Check (STAR)
- Peer Check
- Pre Job Brief
- Procedure Use
- Place Keeping (circle and slash)
- Questioning Attitude
- Effective Communication (3-way communication and repeat-backs)
- Note: The KOU HP3 authorisation should only serve as a refresher to the Vendor's workers.

6.2.4. Reporting culture

The *Contractor* is required to have a process or means by which the workers (all organisational levels) can report issues and incidences that negatively (or have the potential to) affect performance, without fear of retaliation or punitive action.

The *Contractor's* process must be such that the information is captured, analysed and the resulting corrective actions taken as a result of the reports are identified and tracked, for implementation and improvement. All such reported issues are shared with the KOU, for purposes of capturing in the KOU Corrective Action Programme (CAP).

6.2.5. Observation programme

It is desired (not expected) that the *Contractor* is capable of performing initial investigations into human performance events to determine the contributing factors (error precursors and organisational weaknesses). The *Contractor* must however support and co-operate with any such investigation by KOU.

The *Contractor* is required to have a process whereby workers' at-work behaviours in the field are observed and coached against a set of formalised best practice criteria. This is to reinforce the desired standards and behaviours expected on the job site and to provide assurance that the

Contractor's workers and supervisors are adhering to standards. The *Contractor's* workers must be coached where deviations from standards and expected behaviours are detected.

This information is captured, by the *Contractor*, in a means that allows review of previous observations performed for the identification of potential trends in worker behaviours that could potentially lead to an event. Actions are to be developed and implemented to address such trends. The *Contractor's* process must have an auditable trail.

6.3. *Employer*'s Site access control

6.3.1. Fitness for duty management

The *Contractor* adheres to the *Employer's* procedure regarding fitness for duty requirements for vendors and *contractor*s who are required to perform work inside the owner-controlled areas of KNPS (335-68). This document is not applicable to visitors. Accesses for visitors are dealt with in KAA-777.

The objective of the *Employer's* FFD programme is to provide reasonable assurance that the *Contractor's* plant workers will perform their tasks in a reliable and trustworthy manner and are not under the influence of any substance or suffer from any health impairment which in any way adversely affects their ability to safely and competently perform their duties. The FFD programme also gives reasonable assurance that the workforce has been trained and their technical competence has been assessed.

The *Employer's* FFD process is designed to only allow the *Contractor's* employees to perform work if they:

- Have valid identification documents,
- Have been declared free of drugs and alcohol,
- Have been declared healthy, physically able and free of any medical condition that could impair their ability to perform the work they have been appointed for,
- Have valid work permits,
- Have completed the security background verification process,
- Have the qualifications required for the task,
- Have the minimum plant access training required to work on site,
- Have been declared competent and authorised to perform the work they have been appointed for,
- Have received specific training required for the work they will be required to perform, and
- Have signed a non-disclosure agreement to protect the *Employer*'s information, they come in contact with.

6.3.2. FFD requirements before registration takes place.

Information the *Contractor's* employee must supply

- Identification document,
- Work permit (non-SA citizens),
- Qualifications,
- Curriculum Vitae (CV),
- Criminal record history, and
- Proof of residential address.

Forms that the *Contractor's* employee must sign

- Pre-placement medical examination,
- Baseline questionnaire for audiometry,
- Medical declaration,
- Security permit application,
- Consent to disclose criminal information (if the *Employer* is performing the criminal check);
- SAPS enquiry, and
- Non-disclosure agreement (protection of information)

6.3.2.1. Activities to be performed before the *Contractor's* arrival at the Site.

	Activity Description	***Project Manager Employer***	***Contractor***	**Requirements**	**Planning**	**Additional Notes**
	Recruitment & Selection		**X**	•	*Contractor's* own planning	
	ID Document		**X**	Proof of identification is required before that the *Contractor*'s employee is allowed to register on the FFD system.	*Contractor's* own planning	• The following identification documents are the only documents that shall be accepted as proof of identification. • South African Identification Book issued by the Department of Home Affairs. (Green ID) or • Valid Official Passport or • Valid Temporary Identification Document issued by the Department of Home Affairs.
	Proof of Residential Address		**X**	Proof of residential address is required before that the *Contractor's* employee is allowed to register on the FFD system.	*Contractor's* own planning	The proof may not be older than 3 months when the *Contractor's* employee is enrolled on the FFD system.
	CV and Qualifications		**X**	Authenticated qualifications to be presented before registration takes place	*Contractor's* own planning	• CVs of *Contractor* employees are included in the documents where this is required by the procedure. • The *Contractor's* employees must be in possession of his/her CV when he/she arrives on site to start the FFD process. • The *Contractor* is required to verify the authenticity of the qualifications that is required for the work that is to be performed on Site. The *Employer* retains the right to verify any tertiary qualification that an applicant is required to have to work in a specific discipline. • The *Contractor* ensures that his employee has the original (or certified copy) of the qualifications when he/she is registered on the FFD system. • Persons not in possession of the qualifications required by the *Employer* are not considered for employment by the *Contractor* (in that particular discipline).
	Criminal History		**X**	Assessment of criminal history	*Contractor's* own planning	• Terminate Process Hold Point • The criminal history of an applicant shall be assessed before access to the Site is considered. • SA citizens obtain their criminal history reports from the South African Police (SAPS). The report may not be older than 3 months when the *Contractor's*

	Activity Description	*Project Manager* / *Employer*	*Contractor*	Requirements	Planning	Additional Notes
						employee is enrolled on the FFD system. This service is also available from the *Employer's* Security section. South African applicants are required to give their consent to the *Employer* to obtain the relevant information from the SAPS. • Non South African citizens are required to provide proof of their criminal history. The criminal history report from their country's law enforcement agency or INPO (USA citizens only) is dated within three months of their required access date. • Persons with a criminal background that is deemed to be a security risk to the Site are not to be considered for employment by the *Contractor*. • The *Contractor's* employee will be in possession of the proof of criminal history when he/she arrives on site to start the FFD process.
	Complete Man Job Spec Form	X	X	*Contractor* to complete with *Project Manager*	*Contractor's* own planning	• The *Contractor* ensures that an occupational health services job specification form is completed, in conjunction with the *Project Manager*; for each of his employees and all signatures are obtained before the health assessment is arranged. • These forms are obtainable from the *Employer* at Koeberg. The form identifies the work scope, the occupational hazards that the *Contractor's* employee will be exposed to and the physical attributes that are required for the execution of the tasks. • The *Contractor's* employee will be in possession of the completed and signed occupational health services job specification form when he/she arrives on site to start the FFD process.
	Drug Test		X	Negative drug test to be presented before registration takes place	*Contractor's* own planning	• Terminate Process Hold Point • *Contractor* ensures that their employees have been tested for drugs before they arrive on site to start the FFD process. Persons with a positive drug test result are not considered for employment by the *Contractor*. • Persons with positive drug tests will not be allowed to register for the FFD process. • The *Contractor's* employees must be in possession of the drug test results when he/she arrives on site to start the FFD process.
	Health Assessment		X	Medical examination to be presented before registration takes place	*Contractor's* own planning	• Terminate Process Hold Point • The *Contractor* ensures that all his employees complete a health assessment before they arrive on site to start the FFD process. The occupational health services job specification form is required by the occupational health practitioner for the health assessment. • Applicants that are not declared fit to do the work specified in the occupational health services job specification form are

	Activity Description	*Project Manager* / *Employer*	*Contractor*	Requirements	Planning	Additional Notes
						not allowed to register on the FFD system. • Health assessments are only performed by *Employer* registered Occupational Health Practitioners. • The health assessment report is not older than 3 months when the *Contractor*'s employee is enrolled on the FFD system. • Persons that are not declared fit to perform the work specified in the occupational health services job specification form are not be considered for employment by the *Contractor*. • The *Contractor's* employee must be in possession of the medical assessment results and other relevant documentation when he/she arrives on site to start the FFD process.
	Work Permit		X	Work permits to be obtained before registration takes place	*Contractor's* own planning	• Terminate Process Hold Point • Non South African Citizens are required to be in possession of the relevant Work Permit as required by the Immigration Act before access is considered. • Persons not in possession of a valid work permit is not be considered for employment by the *Contractor*. • The *Contractor's* employee must be in possession of the original work permit when he/she arrives on site to start the FFD process.
	Registration on FFD System	X	X		*Contractor's* own planning	• *Contractor's* employees are registered on the *Employer's* FFD system by a person appointed by the *Employer*. This could be a *Contractor's* employee, if appointed by the *Employer.* The *Project Manager* is responsible to arrange this activity. Registration is only performed if the *Contractor*'s employee is in possession of all the documentation required for registration • If the *Contractor's* employee is in possession of all the required documents, the individual will be registered and issued with a bar coded form.
	Training Requirements Form	X	X	*Project Manager* and *Contractor* to supply	*Contractor's* own planning	• The scope of each *Contractor* employee's work requirements are to be assessed to identify the training and/or technical assessments that are required before work may commence. • All *Employer* training sessions includes an assessment at the end of each session. Persons that do not pass any training assessments and/or technical assessments as identified for the scope of work are not allowed to continue with the FFD process and shall be required to leave the Site. • The *Project Manager* identifies any specific training needs of each individual or group of individuals (based on the planned work scope) and ensures compliance to the training requirements identified for the specific duties before access to Site is considered.

	Activity Description	*Project Manager Employer*	*Contractor*	Requirements	Planning	Additional Notes
						• The *Contractor's* employee must be in possession of the training requirements form when he/she arrives on site to start the FFD process.
	FFD Bookings	X	X		*Contractor's* own planning	• *Contractor*'s employees are booked on the *Employer's* FFD system by a person appointed by the *Employer*. This could be a *Contractor*'s employee, if appointed by the *Employer*. • Timeslot availability for FFD training is dependent on *Employer*'s schedule. *Contractor* to make provision of this schedule in their planning programme. Therefore, *Contractor* needs to timeously book FFD site training.
	Asbestos Training		X	Training that the *Contractor*'s employee must complete (only if required)	*Contractor's* own planning	Only if required
	Confined Space Training		X	Training that the *Contractor*'s employee must complete (only if required)	*Contractor's* own planning	Only if required
	Basic Rigging Training		X	Training that the *Contractor*'s employee must complete (only if required)	*Contractor's* own planning	Only if required. The *Contractor* verifies the validity of prior learning
	Non-Disclosure Agreement		X	All *Contractor* employees are required to sign a non-disclosure agreement.	*Contractor's* own planning	• The *Contractor* ensures that a non-disclosure agreement is signed form is signed by each employee before the person is registered to start the FFD process. These forms are obtainable from the *Employer* at Koeberg.
	Security Permit Application	X	X	*Project Manager* and *Contractor* to supply	*Contractor's* own planning	• The *Contractor* ensures that a security permit application form is completed for each employee, before the person is registered to start the FFD process. These forms are obtainable from the *Employer* at Koeberg. • It is important that the form is completed by the *Contractor* in conjunction with the *Project Manager*. The form identifies the security areas that the *Contractor's* employee is required to enter for the execution of the tasks. • The *Contractor's* employees must be in possession of the security permit application when he/she arrives on site to start the FFD process.

6.3.3. Fraudulent Documents

The *Contractor's* employees that have presented fraudulent documentation are permanently denied access to the *Employer's* Koeberg site.

6.3.4. False Declarations

The *Contractor's* employees that have made false declarations are permanently denied access to the *Employer's* Koeberg site.

6.3.5. FFD requirements after registration takes place

6.3.5.1. Activities to be performed after the *Contractor's* arrival at the Site.

	Activity Description	*Project Manager Employer*	*Contractor*	Requirements	Planning	Additional Notes
	Enrolment on FFD System	X	X	*Contractor's* employees shall be enrolled on the *Employer's* FFD system by the Security Group when they arrive on site.	10 min	• A *Contractor's* employee will not be allowed to attend any further FFD activities if he/she is not enrolled on the FFD system and issued with a bar coded form.
	Drug Test	X	X	All the *Contractor's* employees are required to perform a drug test administered by the *Employer*. This test will be done notwithstanding the test done by the *Contractor*.	30 min	• The *Contractor's* employees that fail the drug test are not allowed to continue further on the FFD process and will be required to leave the Site and will be denied access for at least 12 months.
	Criminal History Verification	X	X	All *Contractor* employees that apply for a security permit to access the Site are required to give consent to the *Employer* to verify their criminal background. This activity is performed on site by the *Employer's* Security staff for South African citizens by the taking of a set of fingerprints and forwarding same to the SAPS for verification.	30 min	• South African citizens who have obtained their criminal records direct from the South African Police are only required to provide the *Employer's* Security staff with a set of fingerprints, for record purposes. • *Contractor* employees with a criminal background that is deemed to be a security risk to Koeberg are denied access to the Site
	Health Verification	X	X	*Contractor* employees are required to report to the *Employer's* Health Services section where the medical examination performed off-site will be verified to ensure that all requirements have been met.	30 min	The duration of this activity is approximately 30 minutes
	Induction Training including: • SAT • PIT • FME (Generic) • Human Performance	X	X	• **Site Access Training (SAT)** *Contractor* employees that are required to work outside the protected area of KNPS are required to complete the SAT course before work may commence. • **Plant Induction Training (PIT)** *Contractor* employees who are required to work inside the protected area of KNPS are required to complete the Plant Access Training (PAT) course before work may commence.	8 hours	• **Site Access Training (SAT)** The SAT course is designed for persons working only in the OCA. Their security permits will not allow them access to the protected area of KNPS. *Contractor* employees that do not successfully complete the SAT course shall not be allowed access to the Site. • **Plant Induction Training (PIT)** *Contractor* employees that do not successfully complete the PIT course are not allowed access to the Site. *Contractor* employees required to perform work in the intake basin are required to pass the PIT

	Activity Description	*Project Manager / Employer*	*Contractor*	Requirements	Planning	Additional Notes
				• **Foreign Material Exclusion Training (FME)** *Contractor* employees coming to site that require access to FME zones or will perform any hands-on work on the plant are required to complete this training. • **Human Performance Training (HPT)** *Contractor* employees that are required to work inside the protected area of KNPS shall complete the Human Performance Training (HPT) before work may commence.		• **Foreign Material Exclusion Training (FME)** *Contractor* employees that do not successfully complete the FME course are not allowed access to FME zones. Personnel required to perform hands-on work on the plant and for which FME was identified as part of the training requirements that do not complete the FME course successfully are not allowed access to the plant • **Human Performance Training (HPT)** *Contractor* employees that do not successfully complete the HPT course are not allowed access to Site. *Contractor* employees required to perform work in the intake basin are required to pass the HPT course.
	Induction to Working at Heights / Material Handling	X	X	• *Contractor* employees are required to successfully complete the required Working at Heights/ Material Handling training before working at heights or handling material is considered.	8 hours	• Only if required • Failure to successfully complete the Working at Heights / Material Handling training will result in restriction to work at heights or handling material being prohibited
	Radiation workers Training	X	X	• *Contractor* employees are required to successfully complete the required radiation worker training before access to radiation zones is considered.	3 days	• Only if required • Failure to successfully complete the radiation training shall result in access to radiation zones being restricted
	Induction to Confined Space	X	X	• *Contractor* employees are required to successfully complete the required confined space training before access to confined space is considered.	2 hours	• Only if required • Failure to successfully complete the confined space training will result in access to confined space being restricted
	Induction to Asbestos Training	X	X	• *Contractor* employees are required to successfully complete the required Asbestos training before access to Asbestos zones is considered.	1 hour	• Only if required • Failure to successfully complete the Asbestos training will result in access to Asbestos zones being restricted
	Induction to Basic Rigging	X	X	• *Contractor* employees are required to successfully complete the required Rigging training before rigging work is considered.	8 hours	• Only if required • Failure to successfully complete the Rigging training will result in rigging work being prohibited

	Activity Description	*Project Manager Employer*	*Contractor*	Requirements	Planning	Additional Notes
	Supervisor Training	X	X	• *Contractor* employees are required to work as supervisors must successfully complete the required supervisor training before work is considered.	2.5 days	• Only if required • Failure to successfully complete the supervisor training will result individual being prohibited to do supervision
	Technical assessment • Mechanical • Machining • MC&I • Electrical • Welding • Pipe Fitting • Civil TA 4 • I&T • MSS	X	X	• *Contractor* employees who are required to perform work of a technical nature inside the protected area of Koeberg are required to perform technical assessments and be authorised to perform the work that they have been assessed for.	4hrs - 16p 12hrs - 3p 16hrs - 16p 8hrs - 4p 4hrs - 6p 6hrs - 4p 6hrs – 4p 8hrs - 4p	• Only if required • The *Project Manager* is responsible to indicate the work that the *Contractor*'s employee will be performing on the Site. • *Contractor* employees that do not successfully complete the technical assessment shall not be allowed to perform work on the Site. • The duration of this activity depends on the type of work discipline and scope and is between 4 hours and two days.
	Final acceptance and Issuing permit	X	X	• All required FFD requirements are completed successfully before final acceptance is processed and a security permit is issued by the Security Group.	30min	

6.3.6. Medical examinations

Medical examinations are done by *Employer* approved external medical practitioners. These are:

Occupational Health Practice	Contact Person	Telephone	e-mail address
Life Occupational Health	Magda van Zyl	0215917050	Magda.VanZyl@lifehealthcare.co.za
Incon	Benita Du Preez	021 975 2694 ext. 2001	benita@incon.co.za
OCSA	Sibusiso Ngubane	0219810141	sibusison@ocsa.co.za
EOH	Pam Kinnock	0212527750	Pam.Pinnock@eoh.co.za
Fair Care Health	Colleen Paul	021 552 1377 l	hmalaka@msn.com

The *Contractor* is responsible for the cost of the examination.

6.3.7. Exit procedure

The *Contractor* and the *Project Manager* ensure that permit holders that no longer require access to the Site follow the FFD exit procedure. Failure to do so may result in the *Contractor's* employee being denied access in future.

The duration of the exit activity is approximately 90 minutes and includes an exit medical examination.

6.3.8. Security check points

Prior to access to Site, the *Contractor* passes through various security check points, via entrance at the R27 access gate, entrance at the Duynefontein entrance and at Access Control Point 1 (ACP-1). All temporary worker/visitors permits are issued at ACP-1.

6.3.9. Access to Radiological Areas "Controlled Zones" and Reactor Building (where applicable)

Where work is to be performed in a radiological area (Controlled Zone), the *Contractor* needs to pass through a dosimetry-issue check point.

General access for inspections and measurements in the reactor buildings are not allowed during the operation of the plant and are limited during the refuelling outages with access limitations in accordance with KSA-062.

Access to radiological areas is subject to all training and verifications being completed as stated in this Works Information.

6.3.10. Prohibited/unauthorised items on site

In terms of the National Key Point Act 102 of 1980, Koeberg Operating Unit is a declared National Key Point (NKP). The National Key Point Act requires and empowers the owner of the National Key Point (Power Station Manager), to implement measures that will ensure the security of the National Key Point. The National Key Point area at the power station is the area within the protected area barrier (ACP 2 inwards).

One such security measure is procedure KAA-777 Revision 4 (Process for access to Koeberg Nuclear Power Station). The procedure stipulates that the following items are prohibited from being brought onto site, unless specifically authorised:

- explosives or components thereof,
- habit forming drugs,
- alcohol,
- mercury,
- acids,
- cellular phones,
- firearms, ammunition or any part thereof, and
- cameras

Contractor personnel violating the procedure will be investigated and may result in action being instituted against such individuals and possible removal from site.

To keep the *Contractor* informed, pictograms of the items are placed at all ACP 2 access points and it is also addressed in the Plant Induction Training (PIT). It is the responsibility of each of the *Contractor's* employees to ensure compliance and to refrain from bringing prohibited/unauthorised items onto site.

6.3.11. Vehicles and tools/Equipment

All Equipment and tools are subject to a security screening before they are allowed on the Site. All Equipment and tools must be listed and specified before they are brought on Site. This list will serve as evidence for removal permits upon Completion of the *works*. Vehicles are only allowed on Site if justification is provided to the *Project Manager* that such a vehicle is essential to provide the Works.

6.4. Quality Assurance and Control

6.4.1. Quality assurance requirements

The classification of the *works* is as follows:

The original plant has the following classifications. Any equivalent component and/or system shall have the same classifications.

- Electrical Classification – 1/2 LNA/B/C/D

  Classification Number : 0277/88Q
  Safety Class : 1E
  Seismic Classification : 1A
  Quality : Q1
  Environmental Class : 0
  Importance Category : CSR

- Electrical Classification – 1/2 LNE

  Classification Number : 0278/88Q
  Safety Class : NSF
  Seismic Classification : NC
  Quality : Q2
  Environmental Class : 0
  Importance Category : SR

- Electrical Classification – 9 LNF

  Classification Number : 0278/88Q
  Safety Class : NSF
  Seismic Classification : NC
  Quality : Q2
  Environmental Class : 0
  Importance Category : SR

- Electrical Classification – 9 LNG/H

  Classification Number : 0278/88Q
  Safety Class : NSF
  Seismic Classification : NC
  Quality : Q2
  Environmental Class : 0
  Importance Category : NSA

- Electrical Classification – 6 SSC/D

  Classification Number : 0007/88Q
  Safety Class : NSF
  Seismic Classification : NC
  Quality : Q2
  Environmental Class : 0

Importance Category : NSA

The highest classification assigned is Q1/L1, therefore the applicable Quality Specification is 238-101 Rev2 (Quality and Safety Management Requirements for Nuclear Suppliers Level 1) and the supplier Safety Culture Enhancement Programme (SCEP) shall comply to the requirements of 238-219 Rev1 (Level-1 Supplier Safety Culture Enhancement Programme (SCEP) Requirements).The *Contractor's* Quality Management System shall be certified to ISO 9001:2015, or equivalent and conforms to the requirements of CFR 50 Appendix B, ASME NQA-1 or IAEA GSR Part 2.

The *works* are subject to a Quality Plan in accordance to Section 3.10 of 238-101 Rev 2. The Quality Plan, specific to each manufacturing and installation activity, is to be established and submitted to the *Project Manager* for acceptance before commencement of any work.

The *Contractor's* quality assurance system is also subject to the acceptance by the *Employer*.

The *Contractor* ensures that any Sub*contractor* employed by him has and implements a Quality Assurance Programme to meet the quality assurance requirements of the *Employer.*

The *Contractor* controls and supervises his Sub*contractor's* quality plans (including manufacturing quality plans). The *Contractor* reviews and accepts all plans, prior to submission to the *Project Manager*, for his acceptance. All Sub*contractor* components are verified by the *Contractor's* technical representative(s) before use or installation.

If the Sub*contractor* has to perform work in terms of the *Contractor* compiled quality plans, the Sub*contractor* also reviews and accepts the use thereof.

The *Employer* reserves the right to at any time audit and/or monitors the control between the *Contractor* and Sub*contractor*, as well as the performance of the *Contractor's* Sub*contractor.* Such audits are done by prior notification and in liaison with the *Contractor*.

The *Contractor* ensures that his staff and Sub*contractors* are conversant with the content of the *works* as defined by the Works Information, quality control plans/work plans and work instructions.

Contractor's authorisation of personnel (including Sub*contractor* personnel), applied for Providing the Works, is made available to the *Project Manager* prior to the start of the work for which the authorisation is done.

The *Contractor* retains records of internal reviews performed by its personnel. The records provide objective evidence of who performed the review and the level of detail of the review. This requirement is also applicable to review of Sub*contractor* deliverables. Where considered necessary, the *Project Manager* may request such review records and the *Contractor* provides such information without limitation.

Where considered necessary, the *Project Manager* may request the root cause analysis and associated corrective action plan that the *Contractor* has established to deal with non-conformances / issues and / or Defects related to Providing the Works. The *Contractor* provides such information without limitation.

6.4.2. *Contractor*'s quality control

- The *Contractor* and his Sub*contractor* employs quality control representatives, with appropriate proven experience. This representative reports directly to the *Employer*'s Project QC Group, for the duration of the site implementation phase of the contract. This is priced separately as stated under compulsory activities under Activity Schedule CSC / SCC
- The *Contractor*'s Project Manager and design staff is present at the CSC / SCC inspections (KAA-664), to ensure the quality of the installation.
- All items shall be subjected to inspection at the *Contractor* premises before delivery to Koeberg Power Station.

- Overseas inspections require a minimum of 15 working days notification. Where feasible, the Supplier shall provide a monthly inspection schedule. The Supplier shall confirm the inspection date at least 1 calendar week prior to inspections and testing, when such inspection and test points have been designated as Eskom witness and/or hold points.
- Off-site local inspections (in South Africa where no travel arrangements are required) require a minimum of 72 hours notification.
- Off-site local inspections (in South Africa where travel arrangements are required) require a minimum of 10 days notification)

6.4.3. *Contractor*'s Quality Control Plans QCPs

- The *Contractor* compiles and submits to the Project Manager for acceptance, a quality control plan (QCP), showing all agreed hold, witness and verification points prior to commencement of works
- The QCP are accepted by the Project Manager, the *Contractor* and the *Employer*'s Appointed Inspection Authority/QA representative applicable) prior to the commencement of work
- The *Contractor*'s and Sub-*Contractor*'s quality control programmes are subject to the acceptance by the Project Manager. Components supplied by Sub*contractor*'s are verified by the *Contractor*'s technical representatives, prior to installation - this verification is documented in a Quality Control plan and separately priced under compulsory activities under Activity Schedule
- The *Contractor* provides all completed QCPs, prior to PTW clearance, to the Project Manager inclusive of all proof of acceptability (i.e. surveillances / hold points / witness points signatures, calibration certification / etc.)

The QCP typically consist of the following as a minimum:

A cover page that includes and makes provision for the following:

- Document unique number
- Revision number
- Page number
- Provision to incorporate all inspection report numbers
- Plant/system worked on
- High level description of work execution

A page which includes a high-level logical sequence of work execution

A page which includes:

- Drawing numbers
- Abbreviations
- Records numbers
- Procedures numbers
- Reference document numbers
- Certificate numbers and references
- The work execution logic and sequence.
- Hold and witness points

A Materials summary that includes:

- Material quantities and dimensions

- Material certificate numbers or receipt inspection reference numbers with adequate traceability to material/other certificates.
- A thickness test report where thickness tests are carried out on components. The thickness test results are recorded, and the positions of the measurements are traceable to the specific area of testing against the records.

6.4.4. The *Contractor*'s quality control representative(s)

The *Contractor* and his Sub*contractor* employs quality control representatives, with appropriate proven experience. This representative reports directly to the *Employer's* Project QC Group, for the duration of the site implementation phase of the contract. This is priced separately as stated under compulsory activities under Activity Schedule CSC / SCC

The *Contractor's* project manager and design staff is present at the CSC / SCC inspections (KAA-664), to ensure the quality of the installation.

6.4.5. Quality Assurance Data Packages

Quality Assurance Data Packages (QADP) is required for all work, plant, Equipment and components. The *Contractor* provides the complete QADP, for the *Project Manager*'s acceptance, within fifteen (15) days of Completion, in terms of Core Clause 30.2. The QADP requires all information as required by the applicable codes and standards and Eskom Quality Assurance Document 238-101. The *Contractor* shall supply a QADP that includes, but is not limited to, the following:

- Manufacture Quality Plan,
- Installation *works* quality plan,
- Rigging quality plan,
- Calibration certificates of the *Contractors* test Equipment used during the *works*,
- Material Certificates,
- Non-Destructive Examination Records (if applicable),
- Test Records,
- Weld specifications, Welding procedures, Welder Authorisations and Welder qualifications
- Non-Conformances,
- Authorised component drawings and specifications,
- Seismic report (if applicable),
- Conformance Certificates,
- Certificates of Compliance;
- Disconnection/Re-connection sheets,
- Construction Status Certificates,
- Safety Clearance Certificates;
- *Contractor's* certificates of conformance;
- Material traceability documentation from mill to end product;
- *Contractor's* inspection and test certificates, etc. as required by the applicable technical specifications;
- *Employers*-accepted concessions/production permits as applicable;
- Inspection release reports issued by the *Employer*, or its inspection agency;
- Completed Quality Control Plans and supporting documentation used in the execution of the contract; and

- Final dimension checks and those before machining.
- End of Manufacturing report as required by RD-0034, (when applicable)

6.5. Programming constraints

6.5.1. Programme constraints and requirements

The *Contractor* prepares and submits at the stated intervals, all programming documentation described in this section, the layout of which is subject to the *Project Manager's* acceptance.

All work performed at KOU are planned and scheduled in accordance with the requirements stated in:

- KAA-721 for non-outage related *works* – including pre-outage installation *works*.

Note that the above makes specific reference to the timelines to be adhered to for scheduling of the work. As a general guide, outage work must be finalised and detailed SAP notifications, orders and operations raised on the *Employer's* SAP system at 6 months prior to the start of the outage; and for non-outage work, the SAP notifications, orders and operations must be raised 12 weeks prior start of work. "Finalised" means that the work plans and test procedures are completed, which include any related risks assessments associated with the work to be performed.

Review Process:

- Step 1: *Employer* review period - 5 days. (one period only)

- Step 2: *Employer* acceptance of *contractor* updates – 3 days.

(Any new comments raised outside initial *Employer* review period, to be dealt with contractually)

Review comments to be provided in consolidated and sanitised form, if comments provided by more than one reviewer.

6.5.2. The programme

The programme shows all the information required by Clause 31.2 of the ECC3.

In addition, the programme shows:

- the services and work (programmes) of the sub*contractor*s,
- interfaces between sub*contractor*s as well as the interfaces between sub*contractor*s and the *Contractor*,
- all activities defined in the *activity schedule*,
- dates for placement of orders for critical / major Plant, Material and Equipment,
- on Site delivery dates for Plant, Materials and Equipment,
- the programme's revision number.

The *Contractor* constructs networks to reflect the possible (instead of probable) sequences of activities, using resource scheduling to stagger the performance of activities into the most probable sequence. An activity not linked to any preceding or successor activities (hanging activities) is not acceptable.

Manually applied constraints such as "must start" or "must finish" fixed dates, "zero float" and other programming techniques, that can have the effect of inhibiting the programme from reacting dynamically to change, is not acceptable.

Driving relationships between activities shall predominantly be at an Activity-to-Activity level Milestones as predecessors shall be limited to Programme Start Milestones.

Activity ID's (unique identifier) and Descriptive Names (Activity Name) shall be formally controlled, and changes discouraged. Project Calendar's formally controlled and changed with mutual consensus.

A separate programme (Outage Implementation Programme) detailing pre-outage implementation and outage implementation may be compiled for each refuelling outage, as an extract from the Accepted Programme. This will facilitate integration of the *Contractor's* outage programme into the *Employer's* overall outage plan. The *Contractor* ensures that the start and finish dates of the "Outage Implementation Programme" corresponds to the Outage Implementation dates of the Accepted Programme.

The Minister of Public Enterprises and Presidential Infrastructure Coordinating Committee (PICC) requested that all government entities and SOCs use Primavera computerised planning software. For the sake of compatibility, the *Contractor* therefore prepares his programme on Primavera version 6.7 (.xer file format) computerised planning software and utilises it for all planning, progress monitoring and reporting.

6.5.3. Reporting on progress and remaining duration

The method for reporting on activities in progress is by remaining duration, i.e. the time, in working days, needed to complete the activity from the report date. Once an activity has started, the remaining duration is assessed for each update.

Automatic reduction of remaining duration as the report date moves forward is not accepted.

6.5.4. Actual dates

When Completion of any activity is confirmed by quoting document numbers, these numbers are given in the notes and are appended, e.g. letters of acceptance, suborders, drawings, inspection certificates, delivery notes, etc. The actual start and finish of all activities are reported and included in the programme.

6.5.5. Time Now Date

The 'Time Now Date', unless otherwise agreed between the *Project Manager* and the *Contractor*, is the assessment date of each month.

6.5.6. Planning constraints

The *Contractor* makes allowance for incorporation of *Employer* acceptance review comments for documents delivered to the *Project Manager* for his acceptance.

The *Contractor* does not plan for any *Employer* activities during the period of week 51, week 52 and week 1 of each year unless such a period falls within the implementation window of the *works*. Should any reviews be planned during this period, then the review periods need to be agreed, upfront, with the *Project Manager*.

6.5.7. Outage planning and integration

Outage work is limited to the *works* which can only be performed during the outage and *works* considered of too high risk (based on its accepted risk assessment) to be performed on-line (prior to outage).

On-line work is performed prior to the outage and the *Contractor* includes the activities on the Programme as well as makes the necessary planning allowances for it. On-line work will only be approved subject to a *Supervisor* (and where applicable, *Employer*) accepted risk assessment.

To manage the occupancy of the Working Areas during implementation, the *Contractor* attends the "Table Top" meetings with the *Employer's* Outage representative in order to discuss area work load and to integrate and schedule the *Contractor's* activities as such as to allow sufficient space for implementation.

6.5.8. Readiness review

The *Project Manager*, in conjunction with the *Employer* holds a readiness review to assess the *Contractor's* overall readiness to implement the *works*.

Specific items that forms parts of this review include (but are not limited to):

- Documentation (design, site implementation file acceptance)
- Planning (detailed planning including resources and working times)
- Resources (qualification, training plan and mobilisation progress)
- Plant and Materials (delivered to Site and accepted/receipt inspected)
- Safety (risk assessments, mitigation and prevention, construction regulations)

6.5.9. Planner requirements

The *Contractor's* planner is a key person and his name is included in the Contract Data – Part Two, data provided by the *Contractor*. This key person must have intimate knowledge of ECC Core Clause 3 and specifically the requirements as set out in ECC Core Clause 31.2.

6.5.10. Monthly progress reporting

The *Contractor* submits to the *Project Manager* a monthly report following the *assessment date*, but by no later than the last day of each month. The report contains the following information as a minimum requirement:

- Executive summary. (Narrative identifying major movement within the reporting period.)
- Revised programme in paper and software copy (.pdf and .xer file format) for Project Manager's acceptance indicating, actual progress of work against last Accepted Programme. The inclusion of the primavera Log is recommended with the corresponding .xer file in txt format.
- Updated "List of Applicable Documents" which is a list (table) indicating the "current accepted" revision as well as the status of any later revisions of documents considered key in the control of Providing the Works and include the following as a minimum:
    - Contract Quality Plan
    - Scheme Design
    - Installation Design
    - Work Plan
    - Test Procedures
    - Safety Evaluation (Screening/Evaluation/Justification) – supplied by the *Employer*
    - Safety Case
- List of Activities which:
    - were completed during current reporting period per discipline, (including the activities of the *Employer* and Others);
    - are in progress
    - activities of the *Employer* and Others;
    - are to be undertaken during the next reporting period per discipline, including the activities of the *Employer* and Others;

- near critical activities (emerging from previous reporting period)
- are behind schedule together with an action plan on how the delays are to be rectified.
- A schedule of all material procurement activities, including time for fabrication and delivery of manufactured products. The interdependence of procurement and construction activities is included in the schedule.
- Proposed monthly assessment information that is based on the list of activities that were completed during the current reporting period.
- Revised activity schedule which indicates projected future cash flow
- Key issues / Items of concern and corrective actions.
- Progress curves
- Early warning log
- Compensation event log
- Critical activities

6.5.11. Outage control / work control interface

•	**Activity Description**	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional Notes**
	Provision of *Employer* outage schedule	**X**		• The *Employer's* outage schedule indicates sufficient detail for the *Contractor* to effectively determine installation windows for various modifications and/or phases of modifications.	In accordance with Accepted Programme	Provision of *Employer* outage schedule
	Modification isolation plan / requirements and determination of relevant implementation window(s).		**X**	• The *Contractor* provides the required information and supports the *Supervisor* with interfaces to OCC / work control and operations.	In accordance with Accepted Programme	
	Modification implementation schedule (including testing).		**X**	• For high priority work, the planning requirements for implementation are agreed outside the requirements of KLA-023, KAA-501 and KAA-721		
	Inclusion of implementation schedule in overall outage schedule / weekly plan.	**X**		• Physical linking and inclusion into overall outage schedule / production plan.	In accordance with Accepted Programme	
	Verification of implementation schedule in overall outage schedule / weekly plan.		**X**	• The *Contractor* verifies and confirms that the outage schedule / weekly plan are correct.	In accordance with Accepted Programme	

•	Activity Description	*Project Manager*	*Contractor*	Requirements	Planning	Additional Notes
	Modification documentation release plan		X	• The *Contractor* compiles the document release plan. For a single modification, this is the document in the DCIF indicating when the documents are to be released during the modification implementation. • In exceptional cases, it may be required to create temporary operating instructions (TOIs), etc. until all other modifications on the system are completed and the system procedure is released. • The document release plan will indicate and reference all TOIs and other strategies implemented to ensure that the operators at all time have correctly updated information in the control room. For TOIs, this service is supplied by the *Employer's* OPG group. • It is the *Contractor's* responsibility to provide inputs and assistance in assuring that the document release plan is realistic and up to date.	In accordance with Accepted Programme	*Contractor* will identify TOIs. TOIs to be managed by the *Employer*.
	Permit to work (PTW's) and sanction for test (SFT) and test applications (TA).		X	• The request is completed by a responsible person (RP), supplied by the *Contractor* in accordance with *Employer's* plant safety regulation (PSR) procedures. • Permit to Work and Sanction for Test requests needs to be raised on the *Employer's* PTW system. • Isolation plans are referenced in the PTW request. • PTW are raised in accordance with *Employer* procedure KAA-667	In accordance with Accepted Programme	A responsible person in terms of the OH&S Act is authorised to take out PTW's and SFT's to perform/supervise work and tests on the *Employer's* plant.
	Management and scheduling of interfaces between outage control centre (OCC) / work control (WC) and the *Contractor*.	X		• The *Contractor* provides the implementation planning. • The *Employer* integrates the planning in the overall outage schedule. The *Contractor* supports the *Employer*. • Interface in liaison with the *Project Manager*.	As required	
	Notification to *Contractor* of any changes to schedule.	X		• The *Employer* notifies the *Contractor* of any changes to the implementation schedule due to the *Employer* activities.	As required	
	Outage meeting / production meeting progress feedback.	X		• During planning stage of project the *Contractor* must be available to support the *Project Manager* during feedback at these meetings. • Where required the *Contractor* attends the meetings.	As required	The meetings are held weekly.

•	Activity Description	*Project Manager*	*Contractor*	Requirements	Planning	Additional Notes
	Daily outage / production feedback during implementation and problem resolution.	**X**		• During installation and testing the *Contractor* is available to support the *Project Manager* during feedback at daily outage and production feedback meetings. • Where required the *Contractor* attends the meetings.	As required	
	Conclusion			• This activity group is part of the management function provided by the *Contractor* and extends over the duration of the project until Completion of the whole of the *works*.	In accordance with Accepted Programme	Deliverable: • Detailed modification implementation schedules (integrated with OCC plans) • Documentation Release Plan • Permit to Work and Sanction for Test Applications.

6.5.12. General

	Activity Description	*Project Manager*	*Contractor*	Requirements	Planning	Additional Notes
	Site organisation chart and roster (*Contractor*)		**X**	• Names, Main Responsibilities, Telephone numbers / Pagers / Mobile	In accordance with Accepted Programme	
	Support activities chart and roster		**X**	• Names, Main Responsibilities, Telephone numbers / Pagers / Mobile	In accordance with Accepted Programme	
	Site representatives chart and roster (*Employer*)	**X**		• Names, Main Responsibilities, Telephone numbers / Pagers / Mobile	In accordance with Accepted Programme	
	Kick-off meeting Implementation (Outage / non-outage)	**X**		• The *Project Manager* arranges the meeting; the *Contractor* ensures that relevant personnel of the Site implementation team as well as project management team are present at the meeting. • The venue for the meeting is on Site.	In accordance with Accepted Programme	
	List of *Contractor's* Sub-*Contractor*s		**X**	• To be supplied to *Project Manager* for *Employer's* PQA representative approval.	Minimum 8wks prior to start.	

	Activity Description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional Notes**
	List of Applicable Documents for Outage Implementation		**X**	• The List of Applicable Documents summarises the documentation to be used as reference during the implementation and testing phase of the modification.	In accordance with Accepted Programme	
	Acceptance of vehicle access to Site	**X**		• Permission for access of a vehicle on the Site must be obtained from the *Project Manager* • Vehicles are not allowed on Site unless specific approval is obtained from the *Employer* and will only be considered for exceptional cases.	As required	
	Site access permit applications		**X**	• *Contractor* to complete forms himself.	As required	
	Site access authorisation	**X**		• At completion of all required access training.	5 days duration	
	Arranging training and related competency tests / assessments.		**X**	• Booking by *Contractor* - to fit in with normal routine course or *Contractor* to arrange a separate course for large number of people. • *Employer* requirements relating to training of personnel are detailed in KSA-119 (	As required	
	Provide training and related competency tests/assessments.	**X**			As required.	

	Activity Description	*Project Manager*	*Contractor*	Requirements	Planning	Additional Notes

	Qualification and authorisation verification of all personnel to perform construction work for the *Contractor* for the *works*.		X	• In accordance with the *Contractor*'s quality procedures and:
				  • for performing welding activities, the *Contractor* ensures that all its welders comply with the requirements of KNM-001 (
				  • for performing non-destructive testing, the *Contractor* ensures that all its personnel are qualified in compliance with the requirements of KSA-037
				  • for performing scaffolding *works*, the *Contractor* ensures that all its personnel are qualified in compliance with the requirements of KSM-031
				  • for performing rigging *works*, the *Contractor* ensures that all its personnel are qualified in compliance with the requirements of KSA-132; and
				  • for performing lagging *works*, the *Contractor* ensures that all its personnel are qualified in compliance with the requirements of KSM-032
					As required	

	Checks for Sub-*Contractor*s agreement		X		As required	

	Calibration of Equipment	X		• Where the *Employer* is required to calibrate Equipment, the *Contractor* ensures that:
				  • SAP orders are raised for the *Employer* to perform the calibrations. These SAP orders specifies in detail all the relevant calibration requirements
				  • Equipment for calibration are supplied to the *Project Manager* at 3 months prior to start of the refuelling outage / implementation (for non-outage modifications)
					To-3 months	To = Start of refuelling outage / implementation window.

	Activity Description	*Project Manager*	*Contractor*	Requirements	Planning	Additional Notes
	Conclusion	X	X	• This activity group is part of the management function provided by the *Contractor* and extends over the duration of the project until completion of the whole of the *works*.	In accordance with Accepted Programme	Deliverable: • Site Organisational Chart [Implementation] • List of Sub*contractor*s • List of applicable documents • Office requirements • Records of authorised personnel involved with construction.

6.6. *Contractor*'s Management, Supervision and Key People

The *Contractor* submits an organogram showing all personnel, their categories of work, qualifications and their lines of authority / acceptance to the *Project Manager for* acceptance.

The *Employer*'s standard for management and control of supplemental workers at KOU is document in KSA-119 Rev 2.

The *Contractor* employs in and about the Provision of the Works only such persons that are careful, competent and efficient in their several trades and callings, to achieve nuclear safety, and the *Employer* reserves the right to object to and require the *Contractor* to remove from the *works,* forthwith, any person employed by the *Contractor* in or about the Provision of the Works who, in the opinion of the *Project Manager*, misconduct's himself or is incompetent or negligent in the proper performance of his duties and such person is not again employed for the *works* without the written permission of the *Project Manager*.

The *Contractor*, in and about the Provision of the Works, provides evidence of skills assessment (including qualifications) for all its staff. *Contractor* project manager, QC and supervisors are required to present SAQA approved certificates (or equivalent), for the position that they fulfil. The *Contractor*'s project manager is trained on the NEC ECC3 prior the *access date*. Any personnel that do not meet the panel requirements will have their access to site revoked.

The *Contractor* ensures that the *Contractor's* employees are reasonably fluent in the language of the contract.

The *Contractor* maintains at all times a harmonious relationship with and co-operates with the *Employer* and all its suppliers and sub-suppliers or their employees who may be involved.

All radiation workers comply with such radiation protection standards as is required by the *Employer*.

6.6.1. Supervision

The South African Construction Regulations require the *Contractor* to appoint a full-time competent employee to supervise the performance of construction work. The *Contractor* (as principal *contractor* in terms of the OHSA Construction Regulations) therefore appoints, in writing, a competent full time construction supervisor and where required an assistant supervisor, clearly stipulating all duties relating to the supervision of the particular project.

The *Contractor's* construction supervisor and the construction manager must be appointed in terms of the Construction Regulations. must be registered as a professional construction manager in terms of the Project and Construction Management Act, 48 of 2000

The *Contractor* may appoint additional people (assistant construction supervisor) to assist the construction supervisor to perform certain of his functions, but this does not relieve the construction supervisor of his or her responsibilities under the regulations. If the *Contractor* has not appointed additional people to assist the construction supervisor, and an inspector determines that the construction supervisor needs assistance, he can instruct the *Contractor* to do so, at no additional cost to the *Employer*.

No work may be performed, by the *Contractor*, unless in the presence of the *Contractor's* construction supervisor or assistant construction supervisor. No work may be performed by the *Contractor* unless the *Contractor*'s construction supervisor or assistant construction supervisor is on site. The *Contractor's* construction supervisor and assistant construction supervisor shall be fully conversant with the contents of the *Contractor's* health and safety plan including the following and shall stop any or all work that is not in line with these provisions:

- Risk assessments,
- Method statements, and
- Fall protection plan.

Any *Employer* oversight will be provided in such a manner not causing delay to the *contractor*'s execution plan.

6.6.2. Construction health and safety practitioners

The *Contractor's* construction health and safety agent (as a specified category in terms of section 18 (1) (c) of the Project and Construction Management Professions Act No. 48 of 2000) is appointed to ensure that the *Contractor* complies with its statutory duties under the Occupational Health and Safety Act (Act No. 85 of 1993) and applicable regulations such as the Construction Regulation, etc.

6.6.3. Key personnel

The *Contractor* ensures that all key personnel requiring access to Site meet the requirements of the *Employer's* security and medical qualifications as well as training and experience generally required by similar utilities elsewhere in respect of similar work. Where required, these staff members also meet such requirements as the National Nuclear Regulator may stipulate from time to time.

The *Contractor* provides orientation and technical training for all key personnel requiring access to Site in accordance with the requirements of the *Employer's* Radiological Safety Regulations, the *Employer's* Industrial Safety Programme, and, in general, the whole framework of plant rules (as applicable) and regulations which may be in force at the *Employer's* Site from time to time, which is available on request.

The following are considered key persons by the *Employer* and the *Contractor* submits a brief CV with associated records of qualification and related experience:

- *Contractor's* project manager
- *Contractor's* planner
- Construction and installation supervisor(s)
- Quality assurance representative
- Quality control inspector(s)
- Health and safety representative

6.6.4. Emergency mustering, accountability and evacuation

Due to the nature of the Site, the *Contractor* is required to have full accountability of personnel at all times. It is therefore required that the *Contractor* has and maintains a current status and accountability list of all his personnel on Site. The accountability list is handed to the *Project Manager* each time a change occurs.

The *Contractor* ensures that his site representative takes full responsibility for this requirement and that he and his personnel are fully conversant with the mustering requirements as detailed in the *Employer*'s procedure KAA-611 Revision 5.

6.6.5. Site hours

6.6.5.1. Non shift staff

Employer working hours are 24 hours a day, 7 days a week during outage periods.

Normal working hours during non-outage periods are:

Mon-Thu: 07h30 – 16h35

Fri: 07h30 – 13h35

On the last Friday of each month however, working hours will be from 7h30 until 12h00.

6.6.5.2. Shift staff:

In accordance with official, approved shift rosters.

6.6.5.3. Flexitime

*Employer's e*mployees who have a written agreement entitling them to work flexitime, the "Core Time" during which time cannot be flexed is from 9h00 to 15h00, whilst no employee may flex prior to 6h00 (Monday to Friday) nor after 18h00 (Monday to Thursday).

The *Contractor* takes due cognisance of the *Employer's* working hours whilst Providing the Works and performs regular reporting of person hours worked on a monthly basis to the *Project Manager*.

6.6.6. Assessments

The *Contractor* includes in the Monthly Planning Report the proposed assessment information. Failure to submit such information on the assessment date will result in the *Project Manager* making his own assessment, based on available information.

The *Contractor* submits, separately, all documentation and certification in support of the proposed assessment information.

6.6.7. Invoices and payment arrangements

The *Contractor* ensures that the requirement in terms of Section 20(4) (C) of the Value Added Tax Act 89 of 1991 as amended by the Revenue Laws Amendment Act 45 of 2003, that the VAT registration number of the recipient of the tax invoice, appears on the said tax invoice in order for the invoice to fully comply with the requirements of a valid invoice for VAT purposes as contained in the said Section 10(4) (C), is adhered to. No payment will be made on tax invoices not fully meeting this requirement.

If the Contractor does not provide a tax invoice in the form and by the time required by this contract, the time by when the Employer is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the Employer in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.

The Contractor (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the Employer's VAT number 4740101508 on each invoice he submits for payment.

The *Employer's* VAT Registration Number is **4740101508**

- **All invoices are marked for the attention of:**

  The Accounts Payable Section
  Koeberg Operating Unit
  Private Bag X10
  Kernkrag 7440
  South Africa

- **Particulars to be included on the *Contractor's* Tax Invoice:**
  - The name and address of the *Contractor*
  - The date of the invoice
  - An invoice number
  - *Contractor's* VAT registration number (if applicable)
  - *Employer's* VAT registration number
  - Reference to Contract and/or SAP Task Order number
  - The amount paid to date
  - The price adjustment for inflation (where clause X1 is applicable)
  - The value of the invoice split into payments as per the *activity schedule*
  - A descriptive title of the service covered by the Invoice and/or the Contract's assessment number

To enable payment against each applicable SAP generated Task Order the *Project Manager* and the *Contractor* must sign next to each line acceptance of the service, Plant and Materials or goods delivered on the applicable SAP generated Task Order. The signed copy of this SAP generated Task Order is promptly returned to the *Project Manager.*

Payment is made by means of electronic transfer. The *Contractor* therefore provides his banking details to the *Project Manager* within one week of the Contract Date.

6.6.8. Compensation events

The *Contractor* provides quotations for compensation events detailing the following items as a minimum:

- Introduction
- Executive summary
- Contractual basis of compensation event (Refer to ECC Core Clause 60.1)
- Details of the compensation event
- Assessment of compensation event (ECC Core Clause 63)
- Conclusion
- Accepted programme showing impact of delay (ECC Core Clause 62.2) - If the programme for remaining work is altered by the Compensation Event

6.6.9. Concurrent delay

If the *Contractor* incurs additional costs that are caused by both *Employer* delay and concurrent *Contractor* delay, then the *Contractor* may only recover compensation to the extent the *Contractor* is able to separately identify the additional costs caused by the *Employer* delay from those caused

by the *Contractor* delay. If the *Contractor* would have incurred the additional costs in any event as a result of *Contractor* delays, the *Contractor* is not entitled to recover those additional costs.

6.6.10. Mitigation of delay

The *Contractor* has a duty to mitigate the effect, of *Employer* risk events, on the *works* and the *Contractor* does all it reasonably can to avoid an impact on the Prices. The duty to mitigate does not extend to the *Contractor* to adding extra resources or to work outside its planned working hours.

6.6.11. Notification of Compensation Event

When a Compensation Event is notified, the *Contractor* must provide sufficient and sufficiently detailed information (contemporaneous documentation) illustrating the exact or near to exact impact the Compensation Event has or will have on the *Contractor*, to enable the *Project Manager* to assess whether to call for a quotation or not. Adding to this the *Contractor* must state which Compensation event under NEC3 ECC Clause 60.1 he believes it to be.

6.6.12. Quotation

The *Contractor* provides quotations for compensation events detailing the following items as a minimum:

- Introduction
- Executive summary
- Contractual basis of compensation event (Refer to ECC Core Clause 60.1)
- Details of the compensation event
- Assessment of compensation event (ECC Core Clause 63)
- Conclusion
- Accepted programme showing impact of delay ((ECC Core Clause 62.2) – If the programme for remaining work is altered by the Compensation Event
- Appendices:
    - Early Warning (ECC Core Clause 16.1) - if applicable
    - Notification (ECC Core Clause 61.3)
    - Instruction to submit quotation (ECC Core Clause 61.1 or 61.2)
    - Instruction to submit alternative quotation (ECC Core Clause 62.1) or to submit a revised quotation (ECC Core Clause 62.4) - if applicable
    - Any extension of time under (ECC Core Clause 62.5) - if applicable
    - Any other document(s) the *Contractor* may consider applicable.

For compensation events to be implemented, the *Employer* requires the *Contractor* to sign a compensation event register form. For any payments required as a result of the compensation event, the *Contractor* is required to submit the signed compensation event register form, at latest, prior to the 15th of the month in which any associated amount should be assessed. This is to allow sufficient time for the *Employer* to load the associated costs onto its SAP system.

It is specifically stated that the *Employer* will not accept any forecasted payments relating to “compensation event acceptance”.

7. Contract change management.

The *Contractor* is responsible to document any required changes on the design/Equipment. The resolution of the design change is the responsibility of the *Employer*. The approval process indicated in this Works Information is adhered to, by the *Contractor.*

The *Contractor* adheres to the contract change management procedure for any changes to the scope of the *Works.* The details of the contract change management procedure are agreed between the *Project Manager* and the *Contractor* at the project kick-off meeting.

7.1. Provision of bonds and guarantees.

The form in which a bond or guarantee required by the *conditions of contract* (if any) is to be provided by the *Contractor* is given in Part 1 Agreements and Contract Data, document C1.3, Proforma guarantees.

The *Employer* may withhold payment of amounts due to the *Contractor* until the bond or guarantee required in terms of this contract has been received and accepted by the person notified to the *Contractor* by the *Project Manager* to receive and accept such bond or guarantee. Such withholding of payment due to the *Contractor* does not affect the *Employer*'s right to termination stated in this contract.

7.2. Records of Defined Cost, payments & assessments of compensation events to be kept by the *Contractor*.

The *Contractor* keeps all records, for presentation to the *Project Manager,* for compensation events.

7.3. Training workshops and technology transfer

Operational, Maintenance and Engineering training is to be provided in accordance with the requirements stated below:

7.3.1. Transfer of skills to the *Employer*'s personnel

The *Contractor* assists the *Employer* in the skills development of the *Employer's* personnel by accommodating such personnel, as mutually agreed, in the offices of the *Contractor* for the purposes of gaining an understanding of the system/technology.

If in the opinion of the *Contractor* the existing skills of the *Employer's* personnel can be utilised to the benefit of the contract, this can be mutually arranged. Additional costs will be for acceptance by the *Project Manager* prior to it being incurred, as part of the ECC Compensation event procedure.

7.3.2. Training: operators, maintenance, and engineering

	Activity Description	*Project Manager*	*Contractor*	Requirements	Planning	Additional Notes
•	Provision of specific system / component training material (i.e. should the *Contractor* provide training on the system, the training material is included in the scope of supply) and completion of the Training Change Request.		X	• Training Change Requests (TCRs) are compiled in accordance with KAA-959. • *Contractor's* training material is provided with the TCR.	In accordance with Accepted Programme	Notification to be made by official communication. *Employer* to follow own process for TCRs.

	Activity Description	*Project Manager*	*Contractor*	Requirements	Planning	Additional Notes
•	Submittal of TCR to TMG	**X**		• Operations and maintenance training initial impact assessment performed by the Training Management Group (TMG)	In accordance with Accepted Programme	
•	Interface with operating and maintenance teams	**X**		• The *Project Manager* arranges the training	As required	
•	Training on nonstandard / new components / systems to KOU		**X**	• Where training is required for nonstandard components, the *Contractor* provides a resource (on Site) to perform a once-off specialised training course to the Operations, Maintenance as well as Engineering personnel. • The training is performed to a level where at least one *Employer's* team, consisting of 5 individuals, is capable to adequately maintain and operate the new component / system. • Training of maintenance personnel is completed prior to completion of *works* installation. • Training of operations personnel is completed prior to start of implementation. • Training of engineering personnel is completed prior to start of implementation.	6 weeks prior to the start of the outage unless otherwise agreed.	Normally, operator training is performed during the training weeks of each shift and therefore will take at least six weeks to complete (there are six shifts).
•	Conclusion	**X**	**X**	• This activity is complete once the *Employer's* Training Management Group issued a letter to the *Project Manager* confirming that training is completed.	In accordance with Accepted Programme	Deliverables: • Training Change Request (TCR) • Training material for nonstandard / new components to KOU

The *Contractor* also complies with the requirements of RD-0034 and the NNR position paper PP-0012.

7.4. *Employer*'s design

The designs for all of the *Works* will be produced by the *Contractor*.

7.5. Parts of the *works* which the *Contractor* is to design.

In accordance with KLA-001, the importance classification for the various inverter systems involved in the new design are:

- LNA/B/C/D : CSR
- LNE : SR
- LNF : SR
- LNG/H : NSA
- SSC/D : NSA

The design shall be a CSR design performed by competent authorised designers in accordance with the 'Koeberg Design Control Standard', 331-86.

Authorised design reviewers shall conduct the design review in accordance with 331-86. the 'Koeberg Design Control Standard', and KGU-007, 'Guidelines for the Independent Review of Plant Design Changes'.

The design text shall comply with GGS-1168, 'Standard for Grammar, Spelling and Notation.

The design shall be submitted to the NNR for approval.

The *Contractor* shall be certified and demonstrate compliance with the Quality Standard, ISO 9001-2008.

7.6. Safety evaluation

- Safety evaluations E2016-0030 and E2018-0015 have been compiled by the *Employer* or *Employer's* appointed *Contractor* and was accepted by the *Employer's* KORC. The *Employer* will revisit these studies and perform a validity check (in accordance with KAA-709) to ensure the plant conditions and relevant design studies and associated documentation and its inputs/references remain applicable to the conclusion in terms of impact to plant safety.
- The *Contractor* will comply with the mitigated actions required by these safety evaluations to ensure installation activities over or close to in-service safety related Equipment does not impact the design basis of KNPS.
- It is assumed the bounding cases and associated inputs to the safety evaluation's concluding remarks remain valid.
- If the re-review and/or validation activity results in changes to the safety studies, where the outcome may possibly conclude changed or additional requirements, which could have an impact on the *Contractor*, then this will be a change to the Works Information.

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Authorisation of individuals in accordance with KTA-005 (240-146088803).	**X**		• All safety screenings, evaluations and justifications are performed by authorised individuals in accordance with KTA-005 (240-146088803.	N/A	The basis for the safety case, i.e. the safety screening and safety evaluation will be provided by the *Employer*.
•	Probabilistic Safety Assessments (PSA) evaluation.	**X**		• The *Employer* performs the PSA. The *Contractor* to supply all relevant input information when requested to furnish information		

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Incorporate PSA results into safety evaluation and confirm applicability of PSA to detailed design	**X**		• The *Contractor* notifies the *Project Manager* of any discrepancies in the PSA study. • The *Contractor* corrects any safety concerns highlighted by the Safety Evaluation / PSA in its design.	In accordance with Accepted Programme	
•	Presentation of safety evaluations, justifications and cases to KORC for approval.	**X**		• The *Project Manager* arranges with KORC for an opportunity to present information at KORC. • Both the *Project Manager* and the *Contractor* attends the meeting. • The *Project Manager* performs the presentation.	In accordance with Accepted Programme	Regular meetings are scheduled every Monday but arrangement of special KORC meetings is possible for urgent issues.
•	Approval of safety evaluation documents.	**X**		• *Project Manager* acceptance is subject to the requirements of the safety evaluation process being met.	In accordance with Accepted Programme	*Employer's* KORC Chairman approves the documents.
•	Originals in Scheme Design and copies to TD & RM, copy to RRM, copy on LAN.	**X**		• The *Project Manager* submits the approved Safety Evaluation documentation to the *Contractor*.	In accordance with Accepted Programme	
•	Conclusion	**X**	**X**	• This activity group is 90% complete upon *Employer's* acceptance of the safety evaluation and 100% complete upon authorisation of the safety case for implementation by the NNR.	In accordance with Accepted Programme	Deliverables: • Safety screening document (where applicable), • Safety evaluation (where applicable), • Safety justification (where applicable) and • Safety case for implementation (where applicable). • KORC presentation

7.7. Design Field Changes

The *Contractor* will compile and review any required Design Field Changes (DFCs) if the *works* cannot be installed as per the design document.

7.8. *Employer* licensing support with National Nuclear Regulator (NNR)

The *Contractor & Employer* provides support and does all rework necessary until the *Employer* has obtained approval from the National Nuclear Regulator (NNR) for the design change. Any rework related to design deficiencies will be reviewed by the *Contractor* to determine the impact to the implementation scope and schedule. If an impact is realised, the *Employer* will be notified in accordance with the contract. Any delay due to NNR acceptance remain the employer risk.

For clarification, NNR responses are categorised into four categories, namely:

- Subjective: These do not affect or impact on the safety case or the technical intent of the modification. Rework resulting from these requests is not included in the scope of work.
- Objective: These are changes due to a Defect in the safety case or the technical intent of the modification. Rework resulting from these requests is included in the scope of work.
- Configuration Control: Changes requested to any documents or procedures identified by the NNR for update. Rework resulting from these requests is included in the scope of work.
- Conceptual: These comments are applicable to the conceptual intent of the modification which is described in the Technical Requirement Specification (TRS). The *Employer* is responsible for the TRS and any rework required as a result of changes in the conceptual intent is not included in the *Employer's* scope of work.

For the scope of work included in this contract the following NNR support activities are required:

7.8.1. Inverter Systems Installation

No support is required from the *Contractor* in terms of NNR approval of the detailed design.

The following documents are required to be compiled by the *Contractor* in support of the installation safety case that will be submitted to the NNR for approval:

- Work Plans
- Quality Control Plans
- Scaffolding Plan (including protective measures during installation)
- Isolation Plan (for electrical supply installation)
- Tool List
- Measuring & Testing Equipment List
- SHE Risk Assessment
- Testing & Commissioning Plan
- Waste Management Plan.

7.9. Equipment required to be included in the *works*.

As prescribed in the Technical Requirement Specification (TRS) which forms part of this contract.

7.10. As-built drawings, operating manuals, and maintenance schedules

7.10.1. As-built drawings

As-built drawings compiled by the *Contractor* are done in terms of the KOU procedure listed in the designs which forms part of this contract.

Only the 2D electronic drawings provided in relation to steel design *works* will be mark-up for as built. Any changes to other existing plant drawings have not been allowed for.

7.11. Documentation to be supplied by the *Contractor*.

Operating manuals and maintenance schedules are provided as part of the Configuration Management File of the Installation Design. The information is customised to the KOU. The *Contractor* provides any additional support information required by the *Employer's* Maintenance Basis and In Service Inspection and Testing groups, to assess related interventions during the life of the Plant.

	Activity description	***Project Manager***	***Contracto***	**Requirements**	**Planning**	**Additional notes**

•	Compilation and submission of End of Implementation Report (Per Unit)		**X**	• In accordance with *Contractor*'s quality management system.
				• The End of Implementation Report provides all the completed installation records and certification per KOU unit as required by the Work Plan and testing procedures and consists (as a minimum, but necessary limited to) of:
				  • all completed and signed off Work Plan documentation and test procedures,
				  • all associated NDE reports and (where required) staff qualification records,
				  • signed certificates (COCs, CSCs, SCCs),
				  • non-conformance reports
				  • referenced receipt inspection as well as *Employer* surveillance report numbers with associated material and component quality assurance data packages),
				  • signed off DRs as well as signed off Design Field Changes (including all associated configuration control update requests)
				  • Any other implementation records required by the specified Quality Assurance requirements i.e.: Updated system software and configuration files etc.)
				• The *Contractor* provides objective evidence that an internal quality assurance review was performed on the completed package prior to submission to the *Employer*.
					As per accepted program	Equipment and Component QADP typically includes the following documentation:
						• Manufacture Quality Plan
						• Material Certificates.
						• Non-Destructive Examination Records (if applicable).
						• Test Records.
						• Weld Specifications (if applicable).
						• Non-Conformances.
						• Authorised component drawings and specifications.
						• Seismic report (if applicable).
						• Conformance Certificates.
						• Certificates of Compliance
						• Disconnection / Re-connection sheets.
						• Construction Status Certificates.
						• Clearance Certificates.
						• All DFC's related to design deficiencies are the responsibility of the *Employer*

•	Resolution of outstanding items		**X**	• It is required that all outstanding items are resolved as to not prevent the *Employer's* use of the *works*	As required	

	Activity description	*Project Manager*	*Contracto*	Requirements	Planning	Additional notes
•	Plant take-over		**X**	• The plant will be taken over per unit only when the *Contractor* has completed all his obligations in terms of the contract. • Take-over is co-ordinated by the *Contractor.*	In accordance with Accepted Programme	
•	Signing of the Hand Over Certificates and Finalisation of overall modification QADPs	**X**			As required	
•	Conclusion	~~X~~	~~X~~	• Completion is upon authorisation of the project hand-over certificate - KFU-PE-008 in accordance with KAA-501.	As per accepted program	Deliverable: • Modification QADPs • Hand-over certificate - KFU-PE-008 duly signed by the *Employer*.

It is the responsibility of the *Contractor* to plan his supply of documentation according to requirements and to indicate dates on the Accepted Programme.

7.12. Maintenance manuals

Maintenance manuals must form part of the Configuration Management File submitted as part of the Installation Design. As-built changes affecting the maintenance manuals are submitted as part of the as-built design submission.

7.13. Number of manuals

Full and comprehensive maintenance manuals are supplied by the *Employer*. Two (2) complete printed copies of all documentation are supplied. One copy is marked ‘Master Copy’ and one ‘Reference Copy’. The aforementioned is also handed over in a searchable electronic format.

7.14. Modifications (during Defect’s period)

The *Contractor* provides any additional and amended pages, sufficient for all copies of manuals, to ensure that they are complete with details of final settings and modifications made up to the Defects Date. Such information is forwarded to the *Project Manager* progressively and promptly following receipt of agreement to Equipment or system design modifications. The materials used for updated pages are the same as that used for the original documentation.

7.15. “AS BUILT marked up” plant hand over documentation.

Submission of the "As Built" documentation, which is subject to acceptance by the *Project Manager*, is a pre-requisite for Completion.

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Compilation and submission of As-Built design documentation and drawings.	**X**	**X**	• The process for maintaining the design status will be as follows: • After 1st Unit implementation, the *Employer* design is updated to take into account the first unit design changes – approved by means of DRs and DFCs – reference is made in the design with regards to which DRs and DFCs are incorporated into the design revision. Where required, the Work Plan and test procedures associated with the 2nd unit implementation are updated as well. • After 2nd Unit implementation, the *Employer* provides a final design revision update following implementation and testing.	As per accepted programme	Acceptance process for updated design, Work Plan and test procedures may be simplified for these submissions as it is assumed that all changes were already approved by means of the DR and DFC processes.

8. Final documentation

Submission of the "End of Implementation Report" documentation, which is subject to acceptance by the *Project Manager*, is a pre-requisite for Completion.

8.1. Document control

The *Contractor* implements a comprehensive document management system for control of all documents including but not limited to drawings, procedures and manuals. The document management system provides information on the document revision status and of document status in relation to the ‘as built’ and ‘as designed’ status on each plant group or sub-group. The system is part of the Quality Assurance programme identified in the Quality Assurance Manual, supplied by the *Contractor.*

8.2. Configuration control

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Provision of Completed Spares Assessment Input Sheet and supporting data		**X**	• In compliance with KAA 614. • The *Contractor* provides the required input data for every new component that is installed on the plant. • Should the *Contractor* need support to clarify whether Equipment is standard or not, he clarifies with the *Project Manager*.	In accordance with Accepted Programme	All input data to be provided by official communication. The *Employer* will complete the required spares registration process.
•	Provision of Maintenance Basis programme requirements and supporting data.		**X**	• In accordance with KAA 614 and KSU-006.	In accordance with Accepted Programme	All input data to be provided by official communication. The *Contractor* provides a detailed description of the required *Employer* tasks including their frequency, detailed description and objective of each task required to maintain the installed Plant and Material. This information is provided after the *Contractor's* design has been accepted and prior to installation. The *Employer* will complete the required maintenance bases updates.
•	Identification, compilation and review of document change requests and submission to the *Employer*.	**X**	**X**	• DDR, SAR and OTS Change notifications and proposed procedure (operations and maintenance) changes.	In accordance with Accepted Programme	The *Employer* and *Contractor* are responsible *for c*onfiguration control
•	Processing of document changes as per relevant process procedure.	**X**		• As referenced in KAA-501.	As required	

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Process custodian interface and support	**X**		• The *Contractor* provides all required information and supports the *Supervisor* with the interface.	As required	
•	Presentation of SAR and OTS changes to relevant committees.	**X**		• *Contractor* to support.	As required	
•	Document release for UPDATING (DDT)	**X**	**X**	• For discrepancies: "As-built" changes are only submitted for update upon *Employer* acceptance of each Discrepancy Report.	To - 3 months	This is the formal action given to the *Employer* to commence with updating of the Master documents.
•	Updating of Masters	**X**			3 months – pre-outage submittals 1 month - for as-builts	
•	Verification of Master Updates (Confirmed correct)	**X**	**X**	• Verification is limited to the scope of the change as a result of the modification. • Where discrepancies impact on DDR's and the DDR is to be changed, red-line mark-up will be provided. • The updated DCIF forms part of the Design update (following 1st unit implementation) or Design Field Change (2nd unit implementation).	As required	Changes related to design deficiencies is the responsibility of the *Employer*. Changes related to installation errors are the responsibly of the *Contractor*.
•	Approval for RELEASE of documents		**X**	• Operational documentation is released prior to PTW suspension for testing (i.e. prior to the plant being made live). • Non-operational documentation is released prior to Permit to Work clearance.	As required	This is the formal request to release the updated documents to the various documentation centres and operations control room.
•	Distribution of documents to documentation centres	**X**			As required	For immediate availability, *Contractor* to co-ordinate and arrange. For within three days - *Employer* can provide the function.

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Conclusion			• This activity group is complete upon release of all affected documents to the Station (including "As-Builts".	As per Accepted Programme	Deliverables: • DDRs • SAR Change Notification • OTS Update Request • Procedure Change Requests • "As Built" drawings • Updated DCIF form

9. Procurement

9.1. Supplier Development and Localisation (SD&L)

9.1.1. B-BEEE Compliance

The *Contractor* must be in possession of valid B-BBEE status level of contribution.

The successful *Contractor* will be encouraged to maintain or improve the B-BBEE status level for the duration of the contract**.**

Refer Attachment 7_(SDL&I) KBG2516 Inverter System Replacement Project for the specific SDL&I requirements that will be included as part of the Contractual obligation with the selected *Contractor.*

9.1.2. Subcontracting

All sub*contractors* are contracted on a back-to-back basis under appropriate NEC conditions of contract and are subject to acceptance by the *Project Manager*. Where NEC conditions of contract are not utilised, the proposed conditions of contract are submitted to the *Project Manager* for acceptance.

In terms of the Construction Regulations, the *Contractor* only appoints a sub*contractor* when the *Contractor* is satisfied that such a sub*contractor* has the necessary competencies and resources to perform the work falling within the scope of the subcontract safely.

The *Contractor* is required to:

- Stop any sub*contractor* from executing construction work which is not in accordance with the *Contractor's* or sub*contractor*'s health and safety plan for the Site or which poses a threat to the health and safety of persons.

Ensure that every sub*contractor*:

- is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to work commencing on the Site; and
- have made provision for the cost of health and safety measures during the construction process.

9.2. Plant and Materials

Contractor's procurement of Plant and Materials

As prescribed in the technical specification Ref: TRS - 09082A, which forms part of this contract.

9.2.1. Spares and consumables.

- The *Contractor* supplies any spares which may be required for and during commissioning of the *works.*
- The *Contractor* provides a recommended list of spares with each unit priced and the relevant support information as required by KAA-614 - Appendix 2, for at least fifteen years operation.
- For the recommended list of spares, the *Contractor* provides the basis for spares inventory with specific reference to critical spares.
- When applicable, the *Contractor* delivers spares to the Site stores and in liaison with the *Project Manager* and supplies the data necessary for booking spares into stores.

9.2.2. Consumables

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Welding Consumables Verification and Reservation		**X**	• The *Contractor* specify the requirements in terms of welding consumables, limited to: welding rods, filler wire and gas, and provide reservation request to the *Project Manager.*	To-12 wks.	To: implementation starting date
•	Welding consumables	**X**		• Welding consumables are provided by the *Employer*.	In accordance with Accepted Programme	
•	Consumables handling and control		**X**	• Hazardous substances and materials are handled in accordance with the *Employer's* relevant process procedure and are ensured by the *Contractor's* Responsible Person.	As required	

9.2.3. Control of radioactive Equipment, Plant or Material (as applicable)

- Prior to Equipment, Plant or Materials that is to be used in the *Employer's* Site radiological control zones, being brought onto the *Employer's* site, the *Contractor.*
- obtains the *Project Manager's* acceptance of a Radiological Surveillance
- Report, provided by the *Contractor*, which details the radiological
- conditions/cleanliness of the Equipment, Plant or Materials in terms of dose rate and contamination level (fixed/loose); and
- Makes available such Equipment, Plant or Materials for scrutiny by the
- *Employer's* RP Group, when first unpacked/unfolded/uncontained from its original shipment packing.

9.2.4. Quality

Quality requirements relating to Plant and Materials will be developed and identified, by the *Contractor*, and accepted, by the *Project Manager*, as part of the Procurement Specification of the Installation Design – which will include the Bill of Material.

- The *Contractor* shall be certified as a SANS 9001:2008 service provider.
- The *Contractor* shall compile and submit to Koeberg where applicable, for acceptance, two copies of a data book containing the following certification and reports:
    - Steel wire rope certificates;
    - Lifting hook certificates;
    - Radiographic examination reports;
    - Dimensional data reports;
    - Material certificates;
    - Static and dynamic test reports.
- Maintenance manual with detail drawings and maintenance instruments shall be supplied by the *Contractor*.
- The *Contractor* shall supply to Eskom upon take-over of the *Works* a complete hardware breakdown structure and spares list for future maintenance purposes.
- The *Contractor*, or his appointed inspection authority, shall employ a quality assurance system, which shall cover the inspection of all components for dimensional accuracy, inter-changeability, compliance with material specification, faults and workmanship.
- The *Contractor* shall provide documented proof that all electrical Equipment requirements are met. The *Contractor* shall provide Eskom with suppliers' certificates of conformance for catalogued and off-the-shelf items.
- The *Contractor* shall supply a detailed Quality Assurance Data Package (QADP) that includes, but is not limited to the following:
    - manufacturing and test records
    - supplier's certificates of conformance
    - supplier's inspection and test certificates
    - Equipment qualification test reports
    - inspection release reports
    - completed Quality Control Plans and supporting documentation used
    - in the execution of the contract
    - factory acceptance test reports
    - site acceptance commissioning test reports
- The *Contractor* shall supply testing procedures (i.e. FAT, SAT, etc.) for review and acceptance by Eskom.
- Eskom reserves the right to reject any component or part that does not meet the requirements of this specification.
- *Contractor* engineering personnel required to sign as compiler and/or approver of documents and drawings required by this specification shall be registered as professional engineers or equivalent as approved by Eskom in accordance with ECSA guidelines.
- All persons performing testing and inspections shall be appropriately qualified and certified in accordance with requirements of the applicable standard.

- Only high quality, defect free components shall be installed on Koeberg cranes. Component selection shall be based on good engineering practice and shall also incorporate lessons learnt from operating experience.
- The upgrade shall ensure that cranes handle loads in a safe and reliable manner.

9.2.5. Counterfeiting

The *Contractor* warrants that all items provided to Provide the Works is genuine, new and unused. The *Contractor* further warrants that all items used to Provide the Works include all genuine, original or are otherwise suitable for the intended purpose.

Types of material, parts, and components, known to the *Employer*, to have been misrepresented internationally include (but are not limited to):

- fasteners;
- hoisting, rigging, and lifting Equipment;
- cranes;
- hoists;
- valves;
- pipe and fittings;
- electrical Equipment and devices;
- plate, bar, shapes, channel members, and other heat treated materials and structural items;
- welding rod and electrodes; and
- computer memory modules.

The *Contractor's* warranty extends to labels and/or trademarks or logos affixed, or designed to be affixed, to items supplied or delivered to Provide the Works.

Falsification of information or documentation may constitute criminal conduct, the *Employer* may reject and retain such information or items, identify and segregate such information or activities, at no additional cost to the *Employer*.

The *Employer* will also report such information or activities to relevant South African governmental officials.

9.3. Plant & Materials provided "free issue" by the *Employer*.

There shall be no free issue of plant and materials from the *Employer*.

9.3.1. *Contractor*'s procurement of Plant and Materials

The *Contractor* shall be responsible for the procurement and supply of all plant and materials required for this modification.

The *Employer* requires warranties from suppliers to be in favour of the *Employer* and not just to the *Contractor*. Where provided warrantees from suppliers exceed the Defects Date, those warrantees are passed on to the *Employer*. All *Contractors'* supplier data that the *Employer* may need after Completion of the whole of the *works* is supplied to the *Employer* at delivery.

9.3.2. Procurement: Equipment, Plant and Materials and consumables

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Compilation and submittal of manufacturing quality plans to the *Project Manager* for indication of hold and witness points and approval.		X	• Manufacturing quality plans are in accordance with the *Employer* Quality Requirements.	In accordance with Accepted Programme	Not applicable to third party "off the shelf" Equipment, Plant and Materials.
•	Manufacturing Quality plans to be submitted to the *Employer's* PQE and QA/QC sections for indication of *Employer's* hold and witness points.	X		• Indication of *Employer's* requisite "hold" and "witness" points and acceptance.	Within 4 weeks of receipt of notification.	
•	Manufacturing and procurement of Equipment, Plant and Materials.		X	• In accordance with the requirements of the applicable codes, standards and quality requirements of the accepted design. • For long lead items, which require to be purchased prior to acceptance of the Installation Design, the *Contractor* obtains *Employer's* acceptance prior to placement of such orders and include such items in the Programme.	In accordance with Accepted Programme	
•	Notification of *Employer's* hold and witness points.		X	• Notification to *Project Manager*	Local – 1 week Foreign – 2 weeks	
•	Equipment, Plant and Materials packaging.		X	• In accordance with the requirements of the applicable codes, standards and quality requirements of the accepted design. • An itemised detailed packing list must be compiled for each shipment and sent to the *Employer* electronically in advance. The packing list must be made up using the following columns: ◦ Tracking devices & numbers for GPS ◦ Box number ◦ Item number ◦ Quantity ◦ Equipment Description ◦ SAP 45 Order No ◦ Storage Level	In accordance with Accepted Programme	

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes

•	Preparation of Equipment, Plant and Materials for shipment (Packaging/Crating).		**X**	• Any items brought onto Site must be packaged in such a manner as to prevent damage during transportation and degradation due to environmental effects.
				• Each crate must be identified with a label stating:
				  • Project Title
				  • Koeberg Operating Unit
				  • Attention: The *Supervisor* [specify name and tel. number]
				  • *Employer*s modification number
				  • SAP 45 Order No
				  • Storage requirements
				• Inside the crate, each box must be identified in accordance with the packing list. Items in the box to have all relevant documentation and certificates.
					In accordance with Accepted Programme	

•	Notification of shipment to be performed.		**X**	• The *Contractor* formally sends the following information to the *Project Manager:*
				  • Shipping Agent Name
				  • Description of items to be shipped
				  • Value of shipment
				  • Weight of shipment
				  • Port of shipment
				  • The vessel/flight name
				  • The departure date
				  • The arrival date
					In accordance with Accepted Programme	

•	Transportation to storage facility at KOU and subsequent transportation to the point of implementation (including all related rigging and lifting Equipment and activities).		**X**	[1] Incoterms: Delivered Duties Paid (where applicable).	In accordance with Accepted Programme	Allow 2 weeks for customs clearance in South Africa (where applicable).

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**

•	Provision of Equipment, Plant and Materials QADP's for customs clearance and receipt inspections.		**X**	• The *Contractor* provides with each shipment a summary sheet which contains:
				  • the bill of material for the shipment,
				  • a description of the Equipment and
				  • the total price for each item on the bill.
				• The summary sheet also reflects the contract reference number and the name of the *Project Manager*.
					In accordance with Accepted Programme	Individual items are marked in accordance with the Contract and Works Information.

•	Unpacking on Site		**X**	• The *Contractor* coordinates this activity. • Crate opening to be witnessed by the *Supervisor*	In accordance with Accepted Programme	

•	Verification of Equipment, Plant and Materials to specification and preparation for marking by the *Supervisor*.		**X**	• Upon delivery, the *Contractor* prepares such Plant, Materials and Equipment that are identified for payment in the *activity schedule,* for the *Supervisor* to mark.
				• As part of preparation for marking, (where applicable and as directed by the *Project Manager*) the *Contractor* shows title of such Plant, Materials and Equipment to the *Supervisor*. Demonstration by the *Contractor* of such title is a prerequisite to marking and payment.
				• Preparation for marking includes:
				  • Marking for the attention of the *Supervisor*
				  • Item Number – corresponding to that on the packing list
				  • Bill of Material number
				  • The contract number and title
				  • SAP 45 Order number
				  • Level of storage requirements
				  • Shelf life
					Notification 4 weeks prior to delivery to Site	

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Receipt inspection / acceptance of Equipment, Plant and Materials.	**X**		• Surveillance report supplied by *Employer* PQA (Project Quality Assurance). • The *Contractor* provides the *Employer's* PQE staff with the bill of material reference number(s) of the Equipment, Plant and Materials inspected – these are to be included on the surveillance report. • The *Contractor* ensures that the applicable surveillance report number is referenced in the "As-Built" BOM for traceability reasons. • The surveillance report numbers are used as index for all QADPs submitted with Equipment, Plant and Materials and are transmitted to the *Project Manager* as part of the End of Implementation Reports.	1 day duration	The *Supervisor* marks the Equipment, Plant and Materials after preparation for marking by the *Contractor*.
•	Procurement of all consumables excluding welding rods, filler wire and welding gas.		**X**	• All consumables such as grinding discs, marking pens, dye penetrant, developer etc. used directly for the *works* are CRACK compliant in accordance with DSG-317-094	In accordance with Accepted Programme	
•	Conclusion	**X**	**X**	• This activity group is complete upon issuing of the "Surveillance Report" by the *Employer*.	In accordance with Accepted Programme	Deliverables: • Manufacturing Quality Plans • Packing Lists • All Equipment, Plant and Materials and consumables with applicable quality assurance data packages and associated surveillance reports.

9.3.3. Procurement: Storage of Equipment, Plant and Materials

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Provision of plans for laydown areas and conservation requirements for storage.		X		Notification 6 months prior to delivery to Site	
•	Arrange storage space and notify *Contractor* of storage available.	X		• *Supervisor* arranges.	Within 6 weeks of receipt of notification	
•	Notify *Project Manager* if storage space not suitable.		X		Within 2 weeks from *Employer's* response	To allow sufficient time for the *Employer* to arrange alternative facility.
•	Provision of suitable Storage Area	X			In accordance with Accepted Programme	
•	Moving of Equipment, Plant and Materials and related support services (i.e. rigging) to and from receipt inspection area, storage facility, laydown areas and Site.		X		In accordance with Accepted Programme	
•	Tracking and control of Equipment, Plant and Materials.		X		In accordance with Accepted Programme	
•	Conclusion	X	X	• This activity group is complete upon agreement of a suitable storage area.	In accordance with Accepted Programme	Deliverables: • Laydown plans • Allocated storage areas
•	Welding Consumables Verification and Reservation		X	• The *Contractor* specify the requirements in terms of welding consumables, limited to: welding rods, filler wire and gas, and provide reservation request to the *Project Manager.*	To-12 wks.	To: implementation starting date
•	Welding consumables	X		• Welding consumables are provided by the *Employer*.	In accordance with Accepted Programme	

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Consumables handling and control		X	• Hazardous substances and materials are handled in accordance with the *Employer's* relevant process procedure and are ensured by the *Contractor's* Responsible Person.	As required	

9.4. Tests and inspections before delivery

The *Contractor* shall together with the *Employer* ensure that the Factory Acceptance Tests and inspections are performed on the inverter systems and switchboards.

9.5. Marking Plant and Materials outside the Working Areas

- The *Contractor* gives four weeks' notice prior to delivery of Plant, Materials and Equipment
- Upon delivery, the *Contractor* prepares such Plant, Materials and Equipment that are identified for payment in the activity schedule, for the *Supervisor* to mark.
- As part of preparation for marking, (where applicable and as directed by the *Project Manager*) the *Contractor* shows title of such Plant, Materials and Equipment to the *Supervisor*. Demonstration by the *Contractor* of such title is a prerequisite to marking and payment.
- Preparation for marking includes:
  - Marking for the attention of the *Supervisor*
  - Item Number - corresponding to that on the packing list
  - The *Contract* number and title
  - Level of storage requirements
  - Shelf life

All excess Plant and Material, paid for by the *Employer* and of which he holds the title, after *completion* of whole of the *Works,* remains the property of the *Employer.*

9.6. *Contractor*'s Equipment (including temporary works).

As prescribed in the Technical Requirement Specification (TRS), refer section 4.11.

10. Construction

10.1. Temporary works, Site services & construction constraints

Employer's Site entry and security control, permits, and Site regulations.

10.2. Minimum requirements of people employed on the Site

The *Contractor* employs in and about the Provision of the Works only such persons that are careful, competent and efficient in their several trades and callings arid the *Employer* reserves the right to object to and require the *Contractor* to remove from the *works,* forthwith, any person employed by the *Contractor* in or about the Provision of the Works who, in the opinion of the *Project Manager,* misconduct's himself or is incompetent or negligent in the proper performance of his duties and such person is not again employed for the *works* without the written permission of the *Project Manager.*

The *Contractor,* in and about the Provision of the Works, provide evidence of skills assessment (including qualifications) for all his staff. *Contractor* project manager, QC and *Supervisors* are required to present SAQA, or equivalent, approved certificates (or equivalent), for the position that they fulfil. Any *Contractor's* personnel that do not meet the *Employer's* panel requirements will have their access to site revoked. For mechanical contracts, the *Contractor* demonstrates ASME construction and maintenance/testing skills, knowledge and oversight.

All engineering work is performed by suitably qualified and experienced individuals. The *Contractor* demonstrates to the *Project Manager,* for his acceptance, that the assigned persons fulfil these requirements and submits a brief CV of each engineer in and about the Provision of the Works. If design work is carried out in jurisdictions where engineering work is governed by a formal professional body, the engineers taking responsibility for the work must be registered as professional engineers with that body.

The *Contractor* ensures that the *Contractor's* employees are reasonably fluent in the language of the contract.

The *Contractor* maintains at all times a harmonious relationship with and co- operates with the *Employer* and all its suppliers and sub-suppliers or their employees who may be involved.

10.3. Key personnel

The *Contractor* ensures that all key personnel assigned to the *works* meet the requirements of the *Employer's* security and medical qualifications as well as training and experience generally required by similar utilities elsewhere in respect of similar work. Where required, these staff members also meet such requirements as the National Nuclear Regulator may stipulate from time to time.

Contractor supervisors are deemed to be key people and are dedicated to each project.

The *Contractor* provides orientation, and technical training for all key personnel in accordance with the requirements of the *Employer's* Radiological Safety Regulations, the *Employer's* Industrial Safety Programme, and, in general, the whole framework of plant rules and regulations which may be in force at the *Employer's* Site from time to time, which is available on request.

All Radiation workers comply with such radiation protection standards as is required by the *Employer.*

The *Contractor* regularly reports person hours worked to the *Project Manager* on a monthly basis.

The *Contractor* at his own expense complies with the Nuclear Energy Act 92 of 1982, the National Key Points Act 102 of 1980, and the Protection of Information Act 84 of 1982 and in general with all laws, regulations, bye-laws and requirements of local and other authorities, which may be applicable to the *works* and as, amended or replaced.

The *Contractor* complies with the *Employer's* Radiological Safety Regulations Programme, and in general, the whole framework of plant rules and regulations which may be in force at the *Employer's* facilities from time to time.

At the Site the *Contractor* is at all relevant times under the authority of the *Employer's* Power Station Manager for the purpose of giving effect to the provisions of the above two clauses hereof. Notwithstanding the afore said, this does not in any way relieve the *Contractor* of his obligation to comply with the relevant legislation, should the *Employer's* Power Station Manager fail to act in any specific manner which makes him or the *Employer* liable in any way whatsoever.

The *Contractor* at its own expense complies with the Basic Conditions of Employment Act No. 75 of 1997. The *Contractor* indemnifies the *Employer* against any claims, proceedings, compensation and cost arising from the *Contractor* transgression of the Act.

The *Contractor* complies with all relevant labour legislation and applies to the Ministerial Determination for working hours and obtains approval prior to the commencement of any work on Site. The *Contractor* submits the approval to the *Project Manager* for acceptance.

10.4. Qualification of key personnel

The *Contractor* shall be certified as an ISO 9001:2008 service provider. *Contractor* staff performing the design and/or installation work shall be qualified by means of formal technical qualifications and have sufficient experience with work of a similar nature and who have been evaluated and authorised by the *Contractor*. The *Contractor* shall provide details of their experience with design and installation of similar qualified components in the tender submittal. All persons compiling the design shall be appropriately professionally registered.

The *Contractor* ensures that all key personnel assigned to the Works meet the requirements of the *Employer's* security and medical qualifications as well as training and experience generally required by similar utilities elsewhere in respect of similar work. Where required, these staff members also meet such requirements as the National Nuclear Regulator may stipulate from time to time.

The *Contractor* provides orientation and technical training for all key personnel in accordance with the requirements of the *Employer's* Radiological Safety Regulations, the *Employer's* Industrial Safety Programme, and, in general, the whole framework of plant rules and regulations which may be in force at the *Employer's* Site from time to time, which is available on request.

All Radiation workers comply with such radiation protection standards as is required by the *Employer.*

11. Installation

For the *Employer* to increase the bund wall height if determined necessary under analysis. This work is to be completed within the timeframe of the contract. Work can be progressed outside of the Outage time with adequate safety demonstration accepted by the *Employer.* The *Contractor* ensures bund integrity for all non-outage work performed.

The *Employer* ensures the interfaces with the roof structures and monorail assemblies are structurally sound for installation activities. Examples of this is the concrete surfaces and substrate.

The *Contractor* provides a scaffolding plan that demonstrates integration of usage between the various packages to reduce radiation, consumable resources etc. for review and acceptance by the *Employer.*

The *Contractor* provides all scaffolding required for the *works.*

The *Contractor* will install and test the new crane system in accordance with Detailed Design 10007A-4 Part B: Installation Specification.

11.1. Radiation Protection

The *Employer* is responsible for all day-to-day radwaste (clothing, wastewater, consumables,) generated by the project. The *Contractor* supplies an estimate of the amounts generated/required to the *Employer.*

Employer provides RP services in terms of RP strategy document paragraph 5.11. Any additional services, such as Security, Ops etc. will be made available by the *Employer* upon request from the *Contractor*. Such request will be made to the *Project Manager* in writing and in good time.

11.2. Permit to work (PTW) (as applicable)

All work performed on the Site is governed by the *Employer's* PTW system and no work is allowed without this authorisation.

11.3. Emergency mustering and accountability and evacuation

Due to the nature of the Site the *Employer* is required to have full accountability of all personnel at all times.

The *Contractor* maintains a current status accountability list of all his personnel on Site.

The accountability list is handed to the *Employer* each time a change occurs.

The *Contractor* ensures that his personnel take full responsibility of this requirement and that his personnel are fully au fait with the mustering requirements as detailed in procedure KAA 611.

11.4. Notification of construction work

The Construction Regulations require that the *Contractor*, as the main *contractor*, inform the provincial director of the Department of Labour before carrying out any work on the Site where the work:

- Involves the demolition of a structure exceeding a height of three meters, the use of explosives or the dismantling of fixed plant at a height greater than three meters.
- Exceeds 30 days or will involve more than 300 person days of construction work and includes excavation work deeper than one meter; or working at a height greater than three meters above ground or a landing.

11.5. Work plan and test procedures

All construction activities will be governed by means of an accepted Work Plan in accordance with the requirements stated below.

	Activity description	***Project***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Verification of all drawings and plant layout		X	• Applicable to accessible plant items, components and systems only. • The *Contractor* performs walk downs of all areas to identify all the risks. Photos are to be taken of the work areas and areas where the *Contractor* will be tying into existing plant. • The inclusion of these photos into the Work Plan and/or SHE Risk Assessment is strongly recommended.	In accordance with Accepted Programme	For instance, the *Employer* requires a photo when drilling a hole on both sides of the wall to ensure that nothing on the other side is damaged.

	Activity description	***Project***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Raise SAP Requests for Notifications, Orders and Operations to be included in *Employer*'s SAP planning system.		**X**	• SAP request notifications, orders and operations are raised in compliance with KGA-020. • The SAP request forms are completed by a person with detailed knowledge of exactly what work is to be completed for the specific request – reference to QCPs will not suffice as the *Employer's* work controllers must understand the scope and nature of work to be performed. • Where limited conditions of operation (LCOs) are entered into, these must be clearly stated on the SAP request.	As per accepted programs	In order to integrate the *Contractor's* activities with the *Employer's* plans, it is required that SAP notifications, orders and operations be raised on the *Employer's* SAP system.
•	Raise SAP Notifications, Orders and Operations	**X**		• In accordance with *Contractor*'s SAP Requests. • The *Contractor* provides the required updates and the *Employer* maintains and updates the SAP orders, notifications and operations.	As per Accepted program	The SAP orders needs to be raised early enough in order to include the numbers in the Work Plan.

•	Compilation, independent review and approval of the Work Plan together with *Contractor's* and Sub*contractor*'s approved quality control plans (QCPs).		**X**	• The Work Plan addresses all requirements stated in the *Employer's* Work Plan template – KFA-002. The Work Plan is sufficiently detailed and clearly shows all the work required to Provide the Works. Due to the nature of this specific project, the *Contractor* includes in its Work Plan a unit-specific:
				  • Rigging Plan;
				  • Scaffolding Plan
				• The *Contractor* completes the *Employer's* Work Plan template (KFA-002) and provides reference to the *Contractor's* and sub*contractor*'s QCPs and installation plans.
				• All static testing - testing that does not require energisation of the system or components i.e. liquid penetrant, radiography and wire-to-wire testing – is incorporated in the Work Plan.
					In accordance with Accepted Programme	

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes

				• The Work Plan is supplied with a detailed schedule to indicate main activities (in accordance with the Accepted Programme) with sufficient detail for integration into the *Employer's* outage plan. The detail required for integration within the *Employer's* outage plan are:
				  • Plant state requirements and (any) system dependencies
				  • Predecessors and successors
				  • Physical duration of the main activity
				  • Working times (calendar) and associated resources.
				• Risk and (where applicable) ALARA assessments, as required by the Work Plan is performed by authorised *Contractor* personnel only.
				• When working in relaying, switchboards, KRG, KIT the *Contractor* analyse the risk of tripping the whole board, as well as the cell above, below and on the sides of the areas where work is performed.
				• All SAP orders raised on the *Employer's* database for installation of the modification are included in the Work Plan.
				• All Equipment, Plant and Materials listed for installation has a space for documenting the *Employer's* surveillance report numbers and/or the *Contractor's* receipt inspection number. This will allow traceability of all Plant and Materials installed with its associated QADPs.
				• Intrusive work is classified and controlled in compliance with the *Employer's* Foreign Material Exclusion Procedure KAA-069.
				• The *Contractor* provides a record of the independent review performed. It is an		

	Activity description	***Project***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
				Employer's requirement that the Work Plan be reviewed by the *Contractor's* engineering representative (the designer or one of the design reviewers), involved in the compilation, review and/or approval of the Installation Design; to confirm compliance with the accepted Installation Design.		

•	Compilation, independent review and approval of test procedure(s) with *Contractor* and sub*contractor*'s accepted procedures.		X	• The test procedure(s) addresses all requirements stated in the *Employer's* test procedure template – KFA-006 (.
				• The *Contractor* completes the *Employer's* template (KFA-006) and provides reference to the *Contractor's* and sub*contractor*'s testing and commissioning procedures.
				• Testing and commissioning will verify component functional testing (e.g. motor directional tests, logic function tests, etc.) as well as overall system integrated commissioning test that will verify that:
				  • the installation meets the functional and performance requirements and environmental specification of the accepted design;
				  • the installation functions correctly with all interfacing plant systems.
				• The test procedure(s) is/are sufficiently detailed and clearly shows all the work required to Provide the Works.
				• Each test procedure is supplied with a detailed schedule to indicate main activities (in accordance with the Accepted Programme) with sufficient detail for integration into the *Employer's* outage plan. The detail required for integration
					In accordance with Accepted Programme	It is permitted that accepted *Contractor's* and sub*contractor*'s procedures are attached/referenced in the test procedure(s).

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
				within the *Employer's* outage plan are: • Plant state requirements and (any) system dependencies • Predecessors and successors • Physical duration of the main activity • Working times (calendar) and associated resources. • All SAP orders raised for testing of the modification are referenced in the test procedure. • The *Contractor* provides a record of the independent review performed. It is an *Employer*'s requirement that the test procedures be reviewed by a *Contractor's* engineering representative (the designer or one of the design reviewers), involved in the compilation, review and/or approval of the Installation Design; to confirm compliance with the accepted Installation Design.		
•	Submit the Work Plan and test procedures for *Employer* acceptance review.		X	• All QCPs, installation plans and test procedures are to be submitted – including sub*contractor* documents. • The *Project Manager* will not accept the Work Plan and test procedures for *Employer's* review without all the supporting documentation being approved and available and submitted together.	In accordance with Accepted Programme	Submitted to *Project Manager*.
•	Acceptance review from *Employer*	X		• The *Contractor* attends a review meeting (where applicable) to discuss *Employer* review comments.	In accordance with Accepted Programme	This is to ensure that the *Employer* review comments are well understood by the *Contractor*. Only one review period allowed for acceptable documents
•	Initiate KAM-038 impact assessment review.	X		• Internal activity	Internal activity	

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Address *Employer's* review comments		X	• The *Contractor* addresses all the agreed and accepted review comments of the *Employer*.	In accordance with Accepted Programme	
•	*Employer* acceptance of Work Plan and test procedures.	X		• Acceptance is subject to all the *Employer's* comments being adequately addressed.	In accordance with Accepted Programme.	Cover sheet needs modification to allow for signatures.
•	Conclusion	X	X	• This activity group is complete upon the *Employer's* acceptance of the installation plan and test procedure(s).	In accordance with Accepted Programme	Deliverables: • Work Plan (reviewed and approved with signatures) • ALARA assessment (where applicable) • Risk Assessment • Unit specific Rigging Plans • Unit specific Scaffolding Plans • Isolation Plan • SAP notifications, orders • Implementation and Testing Schedules (including pre-outage work – where applicable) • Test procedure(s).

11.6. Implementation approval

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Verification and completion of "Design Change Package Implementation Approval" form	X		• In accordance with KFA-035.	In accordance with Accepted Programme	

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Preparation of KORC/KOSC presentation for implementation approval.	X	X	• The KORC presentation covers the Safety Case and implementation approval. • The *Contractor* compiles a KOSC presentation that details the Work Plan and includes all risks identified for the *works* and associated preventive/contingent actions are included for information as part of this presentation. The use of pictures to demonstrate that plant walk-downs were performed is compulsory. This will also aid the *Employer's* KOSC members to fully understand the *works* to be performed.		
•	Presentation to *Employer's* approval authorities (KORC/KOSC)	X		• The *Project Manager* arranges with KORC/KOSC secretaries the, opportunity to present information. • The *Employer* performs the presentation • The *Contractor* supports the *Employer* in the presentation.	In accordance with Accepted Programme	Regular meetings are scheduled every Monday but arrangement of special KORC meetings is possible for urgent issues.
•	Liaison with NNR	X		• The *Contractor* responds to one round of questions raised by the National Nuclear Regulator (NNR). • The *Contractor* supports the *Employer* in responding to questions. • Clarifications regarding the 1st response are not considered as additional questions, but part of the 1st round of questions. • The *Contractor* does not communicate directly to the NNR unless agreed, or in liaison, with the *Project Manager.*	The NNR review and acceptance period is 90 days In accordance with Accepted Programme	The *Employer* interfaces with the NNR. *Contractor* addresses/responds to questions related to the safety case.
•	NNR approval	X		• *Contractor* provides support.	16 weeks duration	
•	Conclusion			• This activity is complete upon approval for installation from the NNR.	In accordance with Accepted Programme	Deliverables: • A duly signed "Design Change Package Implementation Approval" form - KFA-035 • KORC/KOSC presentation • NNR letter of approval for installation.

11.7. Temporary *works*, Site services & construction constraints

11.7.1. *Employer's* Site entry and security control, permits, and Site regulations.

Prior to access to Site, the *Contractor* passes through various security check points, viz. entrance at the R27 access gate, entrance at the Duynefontein entrance, Access Control Point 1 (ACP-1) as well as Access Control Point 2 (ACP-2) where security checks are performed.

All temporary worker/visitors permits are issued at ACP-1.

11.7.2. Restrictions to access on Site, roads, walkways, and barricades.

All Equipment and tools are subject to a security screening before they are allowed on the Site. All Equipment and tools must be listed and specified before they are brought on Site. This list will serve as evidence for removal permits upon Completion of the *works*. Vehicles are only allowed on Site if justification is provided to the *Project Manager* that such a vehicle is essential to Provide the Works.

11.7.3. Health and safety facilities on Site.

The *Employer* maintains a first aid and clinic facility, which is available for treating minor medical problems. *Contractors* are permitted to make use of this facility at their own expense provided that they appear during prescribed consulting hours and are duly authorised by the *Contractor* supervisor. Emergency treatment is provided as needed. Casualty facilities are available at hospitals within a 25km radius.

11.7.4. Site records

The *Contractor* maintains and submits current records of activities, including the work of Sub*contractors*.

These *Contractor's* records include:

- Identification of *Contractor* / Sub*contractor* work and the area of the Site (Work performed to date giving the location, description and by whom, and reference to the Accepted Programme);
- Equipment with hours worked, idle or down for repair;
- Test results and references to specification requirements. List deficiencies identified, together with the corrective action;
- Plant and Material received with statement as to its acceptability and storage;
- Job safety evaluations;
- Progress photographs;
- A list of instructions given and received and any conflicts in plans and/or specifications;
- Weather conditions encountered;
- The number of persons working on-site by trade, activity and location (Visitors are highlighted separately);
- Information required from and by the *Employer* / *Project Manager* / *Supervisor*;
- Any delays encountered, identifying possible root cause.

11.7.5. Heat stress & confined space entries (where applicable)

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Supply of required protective clothing (coveralls, overshoes, etc.)		X	• Based in international experience feedback, it is strongly recommended that burnable clothing is not worn in a heat stress zone. • The *Contractor* is to propose the specific PPE to be used for workers for work		
•	Respiratory protection	X		• Respirators, air-supply suits, SCBA, etc. • The *Contractor* issues a reservation request for said Equipment.	12 weeks prior to use	
•	Supply of calibrated and checked oxygen monitors		X		As required	
•	Supply of portable ventilation units		X		As required	

11.7.6. Title to materials from demolition and excavation

The *Contractor* has no title to materials from excavation and demolition.

11.7.7. Removal and disposal of redundant / replaced Plant and Materials (as applicable)

The *Contractor* removes and disposes, from Site, all redundant Plant and Materials on a regular basis and ensures the Site is clean and tidy.

11.7.8. Cooperating with and obtaining acceptance of Others

The *Project Manager,* in conjunction with the *Supervisor,* co-ordinates the work of Others on Site. The *Contractor* co-operates with and does not delay, impede or otherwise impair the work of Others.

11.7.9. Publicity and progress photographs

Written acceptance from the *Project Manager* is required prior to:

- The issue of photographs, even if included in a report or submission, to a third party,
- Any publication on notice boards, advertising, media relations, and photography and progress photographs.

11.7.10. Tools, test Equipment & consumables

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Supply of standard tools as well as all specialised tools		**X**	• Specialised tools are supplied by the *Contractor*. • In the case where specialised tools are to be manufactured specifically for KOU, the *Employer* will take ownership of the tools after Completion of the *works* on the last unit. • After implementation on the first unit, the *Contractor* makes available the specialised tools for any maintenance that might be required by the *Employer*.	As required	Any additional special Tools furnished by the *Contractor,* which cannot be recovered after decontaminated , will be for the *Employer*'s *'s* account.
•	Supply of standard test Equipment as well as all specialised test Equipment (including specialised calibration tools and Equipment).		**X**	• Specialised test Equipment is supplied by the *Contractor*. • In the case where specialised test Equipment has to be manufactured specifically for KOU, the *Employer* will take ownership of the tools after Completion of the *works* on the last unit. • After implementation on the first unit, the *Contractor* makes available the specialised test Equipment for any testing that might be required by the *Employer*.	As required	Any additional special Equipment furnished by the *Contractor,* which cannot be recovered after decontaminated , will be for the *Employer*'s *'s* account. .
•	Conclusion	**X**	**X**	• This activity group is complete upon take over.	In accordance with Accepted Programme	Deliverables: • Tools and test Equipment that may not be recoverable.

11.7.11. Special Equipment for irradiated areas (as applicable)

The *Contractor* has to ensure that all arrangements for decontamination or disposal be taken care of in the event any Equipment cannot be decontaminated, as per regulations.

11.7.12. Control of radioactive Equipment, Plant or Material (as applicable)

Prior to Equipment, Plant or Materials that is to be used in the *Employer's* Site radiological control zones, being brought onto the *Employer's* Site, the *Contractor*.

- obtains the *Project Manager's* acceptance of a Radiological Surveillance Report, provided by the *Contractor*, which details the radiological conditions/cleanliness of the Equipment, Plant or Materials in terms of dose rate and contamination level (fixed/loose); and
- makes available such Equipment, Plant or Materials for scrutiny by the *Employer's* RP Group, when first unpacked/unfolded/uncontained from its original shipment packing.

12. *Contractor*'s Equipment

All Equipment and tools must be listed and specified before they are brought on Site. This list serves as evidence for removal permits upon Completion of the *works*.

12.1. Equipment provided by the *Employer*.

The *Employer* may provide contaminated scaffolding Equipment for the *works* inside the Controlled Zone.

12.2. Site services and facilities

12.2.1. Electric power supplies

Electric power for construction is supplied free of charge, but connection fees are for the *Contractor's* account. All installations comply with the details set out under Construction Power Supplies, OH&SA (Act 85 of 1993).

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Electrical supply point	X		• Power supply points will be made available to which the *Contractor* interfaces for his power requirements. Three levels of power supplies are available: • 220V AC rated at 15 A at various positions on Site, • 380V AC three phase rated at 32 A without neutral at various positions on the Site,	As required	The *Employer* does not guarantee continuity of supply and no compensation events for standing time as a result of power failures will be considered.
•	Electrical leads and adapters / connectors and (where required) distribution system.		X	• All leads, plugs, connections and adapters shall be in good working order and comply with the requirements of the OH&S Act. • All portable electrical Equipment used by the *Contractor* is clearly marked; regularly inspected for safety and a register kept of these inspections as required by the OH&S Act. Defective Equipment is removed from Site until restored to a good working order by the *Contractor*. • The *Contractor* provides and maintains an electrical distribution system (including temporary wiring, cabling, distribution boards, protection, metering etc.) to lead power from the *Employer's* supply point, to where it is required. On Completion the *Contractor* removes all such temporary distribution systems (included as part of the Work Plan).	As required	The *Project Manager* reserves the right to stop the *Contractor's* use of any electrical Equipment or appliance that in the *Project Manager's* opinion does not conform to the foregoing.

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•				•		

12.2.2. Lighting

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Temporary local lighting		**X**	• Where applicable, the *Contractor* provides temporary local lighting in accordance with the safety requirements of the Occupational Health and Safety Act.	As required	The *Employer* provides no additional lighting other than the local lighting installed and does not guarantee the serviceability or the availability of these installations.

12.2.3. Water

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Water supply point	**X**		• Potable water is supplied at standard tapping points.	As required	The *Employer* takes no responsibility for disruptions in the supply of water.
•	Water supply hoses, connectors, piping and temporary plumbing ad pumps.		**X**	• All devices shall be in good working order and comply with the requirements of the OH&S Act. • The *Contractor* provides and maintains all pipework and temporary plumbing and pumps necessary to lead the water from the *Employer's* points of supply to the various points where it is required. On Completion the *Contractor* removes such pipework, temporary plumbing and pumps (included in the Work Plan).	As required	

12.2.4. Sanitary facilities

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Sanitary facilities	**X**		• The *Contractor* is allowed access to and use of the *Employer's* existing sanitary facilities. • The *Contractor's* personnel maintain a clean condition of these facilities. • Should temporary sanitary facilities be required, the *Contractor* provides these.	Not applicable	

12.2.5. Office accommodation and/or yard

The *Contractor* is held liable for any damage to the *Contractor*'s facility during the period of occupation. It is imperative that the *Contractor*'s facilities checklist be verified prior to occupation and upon departure, as this remains proof of any damage to the facility, which needs to be repaired by the *Contractor*. All expenses incurred by the *Employer* in the event of having to perform repairs are at a fee that is in line with the current building tariffs and be charged for the *Contractor*'s account.

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Indication of site office requirements for various stages of the project including the office services required.		**X**	• Request to be for services in accordance with the requirements of this contract.	12 weeks' notice	
•	Review of request and indication of offices available and container lay-down areas available.	**X**			2 week duration	The *Contractor* will be allocated an area on a concrete slab within the security area for establishment of his site office facility.
•	Supply of connection points for phone, fax, network and electrical supply.	**X**		• Co-ordination and scheduling by *Contractor*.	As required	
•	Supply of containers / Office space		**X**	• *Contractor* to co-ordinate.	2 months' notice	This is for temporary container laydown area, which the *Project Manager* will designate. The *Contractor* to furnish his specifications.

12.2.6. Garbage collection

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Garbage collection	**X**		• A central garbage collection point is provided on the Site and is pointed out by the *Project Manager* on request from the *Contractor*. • No facilities are provided for the removal of construction debris. • The *Contractor* is responsible for the removal of all construction debris/scrap from Site to the central garbage collection point.	Not applicable	

12.2.7. Compressed air supply

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Compressed air supply point	**X**		• Compressed air is supplied at 6 to 8 bar (g) at standard air supply points on the plant. • All air points at the Site are equipped with staubli quick connecting valves. • The *Contractor* provides and maintains all connections and fittings (male staubli connector to be fitted to *Contractor's* Equipment by the *Contractor*).	N/A	The *Employer* takes no responsibility for disruptions in the supply of compressed air.
•	Air supply hoses and connectors		**X**	• All air hoses and connections shall be in good working order and comply with the requirements of the OH&S Act.	As required	

12.2.8. House keeping

The *Contractor* is responsible for any damage to buildings, floors and plant incurred during the Provision of the Works. The work-sites are to be kept clean, neat and free of waste at all times. The *working areas* and material storage areas are barricaded off and sign-posted to prevent access to anyone not involved with the job. The plant is left in the same or better condition, after Completion, than it was found.

12.2.9. Personal computers

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Supply of phones, deck phones, faxes and computers including the microwave or radio link for connection to the external internet networks.		X	N/A	In accordance with Accepted Programme	No cellular or mobile phones are allowed on Site.

12.2.10. Canteen and snack bar

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Canteen, snack bar and vending supplies	X		• The *Employer's* canteen and snack bar may only be used on a cash basis. • The *Contractor* supplies vending machines if required.	Not applicable	

12.2.11. Telephones

	Activity description	*Project*	*Contractor*	Requirements	Planning	Additional notes
•	Telephone and Fax account payments and LAN account payments		X	• *Contractor* to provide his own communication tools and Equipment	As required	

13. Facilities provided by the *Contractor*.

The *Contractor* provides all remaining facilities to Provide the Works. Facilities provided by the *Contractor* are removed prior to Completion.

13.1. Existing premises, inspection of adjoining properties and checking work of Others.

The *Contractor* is required to take the following special precautions whilst executing the *works*:

- Barricades between the work area and the remainder of the plant (if used) are kept in place and are respected at all times by the *Contractor's* staff.
- All existing services in the area of the *works* will be operational during the period of the contract and at no time will the *Contractor* be permitted to move or disturb these services. It is a requirement of the contract that the *Contractor* perform the *works* within the constraints of these services.
- The *Contractor* ensures that all plant and associated systems are protected from sustaining damage, of any form whatsoever, during the *works*.

- The *Contractor* ensures that all existing services such as cables; instrumentation; cable trays; fire barriers and pipe work that may be damaged during installation have been identified and where possible relocated away from possible harm. However, due to the limited space available such relocation of services may be impractical and could still result in restricted working space available to the *Contractor.*

13.2. Survey control and setting out of the *works*.

The *Contractor* participates in the mandatory Site visit to view the Site and associated constraints. The *Contractor* provides its requirements for any related survey control and setting out of the *works* in the *Contractor's* Works Information – submitted as part of the tender.

Further details are developed, by the *Contractor*, as part of the Work Plan as stated in this Works Information.

13.3. Underground services, other existing services, cable and pipe trenches and covers

After accessing the Site, the *Contractor* conducts verification of services using the appropriate Equipment before any excavation commences.

13.3.1. Sequences of construction or installation.

Sequencing of construction activities are established as part of the Work Plan development and submitted with the Work Plan for approval.

13.3.2. Giving notice of work to be covered up.

The *Contractor* gives 24-hour notice, prior to work being covered up, of any inspections the *Supervisor* needs to perform on Site. Should the *Contractor* require inspections off Site, the *Contractor* allows for enough time to enable the *Supervisor* to make travel arrangements, following the *Contractor's* notification.

13.3.3. Hook ups to existing works

Where hook-ups to existing *works* are required, the impact and effect of such hook-ups are detailed in the Installation Design and specific requirements identified in the Work Plan.

13.4. Change Management during Implementation

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Compilation of Discrepancy Report.	X	X	• Any deviation from any of the accepted designs, changes to Work Plans and/or test procedure(s) identified during implementation and /or testing are documented, analysed and approved and the impact on configuration updated. • As per 331-86, a Discrepancy Report (DR) may be used by the *Contractor* to notify the changes. • All changes related to design deficiencies are completed and processed by the *Employer*.	As required	The DR is a notification, tracking and control tool for discrepancies encountered during the installation and testing and commissioning stages of the project, however, the design (as-built) change must be formalised by means of a design revision update at completion of the *works*. The following is to be noted regarding the processing of a Design Field Change:

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
						• All DRs to be formalised by means of a DFC or design revision update. • All DFCs to be issued to the NNR for information (new requirement) • Any DR or DFC changing the design intent will require a design revision update and subsequent NNR approval.
•	Notification of the *Project Manager* of any discrepancies to any of the accepted designs, changes to Work Plan and/or Test Procedure(s).		**X**	• The *Project Manager* is notified of the discrepancy prior to any corrective work being performed.	As required	
•	Assessment of *Employer* input required and/or acceptance of the DR.	**X**		• Only an authorised *Employer's* engineering representative (Project Engineer) may accept the DR. • The *Contractor* only proceeds with the change implementation once the *Employer* has accepted the DR.	1 working day.	
•	Review of impact on Design and Implementation Files (Work Plans, Test Procedures etc.) and implement the change (upon *Employer*'s acceptance).	**X**	**X**	• The *Employer*/*Contractor* performs a review of the change impact on Design and Implementation Files • The *Contractor* maintains a log and tracks the status of each DR.	As required	Changes related to design deficiencies is the responsibility of the *Employer*. Changes related to installation errors are the responsibly of the *Contractor*.

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Compilation of Design Field Change(s)	X	X	• Where discrepancies have been found and notified during the installation process, the *Contractor* consolidates all DRs into at least one Design Field Change 331-313 prior to PTW suspension for testing (i.e. at installation completion). The DFC references all the DRs that it addresses as well as all configuration updates processed as part of the DRs. • Where discrepancies have been found and notified during the testing/commissioning process, the *Contractor* consolidates all DRs into a design revision update which incorporates any previously approved DFCs.	As required	Design revision updates issues following the completion of testing on the units will be considered the unit-specific As-Built submission.
• O	Obtaining *Employer* Line Group signatures on Design Field Change	X		• *Supervisors* with support from the *Project Engineer*. • The *Contractor* supports with any queries/clarifications.	As a minimum, the *Contractor* must allow 2 days.	For critical path work, this duration may be reduced.
•	*Employer* acceptance of the Design Revision Change / Design Field Change.	X		• Acceptance is subject to the change being correctly documented. • Where reference to the Discrepancy Report is made, the report is included as part of the change documentation. • Where configuration updates are impacted, the *Contractor* submits the new update change requests, with associated tracking (DDR) numbers with the change proposal.	Submission to *Project Manager* at modification final commissionin g test + 1 week	
•	Identification, mark-up and processing of configuration control changes due to DDR	X	X	• The *Contractor/Employer* provides all “mark ups” drawings as part of the applicable discrepancy report / design field change.	As required	For critical reviews, a shorter period can be negotiated with the *Employer*.
•	Revision of Safety Evaluations (if required).	X		• In accordance with KAA-709.	As required	For critical reviews, a shorter period can be negotiated with the *Employer*.
•	Engineering support during installation and testing.	X	X	• The *Contractor* ensures that adequate technical and administrative support is available on Site to support the construction team during installation and testing stages with the change management process.	As required	

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Engineering support for problem resolution.	X	X	• The *Employer/Contractor* ensures that adequate technical support is available to support the construction team with problem resolutions during installation and testing stages.	As required	
•	Conclusion			• This activity group is complete at *Employer* acceptance of the design change and/or design field change.	In accordance with Accepted Programme	Deliverables: • Discrepancy Reports (as required) • Design Change Revision (as required) • Design Field Change (as required)

13.5. General

	Activity description	*Project Manager*	*Contractor*	Requirements	Planning	Additional notes
•	Control Room Package make-up and submittal to Control Room.		X	• Refer to *Employer's* Administrative Instruction AI-025	As required	In liaison with the *Project Manager*
•	Plant status for *works* - verification.		X	• According to Work Plan	As required	
•	Co-ordination for project Safety Risk Management authorisations.		X	• Ensured by Responsible Person - provided by *Contractor*.	As required	Safe Entry, Heat Stress Zones etc.
•	Safety Risk Management authorisation	X			As required	
•	Plant Isolation (Pipes draining, Locking of valves etc.)	X			As required	
•	Issue PTW	X			As required	Boundaries specified by *Contractor* in Isolation Plan
•	Verification of plant isolations		X	• Performed by Responsible Person - provided by *Contractor* - in accordance with the *Employer's* Plant Safety Regulations.	As required	
•	Take out PTW		X	• By *Contractor's* Responsible Person.	As required	

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Issue Hot Work Permit	**X**			As required	
•	Take out Hot Work Permit		**X**	• By *Contractor's* Responsible Person.	As required	
• 4	Conduct daily pre-job briefings		**X**	• By *Contractor's* supervisor. *Employer's Supervisor* to observe.	As required	
•	Perform pre-job surveys	**X**			As required	
•	Wall / floor opening (cables)		**X**	• For walls acting as fire barriers: Holes through walls need to be filled with fireproof bags during periods when no personnel is in the area. Alternatively a fire watch will be required which is supplied by the *Contractor*.	As required	Authorisation by the *Employer*.
•	Fire detection / Fire Watch		**X**	• A fire watch will be required for when a fire barrier is temporarily removed during the installation of a modification – the Fire Watch is provided by the *Contractor*. • *Contractor's* Responsible Person to ensure that all aspects of the Hot Work Permit are respected.	As required	
•	Core drilling in walls.		**X**	• Requirements and civil structure verifications to be included in the design document. • Core drilling to be performed in accordance with the approved Work Plan.	As required	The *Employer* may advise in terms of location of re-enforcement, number and location of holes.
•	Floor grating removal, barricading and replacement.		**X**	• Scaffolding barrier to be installed around the hole because "tape barrier" is not acceptable.	As required	
•	Supply of Scaffolding Material		**X**	• *Contractor* to supply	In accordance with Accepted Programme	
•	Scaffold transport to site, erection, certifications and inspection, maintenance, modifications, dismantling and transport to work shop.		**X**	• *Contractor* may sub-contract to approved *Employer* scaffolding *Contractor* – note requirements stated in KSM-031 (.	As required	Approved *Employer* scaffolding *Contractor*.

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Rigging Material		**X**	• *Contractor* to supply (as work is not performed in controlled zone.).	In accordance with Accepted Programme	
•	Rigging material transport to site, verification, rigging labour and transport of material back to work shop.		**X**	• *Contractor* may sub-contract to approved *Employer* rigging *Contractor* – note requirements stated for rigging KSA-132.	As required	
•	Operation of plant cranes		**X**	• The *Contractor* provides personnel for the operation of plant cranes. Plant cranes are those considered to be part of the existing Plant.	In accordance with Accepted Programme	
•	Installation in accordance with Work Plan		**X**	• During installation, it is the responsibility of the *Contractor* to: • Comply with the requirements as stated in the Work Plan and associated referenced documentation. • Comply with the requirements prescribed in the "Permit to Work" issued in accordance with the Plant Safety Regulations; • (Where applicable) Comply with the requirements prescribed in the Radiation Protection Certificate (RPC). • Ensure that all hold and/or witness points are respected; • Adhere to the OH&S Act, the Safety Guidelines for *Contractor*s and *Employer*; and • Continuously assess the working area and conditions in conjunction with the scope of the risk assessments performed. Where any changes occur, the risk assessment and associated sign posting is updated and required actions taken.	As required	
•	Labelling of plant items		**X**	• Requirements in accordance with TRS.	As required	
•	Welding		**X**	• The *Contractor* ensures compliance to KNM-001.	As required	

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Radiographic Testing		**X**	• All radiography performed on-site shall be performed in accordance with 238-40: Radiation Protection and Safety Requirements for Industrial Radiography • Radioactive sources are controlled in accordance with KAA-633. • The *Employer*'s Radiation Protection Manager will supply, on request, all various procedures and guides applicable to radiography to the *Contractor*.	As required	
•	Notification of *Supervisor* for a required Design Field Changes.		**X**	• As stated in 331-86, a Discrepancy Report may be used to notify the required change by the *Contractor*. However, the change is documented, reviewed and approved in accordance with the *Employer*'s Design Field Change 331-313.	As required	*Contractor* Discrepancy Report Process may be followed for changes during implementation.
•	Touch-up paintwork.		**X**	• In compliance with KSA-106.	As required	
•	Certificate of Conformance (COC)		**X**	• In accordance with KAA 501. • *Contractor* arranges, *Supervisor* participate.	As required	This document is issued by an accredited electrical qualified person in accordance with the requirements of the OH&S Act and is applicable to all electrical installations of 50V and higher.

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**

•	Construction Status Certificate (CSC)		**X**	• The *Employer's* requirements for performing CSCs are in accordance with KAA 664.
				• Prior to notifying the *Employer* of the CSC, the *Contractor* performs an internal CSC inspection with the applicable Sub*contractor*(s) and *Contractor*'s quality assurance and control staff. This is to ensure that:
				  • the *works* are to the *Contractor*'s satisfaction when notifying the CSC to the *Employer*; and
				  • limit the number of people at the time of the CSC with the *Employer*.
				• At notification to the *Employer*, the *Contractor* submits proof of his internal CSC. and ensures that a person with sufficient knowledge of the modification attends the CSC with the *Employer*.
				• The *Supervisor* arranges the *Employer* CSC, in liaison with the *Contractor* who participates.
				• The *Contractor*'s project manager and lead design staff are present at the CSC with the *Employer*.
					In accordance with Accepted Programme	This document certifies that the installation meets the requirements of the accepted design and that all mandatory static testing has successfully been completed.
						"Installation work" will be considered complete once all newly installed / modified Plant and Materials have been safety cleared (where applicable) and CSCs signed with all safety reservations cleared.

•	Safety Clearance Certificate (SCC)		**X**	• In accordance with KAA 501 (where required). • *Contractor* arrange, *Supervisor* participate.	In accordance with Accepted Programme	This certification is required by the operations personnel in order to extend the boundaries of the system from the original (unmodified) system to the newly modified system.
•	Issue Sanction For Test (SFT)	**X**		• The *Employer* will issue the Sanction for Test / TA upon completion of the installation *works*.	In accordance with Accepted Programme	
•	Take out SFT and suspension of PTW		**X**	• By *Contractor*'s Responsible Person.	As required	

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**

•	Testing in accordance with test procedure(s).		**X**	• During Testing and Commissioning it is the responsibility of the *Contractor* to:
				  • Comply with the approved test procedure(s) and the requirements on the "Sanction for Test" issued in accordance with the requirements of the Plant Safety Regulations;
				  • Ensure that all hold and witness points are respected.
					As per Accepted Programme	

•	Control Room operations required during testing.	**X**			As required	*Employer*'s operator's responsibility.
•	End of *works* evaluation		**X**	• The *Contractor* ensures that all work is completed, and tests are acceptable prior to PTW/SFT clearance. • The *Contractor* obtains the required test acceptance signatures as stated in KFA-006 prior to clearance of PTWs and SFTs.	As required	
•	Clearance of PTW's and SFT		**X**		As required	
•	Transfer of waste to scrap yard		**X**	• Waste is transferred to the *Employer*'s designated scrap yard.	As required	
•	Disposal of waste	**X**		• The *Employer* will dispose of waste dropped in its scrap yard.		
•	Writing History to SAP	**X**		• In accordance with KSM-015. • The *Contractor* ensures that the *Employer* has sufficient updated information to write history to its SAP systems.	As required	

	Activity description	***Project Manager***	***Contractor***	**Requirements**	**Planning**	**Additional notes**
•	Conclusion	**X**	**X**	• This activity group is complete upon clearance of PTW / SFT.	In accordance with Accepted Programme	Deliverables: • Control Room Package • Work plan and QCPs – Signed off • Discrepancy Reports – Signed off • Design Field Changes – Signed off • All certification required In accordance with the PSR and in accordance with KAA-501 complete and accepted by the *Employer*. • Non-destructive examination records submitted and accepted by the *Employer*. • Test records submitted and accepted by the *Employer*. • Non-conformances cleared and accepted by the *Employer* (unless otherwise agreed by the *Supervisor*/*Project Manager*). • Return to Service certificates submitted and accepted by the *Employer*.

Completion, testing, commissioning and correction of Defects

On or before the Completion Date the *Contractor* does everything required to Provide the Works. The *Project Manager* cannot certify Completion until all the work has been done and is also free of Defects which would have, in his opinion, prevented the *Employer* from using the *works* and Others from doing their work.

13.6. Verification and Testing

- The *Contractor* shall produce testing and re-qualification procedures to ensure that the modification is comprehensively tested once installation is complete.
- The scope of the testing shall include full inverter system functionality as the proposed modifications affects interfaces to other systems, KSA etc.
- Factory acceptance testing (FAT) shall be performed to demonstrate the performance of the new inverter/UPS units. The tests shall meet the requirements as specified in IEC 62040 parts 1 to 3 and IEEE 944.
- Provision shall be made for the *Employer* personnel to witness the FAT in the factory. The offer shall indicate the number of personnel that can witness the FAT, plus the intended dates.
- Site acceptance testing (SAT) shall be performed to demonstrate the performance of the new inverter/UPS units.

- The site acceptance testing shall include the following tests:
  - Cold commissioning tests (without power)
  - Hot commissioning tests (with power)

13.7. Start-up procedures required to put the *works* into operation.

The *Contractor* shall develop and supply equipment specific operational procedures for use by the *Employer*.

13.8. Take over procedures.

The *Employer* will use the *works* during start-up of each Unit up to and including the point where any related testing and commissioning that requires the plant to be in operation have been successfully completed.

The *Employer* is not willing to take over the *works* until all related testing and commissioning have been completed, all as built documentation updated by the *Contractor*, all implementation records completed by the *Contractor*, accepted by the *Project Manager* and all related configuration updates completed by the *Contractor*.

13.9. Access given by the *Employer* for correction of Defects.

Upon the *Supervisor's* notification of Defect following unit start-up, the *Supervisor* shall identify the period wherein access will be given to the *Contractor* for access to correct Defects. Ordinarily, access will only be given during a planned shutdown of the applicable Koeberg Operating Unit.

13.10. Operational maintenance after Completion.

Operational maintenance will be performed by the *Employer* in accordance with the maintenance requirements specified by the *Contractor*.

13.11. Shipment requirements

Specific technical requirement relating to shipping will be developed and specified in the *Contractor's* design.

Refer to "*Contractor's* procurement of Plant and Materials" in this Works Information.

The *Contractor* arranges all shipments of Plant and Materials and Equipment to the Site and consigns all such shipments to himself as consignee at the project shipping address, freight fully prepaid. The *Contractor* makes demurrage agreements and settlements with carriers for his shipments. The incoterm for the *works* is Delivery Duty Paid (DDP) with delivery to the Site.

13.11.1. Packaging and Shipping

- The *Contractor* shall ensure that the supplier packages the new inverter systems, ready for shipment, in accordance with the requirements of ASME NQA-1 subpart 2.2.
- The Eskom requirements, as detailed in KBA 1215 G03 161, 'Special instructions for packing, transportation, storage and assembling of electronic equipment', shall be complied with.

13.12. Plant and Materials standards and workmanship.

Poor quality of workmanship will not be tolerated by the *Employer*. *Contractor* staff, including sub*contractor* staff performing construction work on Site will be subject to skills assessment tests in accordance with the requirements stated in KSA-119.

13.13. Investigation, survey, and Site clearance.

The *Contractor* is allowed access, by the *Employer*, to the Site to further inspect the Working Area on Site. Any *works* that may be required to survey the plant area will be subjected to standard planning and scheduling requirements of plant work i.e., work plan with associated risk assessment and planning and scheduling in accordance with KAA-721 Rev 6.

13.14. Building *works*.

Not applicable

13.15. Civil engineering and structural *works*.

Not applicable

13.16. Electrical & mechanical engineering *works*.

The *Contractor* will install the new inverter systems in accordance with the respective design.

13.16.1. Proof Loading of Hooks.

- Lifting hooks shall be proof loaded in accordance with the approved design standard of the crane prior to installation.
- The hook tested shall have its SWL stamped thereon for identification purposes.
- All steel wire ropes supplied shall have a test certificate showing the ultimate breaking strength of the rope.

13.17. Process control and IT *works*.

All existing and new interfaces to the plant shall be retained and added as per section 5.2 and 5.3 of the TRS.

13.18. Other

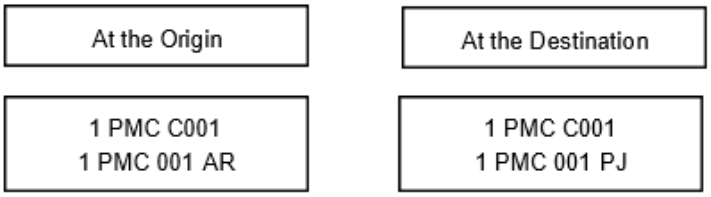
13.18.1. Safety and Emergency Devices.

- All safety and emergency devices shall be fit in accordance with the requirements of the Eskom approved design standard listed in Section 3.7.1(b).
- The following safety and emergency systems and devices must also be considered by the *Contractor*:
  - Gross overload protection
  - Overload alarms
  - Anti-two-block device(s)
  - Over-hoist protection
  - Over-lower protection

13.18.2. Marking and Identification

- All new components (relays, terminal blocks, SCU. etc.) shall be given a unique trigramme number. The format shall be: - DM* where the first character indicates the unit number (1/2), the three characters a sequence number (001 - 999) and the last two characters a component abbreviation. The newly allocated trigrammes shall be approved by Eskom to confirm no duplication.

- Equipment identification marking shall comply with the requirements of Reference 2.3 and marked as indicated in the drawings. The labels shall be at least 1.5 mm thick, white traffolyte with black lettering. The labels shall have chamfered edges and shall be in suitable holders or attached to the cabinets and Equipment. Adhesive heat & moisture resistant marking may be used inside the cabinets for component markings.
- All Equipment shall be permanently labelled prior to testing.
- All cranes shall bear the manufacturer's name, serial number, and year of manufacturer. Also clearly marked on a black background (painted) with white lettering that can be read from the floor level, the crane number and safe working load shall be indicated. All moving Equipment shall be painted yellow.
- Cables must be marked at both ends of the cable with a tag indicating the cable number and its destination. As an example:



- Cable numbering shall be approved by Eskom to ensure no duplication of numbering.

14. List of drawings

14.1. Drawings issued by the *Employer* (Authorised designs)

Documentation office is available on request for drawings to assess this tender.

Drawing number	Revision	Title
Not Applicable (N/A)		

15. References

• KAA-501 Rev 12 – Project Management Process for Koeberg Nuclear Power Station Modifications
• GGG-1299 Rev 0 – Guide for Technical Writing
• ISO-8601 – Data elements and interchange formats — Information interchange — Representation of dates [Commercial Document – not supplied]
• KBA 0000G001000 Rev Z2 – KNPS Standard Graphic Symbols
• 32-136 Rev 4 – Construction Safety, Health and Environment Procedure
• 32-95 Rev 8 – Environmental, Occupational Health and Safety Incident Management Procedure
• 32-421 Rev 0 – Eskom cardinal rules
• Nuclear Energy Act 92 of 1982 [Public Document – not supplied]
• National Key Points Act 102 of 1980 [Public Document – not supplied]
• Protection of Information Act 84 of 1982 [Public Document – not supplied]
• Basic Conditions of Employment Act No. 75 of 1997 [Public Document – not supplied]
• KSA-109 Rev 4 – Requirements for Access Authorisation at KOU
• KAA-777 Rev 4 – Process for Access to Koeberg Nuclear Station
• Immigration Act, Act 13 of 2002 [Public Document – not supplied]
• KSA-062 Rev 3 – Reactor Building Access Requirements
• KSA-119 Rev 3 – Management and Control of Supplemental Workers Koeberg Nuclear Power Station
• KAA-611 Rev 5 – Emergency Mustering, Accountability and Evacuation
• Value Added Tax Act, no 89 of 1991 [Public Document – not supplied]
• Revenue Laws Amendment Act 45 of 2003 [Public Document – not supplied]
• Project and Construction Management Act, 48 of 2000 [Public Document – not supplied]
• OHSA No 85/93 - Occupational Health and Safety Act No. 85 of 1993
• OHSAS 18001:2007 - Occupational health and safety management standard
• 331-86 Rev 3 – Design to Plant, Plant Structures or Operating Parameters
• 240-143890978 Rev. 1 *Employer*'s internal Design Template
• KFU-026 Rev 6 – Detailed Design Review Report

• KAA-614 Rev 7 – Control of Spares Assessments and New Stock Applications
• KGA-067 - Safety, Health and Environmental Risk Assessment Guide
• KSA-132 Rev 0 – Lifting and Rigging Requirements
• KNM-001 Rev 4 – KNPS Welding Programme
• KAA-838 Rev 0 – Approving NDT Activities within KOU
• KSA-037 Rev 2 – Qualification and Certification Requirements for NDT
• 32-631 Rev 1 – Eskom approval of personnel performing quality related special processes on Eskom plant.
• 32-632 Rev 0 – Requirements for NDT on Eskom plant
• National Environmental Management Act 107 of 1998 [Public Document - not supplied]
• KAA-709 Rev 6 – Process for Performing Safety Screenings, Safety Evaluations, Safety Justifications and Safety Cases
• KGA-020 Rev 9 – Initiating a Maintenance Work Request
• KFA-002 Rev 12 – Work Plan Template
• KSA-069 Rev 4 – Foreign Material Exclusion
• KFA-006 Rev 5 – Testing Procedure Template
• KFA-035 Rev 11 – Design Change Package Implementation Approval
• KAA-667 Rev 7c – Processing a Permit to Work
• AI-025 Rev 1 – Control Room Packages
• 331-313 Rev 0 – Design Field Change Form
• KSM-015 Rev 6 – Maintenance History Records
• KSU-006 Rev 0 – Maintenance Basis Determination, Documentation and Change Control
• KFU-PE-008 Rev 2 – Plant Hand-over Certificate
• RD-0034 - Quality and Safety Management Requirements for Nuclear Installations
• KAA-721 Rev 11 – Online work Management Process
• KSM-031 Rev 4 – Scaffolding Program
• KTA-001 Rev 8 – Training and Qualification requirements for Nuclear Safety Review Committees
• KAA-633 Rev 10 – Control of Radioactive Sources and **X**-Ray Equipment
• KAA-664 Rev 5 – Issuing a Construction Status Certificate / Safety Clearance Certificate

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• ESKASAAU7 - Quality Requirements for the Procurement of Assets, Goods and Services
• GGS-1168 - Standard for Grammar, Spelling and Notation.
• IAEA GS-R-3 - The Management System for Facilities and Activities
• IEEE 323-2003 - Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations
• IEEE 344-2004 - Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Generating Stations
• KAA-560 Rev 6a - The Control of Plant Documents as a Result of a Plant Design Change, Plant Anomaly, or Document Anomaly
• KAA-664 - Issuing a Construction Status Certificate/Safety Clearance Certificate
• KAA-709 - Process for Performing Safety Evaluations, Screenings and Justifications
• KAA-733 Rev 6a - Monitoring of the Receipt Inspection Process
• KBA 0015 M00 007 - Earthing Circuits
• KBA 1215 G03 512 - 1/2 KRT 001 DL Gutor Inverter Technical Specification
• KBA1217 LMK 1003 - 1/2 LMK 001 TB Gutor Inverter Technical Specification
• KBA 1215 K00 007 - Technical Specification for Cable Installation
• KBA 1215 K00 031 - Cable Way Equipment according to Trains and Colours
• KBA 1215 G03 001 - Technical Specification, 5 kVA and 20 kVA inverters, non class
• KBA 1215 G03 140 - Electrical Characteristics, 5 kVA non class
• KBA 1215 G03 143 - Electrical Characteristics, 20 kVA non class
• KBA 1217 LNI 800 - Equipment Specification, LNI System, Vital Source 220 V AC Production and Distribution boards
• KBA1222F00001 - Equipment Marking
• KBA 1215 G03 161 - Special instructions for packing, transportation, storage and assembling of electronic equipment
• KBA 1216 G01 055 - Engraved Labels and Marker Plates – Lettering and Colouring Specifications
• KBA 1216 J10 317 - Indicating Label Definition
• KBA1216 G01 055 - Engraved Labels and Marker Plates – Lettering and Colouring Specifications
• KBA 0000 G00 1000 - Koeberg Standard Graphic Symbols
• KFA-006 - Testing Procedure for Plant Modifications

• KFA-007 - Design Field Changes
• KGU-007 - Guidelines for the Independent Review of Plant Design Changes
• KGU-017 - Design Engineering Guide
• KLA-001 - Importance Category Classification Listing
• KSA-010 Rev 2- Nuclear Safety, Seismic, Environmental, Quality and Importance Classifications
• KSA-011 Rev 14 - The Requirements for Controlled Documents
• KSA-113 - Standard for Plant Changes Affecting the Design of Koeberg Nuclear Power Station
• MM 316 - Inverter Maintenance Manual
• SAR - Safety Analysis Report
• 36-698 - Quality requirements for Engineering and Construction Works and Generation
• 238-101 Rev 2 - Quality and Safety Management Requirements for Nuclear Suppliers Level 1
• 238-219 Rev 1 - Level-1 Supplier Safety Culture Enhancement Programme (SCEP) Requirements

NOTE: Any changes to the revisions of the above references, since the time of the offer, which introduce requirements beyond what is priced in the *Contractors* offer under C3.2, to be dealt with in terms of the contract.

16. Appendices

• TRS 09082A Rev 1. Technical Specification for Replacement of inverters installed at Nuclear Power Station • 1/2 KRT 001 DL Gutor Inverter Technical Specification Extract from KBA 1215 G03 512 • 1/2 LMK 001 TB Gutor Inverter Technical Specification Extract from KBA 1217 LMK 1003 • KOU 10-year Production Plan (latest revision)

C3.2 *CONTRACTOR*'S WORKS INFORMATION

This section of the Works Information will always be contract specific depending on the nature of the *works*.
It is most likely to be required for design and construct contracts where the tendering contractor will have proposed specifications and schedules for items of Plant and Materials and workmanship, which once accepted by the *Employer* prior to award of contract now become obligations of the *Contractor* per core clause 20.1.

Typical subheadings could be

a) *Contractor*'s design
b) Plant and Materials specifications and schedules
c) Other

This section could also be compiled as a separate file.

PART 4: SITE INFORMATION

Document reference	Title	No of pages
	This cover page	1
C4	Site Information	
	Total number of pages	

PART 4: SITE INFORMATION

1. Topographical

The site is located within Koeberg Operating Unit (KOEBERG) north of Melkbosstrand in the South Western Cape and is reached via the main road from Cape Town to Saldanha (R27). The turn off to KOEBERG is indicated on the R27. KOEBERG is approximately 30 km north of Cape Town and the approximate co- ordinates are 33°40. 7'S and 18° 26.1'E.

2. Site Security check points

- Prior to access to Site, there are two PEB security check points, viz, at the entrance from the R27 and at the entrance from Duynefontein. Security access is through Access Control Points (ACP) 1 and 2.
- Personnel entering the site are to be in possession of their Identity Document (ID) for verification. New personnel are to report to the ACP1 Office for administration and record update.
- No cameras, firearm, cell phone and sharp objects shall be allowed to enter site.